Tampa Hillsborough County Expressway Authority

REQUEST FOR PROPOSAL

For

Roadside Toll Collection System

THEA Project Number: T-5525

Issued: October 13, 2025

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Administrative

1 ADMINISTRATIVE

1.1 INTRODUCTION

The Tampa Hillsborough County Expressway Authority ("THEA" or the "Authority") has issued this Request for Proposal (RFP) to solicit competitive Proposals from qualified Contractors (the "Proposers") for a Roadside Toll Collection System (RTCS) Project (the "Project"). The Authority is using a two-phase procurement process commencing with an Expanded Letter of Response (ELOR), followed by submission of Technical and Price Proposals from Proposers who have been shortlisted for further consideration. This process is outlined below in **Section 1.18, Phase 1 – Procurement Process**, **Section 1.20, Phase 2 – Technical Proposal Contents and Submission** and **Section 1.21, Phase 2 – Price Proposals**.

It is the Authority's intent to promote the use of innovative system design concepts, technical details, and state-of-the-art technologies for the new RTCS.

The Authority intends, but is not obligated, to enter into an agreement with the selected Proposer to perform the services for the Project as stated in the Contract Documents.

The Authority reserves the right to waive any informality in any submission, to reject any and all submissions or Proposals, to re-advertise or to elect not to proceed with the Project for any reason. All recommendations and decisions regarding the award of the Project shall be made at open public meetings in accordance with the requirements of Florida Statute 286.011, and all interested parties are invited to attend such meetings.

The term "Procurement Documents" includes all documents that are included or referenced in this RFP or provided to Proposers, including without limitation as made applicable to this Solicitation through the RFP (including, but not limited to, the advertisement, the attachments, the exhibits, the Scope of Work and Requirements (Section 4), the draft Contract, certifications, Addenda, and the documents, reports, and information referenced in such RFP unless otherwise explicitly stated.

The term "Work" means the services required: by the Procurement Documents, by the executed Contract between the Contractor and the Authority, by the Contractor's Proposal, and by any Contract Amendments issued after the execution of the Contract, whether completed or partially completed. The "Work" also includes all other labor, materials, Equipment, and Services provided or to be provided by the Contractor for the proper execution and completion of the Contractor's obligations.

The term "Contract Documents" includes the executed Contract between the Authority and the Contractor including all Addenda, attachments, exhibits and appendices thereto, any supplemental agreements, Contract Amendments, Deliverables, and all provisions required by law to be inserted in the Contract, whether actually inserted or not.

The Proposer must inform itself fully of the requirements under which the Work is to be performed. Proposers shall examine the Procurement Documents carefully before submitting an ELOR package and Proposal. Proposers must adhere to the requirements of all Contract Documents and Procurement Documents, and the Proposer's Proposals.

Proposers understand that any information that has been provided by the Authority is to assist the Proposer in evaluating the Requirements for the Project and informing itself of the Work required of the Project. Drawings, schematics, reports and/or any other documents provided by the Authority are provided for information only to the Proposer, and the Authority makes no guarantee of the accuracy or completeness of such information.

In addition, by submitting an ELOR package and Proposal, the Proposer certifies that it has investigated and is fully informed of the Scope of Work and Requirements, of the character, quality, and quantities of work to be performed and materials to be furnished and has included in its Submittals all items necessary for the proper execution and completion of the Work. The Proposer shall be responsible for obtaining all information that it considers necessary for the purpose of preparing and submitting its ELOR package and Proposal. The successful

Proposer shall not be relieved of its obligation to furnish all material, equipment, labor, and services necessary to carry out the provisions of the Contract Documents and to complete the Work for the consideration set forth in its ELOR package and Proposals by reason of having failed to inform itself with respect to those matters. By responding to this Solicitation, the Proposer represents to the Authority that if its ELOR package and Proposal is accepted, it will execute a Contract that is inclusive of compensation for performing the Work in accordance with the Procurement Documents, including but not limited to this RFP, and the existing Authority records and Reference Documents to sufficiently support the Design developed by the Proposer.

A **mandatory** site visit will be hosted by the Authority during the procurement process as described in **Section 1.3.1.1 Mandatory Site Visit Table 1-1: Schedule of Events**.

1.1.1 Background and Purpose

As an independent agency of the state, the Authority owns, maintains, and operates four facilities within Hillsborough County: the Selmon Expressway, the Brandon Parkway, Meridian Avenue, and the Selmon Greenway. The Selmon Expressway is a seventeen (17)-mile All-Electronic Tolling (AET) roadway that links west Hillsborough County through downtown Tampa to Brandon. It connects Gandy Boulevard in southwest Tampa to Interstate 75 and the community of Brandon to the east. The facility is a limited access toll road with two lanes in each direction, including fifteen (15) toll plazas (both mainline and ramp) and one Reversible Express Lanes (REL) toll plaza (the REL has 2 distinct plaza codes each active depending on the direction of travel). The REL provides an additional three lanes for nine (9) of the seventeen (17) miles, westbound during the morning commute from Brandon to Tampa and eastbound during the evening commute and on weekends. The revenues collected are used to improve, maintain, and expand the Authority's assets. A map of the Selmon Expressway facility is shown in **Figure 1-1: Selmon Expressway** below.

Although there are no current plans to expand the Authority's tolling program, the Authority may choose to use the System procured under this RFP as part of any expansion that occurs within Contract Term.

Figure 1-1: Selmon Expressway

1.1.2 Description of Work

The following is a general description of the work to be performed under the Contract.

The initial deployment of the RTCS includes a total of eighteen (18) Toll Zones with varying number of travel

lanes and varying shoulder widths, including two toll zones for the REL and one (1) Test Toll Zone at East Main Plaza EB. Additionally, the Authority may exercise an option to implement another Test Toll Zone at East Main Plaza WB. An existing portion of the facility is expected to be reconstructed via a separate project called the South Selmon Capacity Project (SSCP) prior to the RTCS deployment. The SSCP will widen the Selmon Expressway from west of Himes Avenue to east of Morgan Street, providing an additional travel lane in each direction. Construction of the SSCP will require construction of new mainline and ramp gantries and other tolling civil infrastructure at several locations to facilitate the new tolling equipment to be provided via the Contract. The New Toll Zones to be installed under the SSCP are identified as:

- 20 – West Main Plaza WB
- 25 – West Main Plaza EB
- 30 – Plant Ave WB Off-Ramp

The SSCP Contractor's design-build sequencing is expected to maintain toll operations at all times at the mainline Toll Zones during construction by constructing the new mainline toll infrastructure and coordinating with the RTCS Contractor for the installation, testing and Commissioning of the New Toll Zones before demolition and decommissioning of the current mainline Toll Zones. For the ramp Toll Zones, the sequencing will be determined by the SSCP Contractor.

In addition to the SSCP, the existing East Main Plazas (60 Westbound and 65 Eastbound) will be relocated to a new gantry location adjacent to the existing. This is referred as the East Mainline Relocation (EMR) project. Once the new toll plazas are Commissioned into revenue service, one of the existing gantries (at East Main Plaza EB) will be repurposed into a test gantry while the East Main Plaza WB will be an option for the Authority to repurpose into a test gantry.

- 60 – East Main Plaza WB (at new EMR gantry location)
- 65 – East Main Plaza EB (at new EMR gantry location)

All other Existing Toll Zones will be transitioned on their existing gantries in their current locations; some are within the limits of the SSCP project, these are denoted in the following list by an asterisk. Access to the Exiting Toll Zones within the limits of the SSCP project must first be coordinated with the SSCP Contractor. The RTCS Contractor shall be responsible for timely conducting such coordination. The Exiting Toll Zone sites are:

- 01 – South Extension Main Plaza EB
- 02 – South Extension Main Plaza WB
- 05 – Dale Mabry Off-Ramp EB
- 10 – Willow Ave WB On-Ramp*
- 15 – Willow Ave EB Off-Ramp*
- 35 – Plant Ave EB On-Ramp *
- 40 – 22nd St On-Ramp WB
- 45 – 22nd St Off-Ramp EB
- 50 – 50th St On-Ramp WB
- 55 – 50th St Off-Ramp EB
- 70/75 – Reversible Express Lanes (REL) WB/EB

- TBD – Test Gantry East Main Plaza WB (Option)
- TBD – Test Gantry East Main Plaza EB

The Contractor may close Toll Zones for installation in compliance with the Maintenance of Traffic Requirements and with R09 – Traffic Control Restrictions with prior written Authority Approval. Closures for installation of the RTCS at each of the Toll Zone locations must follow the following guidelines in addition to those documented in R09 - Traffic Control Restrictions:

- Closure of lanes will not be permitted during Holidays and Special Events.
- Closures are allowed from 9:00 pm to 5:00 am.

Scope of Work and Requirements Reference Document R-7 Implementation Responsibility Matrix defines the areas of responsibility for the parties involved in the Project Design and RTCS installation for the Project. **Scope of Work and Requirements Reference Document R-4 ORT Gantry Site Drawings** provides information about the Existing Toll Zones.

Proposers are to provide an efficient and cost-effective RTCS that includes Design, integration, implementation, and Operations and Maintenance. The RTCS shall include Roadside Systems and a Roadway Support System (RSS) to provide complete and properly formed transactions ready for processing by the Authority's new Operational Back Office System (OBOS), which is being procured by the Authority separately. The successful Proposer shall procure, furnish, Design, test, install, and maintain the toll facilities, including all aspects required to create complete Electronic Toll Collection (ETC) Transactions for SunPass and Interoperable Transponders, and Image-based Transactions (IBT) with full license plate data, and transmit the transactions and images to the OBOS. The RTCS shall use the latest proven technology and shall be able to achieve the functional, technical, and Performance Requirements as further set forth in this Solicitation.

The following is a summary of the major elements of the RTCS Scope of Work and Requirements. For more detailed information refer to the Scope of Work and Requirements:

- Provision of all RTCS Hardware and Software including:
  - RSSs;
  - complete Roadside Toll Collection System including zone controllers;
  - local area network (LAN);
  - Automatic Vehicle Detection and Classification (AVDC);
  - integrated Maintenance Online Management System (MOMS);
  - Image Capture and Processing Systems (ICPS) and Automatic Vehicle Identification (AVI) systems to provide complete and properly formed transactions sent for processing to the OBOS; and
  - Manual Image Review functionality.
- RTCS Operations and Maintenance including:
  - all Roadside System Maintenance, including monitoring and System Administration;
  - RSS monitoring, Maintenance and System Administration;
  - ETC Transaction processing;
  - IBT processing, including:

- Automated License Plate Recognition (ALPR); and
- Manual image review Services;

See the Scope of Work and Requirements for more details on the Project and the respective scope and requirements.

1.1.2.1 SUMMARY OF PROJECT PHASES

- Implementation Phase

  This phase of work commences after the Authority has selected and executed the Contract with the Contractor and issued a Notice to Proceed (NTP) and shall be complete upon the Authority granting the Contractor Implementation Phase Acceptance. This phase includes:

  - Project Management Documentation and Schedule development;
  - Progress meetings and workshops;
  - System Design and required Documentation;
  - Testing;
  - Training;
  - Implementation of the Roadside Toll Collection System; and
  - Go-Live.

- Operations and Maintenance Phase

  This phase of work commences upon occurrence of the RSS and first Toll Zone's Go-Live (evidenced by the Authority's issuance of a Notice to Proceed with the Operations and Maintenance Phase ("O&M NTP")) and continues throughout the Contract Term. The Contractor is responsible for the RTCS monitoring, administration, and Maintenance in its entirety in accordance with the Scope of Work and Requirements. Commencement of this Phase shall not relieve the Contractor of any of its responsibilities to complete all Implementation Phase Requirements set forth in the Scope of Work and Requirements.

1.1.3 TIME FOR COMPLETION

If delivered an executed Contract and NTP for the Project, the Contractor shall proceed with the Work in accordance with the Approved Baseline Project Implementation Schedule. In the event of failure to complete the Work within the timeframe specified, the Authority may assess liquidated damages as provided by the Contract unless an extension of time has been approved in a Contract Amendment in accordance with the Contract.

In the event of Contractor's failure to achieve the milestones specified in Section 3.1.3.1 of the Terms and Conditions within the timeframes specified, the Authority may assess liquidated damages as provided by the Contract unless an extension of time has been approved in a Contract Amendment in accordance with the Contract.

1.1.4 RFP INQUIRIES / NOTICES AND CONTACT PERSON

From the date of the Solicitation until a Notice of Decision is posted, all communications (except for communications at the pre-proposal meeting, or as otherwise explicitly stated in the Procurement Documents) relating to this procurement regarding requests for interpretation, clarification or questions about the procurement process or the Project **must be in writing** addressed to the Authority's Procurement Manager at the following email address: **Procurement@tampa-xway.com**.

Proposers shall contact the Authority via email to **Procurement@tampa-xway.com** to obtain access to an Authority-designated SharePoint folder. The Authority shall share these folders only by inviting one point of contact and email address. as designated by the responding firm, to access our file or folder. This will ensure restricting access to the email recipient designated by the interested firm and no one else.

The email recipient at the address provided by the interested firm will receive an email invite for file/folder access. Depending on their account, they will be prompted to identify their identity by one of the following:

- Recipient has a Microsoft account: They will be asked to sign in with their Microsoft account along with a permission request to view their name, email address, and photo.
- Recipient does not have a Microsoft account: A one-time passcode will be sent to their email address, which they will then enter into the verification screen to open the file.

Proposers shall use the form provided in **Exhibit C, C-8 Proposer Questions Form** to submit all questions to be addressed by the Authority. Questions shall be submitted by posting to the Authority-designated SharePoint folder designated for the responding firm.

The Authority will provide two (2) separate question and answer periods related to this procurement, as such: the first will be available to all potential Proposers that opens upon release of the RFP and concludes prior to submission of ELOR packages, and the second opens after Proposer shortlisting and concludes prior to submission of Technical Proposals. The second round of questions will only be open to those Proposers that are shortlisted by the Authority.

To be considered, such requests must be received no later than the date and time stated for the **Deadline for all Proposers to Submit Questions to the Authority** referenced in **Table 1-1: Schedule of Events**. The Authority shall not respond to any Proposer questions after the deadline has passed.

Any interpretations, clarifications or changes to the Procurement Documents considered necessary by the Authority will only be made in writing by Addenda posted in accordance with **Section 1.3.7, Right to Amend and Addenda**.

1.1.5 Cost Incurred Responsibility

All costs incurred by any interested party in responding to this RFP and participating in this solicitation shall be borne by such interested party. The Authority shall have no responsibility whatsoever for any associated direct or indirect costs, damages, or liabilities.

The Authority will not have stipend awards for this procurement.

1.2 OBTAINING THE PROCUREMENT DOCUMENTS AND SCHEDULE OF EVENTS

1.2.1 Obtaining the Procurement Documents

The complete RFP (including attachments, appendices, exhibits and forms) for this Project is available on the Authority's website at **https://www.tampa-xway.com/doing-business/procurement/** and on DemandStar at **https://network.demandstar.com/** at no cost to the Proposer.
Attachments and/or reference documents not attached hereto will be supplied upon request and shared via a

SharePoint File Share. Please contact the Procurement Office at **Procurement@tampa-xway.com** to request your link.

1.2.2 INFORMATION POSTING

It is the responsibility of all prospective Proposers interested in responding to this RFP to monitor the Authority's website at **https://www.tampa-xway.com/doing-business/procurement/** and on DemandStar at **https://network.demandstar.com/**, throughout the entire procurement process, for any revisions, question responses, Addenda, and changes to schedule and announcements related to this RFP.

1.2.3 CURRENT SCHEDULE OF EVENTS

The selection process will adhere to the following schedule. All times given are Eastern Time or Eastern Daylight Savings Time.

The Authority reserves the right to make changes or alterations to the schedule as the Authority determines is in its best interests.

Unless otherwise notified in writing by the Authority, the dates, times, and locations indicated below for submission of items or for other actions on the part of a Proposer shall constitute absolute deadlines for those activities, and failure to fully comply by the dates and times stated shall cause a Proposer's submittals to be rejected and disqualified from further consideration.

Table 1-1: Schedule of Events

Date and Time (all times Eastern)	Description	Location
10/13/2025 by 5:00 PM	Advertisement Published	Authority Website and DemandStar
10/24/2025 @ 10:00 am	Mandatory Pre-Proposal Meeting	In-person attendance: Authority's Office: 1104 East Twiggs Street Tampa, Florida 33602.
11/07/2025 by 5PM	Deadline for Proposers to Submit Round 1 Questions to the Authority	Email to **Procurement@tampa-xway.com**
11/21/2025 by 5:00 PM	Deadline for the Authority to Respond to Proposer Round 1 Questions	Authority Website and DemandStar
12/12/2025 by 5:00 PM	Deadline for Submitting Expanded Letters of Response (ELOR) Packages	Uploaded to Proposer's assigned SharePoint folder to be provided by the Authority.
01/08/2026 by 5:00 PM	Deadline for Evaluation Committee to Submit Scoring to Procurement Office	Email to **Procurement@tampa-xway.com**
01/09/2026 at 10:00 AM	Evaluation Committee Meets to Confirm Scoring and Recommend Proposers for Shortlisting	In-person Meeting Authority's Office: 1104 East Twiggs Street, Suite 300 Tampa, Florida 33602.

Date and Time (all times Eastern)	Description	Location
01/09/2026 by 5:00 PM	Posting of Notice of Intended Shortlist	Authority Website and DemandStar
01/12/2026 at 1:30 PM	Board Approval of Shortlist	Authority's Office: Authority Board Room 1101 E. Twiggs Street Tampa, FL 33602
01/14/2026 by 5:00 PM	Authority Procurement Office Contacts Shortlisted Proposers	Notification Sent to Proposer's Email Address
01/26/26 and 1/27/26	Mandatory Site Visit	In-person attendance. Location will be provided for shortlisted proposers.
02/02/2026 by 5:00 PM	Deadline for the Authority to Respond to Proposer Round 2 Questions	Authority Website and DemandStar
02/23/2026 by 5:00 PM	Deadline for Technical and Price Proposals	Upload to Authority-designated SharePoint folder
02/25/2026 by 5:00 PM	Notice of Invitation to Demonstration and Interview	Notification Sent to Proposer's Email Address
03/11/2026 at 10:00 AM	Demonstration and Interview	In-person Meeting Authority's Office: 1104 East Twiggs Street Tampa, Florida 33602.
03/25/2026 by 5:00 PM	Deadline for Evaluation Committee to Submit Scoring to Procurement Office	Email to **Procurement@tampa-xway.com**
03/30/2026 at 10:00 AM	Evaluation Committee Meets to Confirm Scoring, Open Price Proposals and Determine Ranking	In-person Meeting Authority's Office: 1104 East Twiggs Street, Suite 300 Tampa, Florida 33602.
04/01/2026 by 5:00 PM	Posting of Notice of Intended Final Ranking	Authority Website and DemandStar
04/27/2026 at 1:30 PM	Board Approval of Final Ranking and Award of Contract	Authority's Office: Authority Board Room 1101 E. Twiggs Street Tampa, FL 33602
04/30/2026 by 5:00 PM	Posting of Notice of Decision	Authority Website and DemandStar

1.3 PROCUREMENT-RELATED MEETINGS, DETAILS, NOTICES, AND OTHER IMPORTANT INFORMATION AND REQUIREMENTS

1.3.1 MANDATORY PRE-PROPOSAL MEETING

The pre-proposal meeting is **mandatory** for all potential Proposers to this RFP. Interested, potential Proposers must attend the pre-proposal meeting in person at the Authority's office located at 1104 East Twiggs Street Tampa, Florida 33602. Any potential Proposer failing to attend the pre-proposal meeting will be eliminated from consideration. The Authority representative convening the pre-proposal meeting will provide an attendee sign-in sheet at the beginning of the meeting for those in attendance. All potential Proposers must have a representative present and signed in prior to the start of the meeting. Any Proposer not signed in at the start of the meeting may be considered late and, at the Authority's sole discretion, may not be allowed to respond to the RFP.

The intent of pre-proposal meeting is for the Authority and its consultant team to introduce the Project, describe the procurement process, review instructions for submitting an ELOR package and Proposal, and discuss other relevant topics related to the procurement.

The pre-proposal meeting will allow attendees to ask questions relative to any information provided by the Authority during the meeting. The Authority may choose to answer questions verbally during the pre-proposal meeting or follow up with a formal answer to any question(s) by Addendum. No oral representations or discussions that take place at the pre-proposal meeting will be binding on the Authority. Proposers shall direct all other questions to the Authority by posting questions to the Authority-designated SharePoint folder designated for the firm utilizing the form provided in **Exhibit C, C-8 Proposer Questions Form**.

1.3.1.1 MANDATORY SITE VISIT

A mandatory site visit will be conducted by the Authority in accordance with Table 1-1: Schedule of Events. Shortlisted Proposers will be informed by the Authority of their booked date, time, and anticipated duration. Due to the nature of the site conditions, Proposers are limited to two (2) persons per Proposer attending the site visit. The purpose of the site visit is to allow Proposers to review and assess current site conditions. All sites will be visited and are presented "as-is," and any work and associated cost the Proposer believes is necessary to implement the proposed solution must be fully accounted for in the Proposal.

No Q&A or substantive discussion shall occur between the Proposer and the escort during the site visit. Authority evaluation committee members shall not attend the site visit. Questions following the site visit may be submitted by Proposers by the "Deadline for Proposers to Submit Round 2 Questions" (refer to schedule of events for details) and must clearly identify the site(s) pertaining to the question.

1.3.2 NON-RESPONSIVE ELOR PACKAGES AND PROPOSALS

ELOR packages and Proposals found to be non-responsive shall not be considered. ELOR packages and Proposals may be rejected if found to be in nonconformance with the requirements and instructions contained in this RFP. ELOR packages and Proposals may be found to be non-responsive by reasons, including, but not limited to, any omissions, failure to utilize or complete prescribed forms, alterations of a prescribed form, conditional ELOR packages or Proposals, incomplete ELOR packages and Proposals, indefinite or ambiguous ELOR packages and Proposals, failure to meet deadlines and improper and/or undated signatures.

Other conditions which may cause rejection of ELOR packages and Proposals include evidence of collusion among Proposers, obvious lack of experience or expertise to perform the required Work, submission of more than one ELOR package or Proposal for the same Work from an individual, Contractor, joint venture, or

corporation under the same or a different name, failure to perform or meet financial obligations on previous contracts, employment of unauthorized aliens in violation of Section 274A (e) of the Immigration and Nationalization Act, or in the event an individual, Contractor, partnership, or corporation is on the United States Authority of Labor's Office of Federal Contract Compliance Programs (OFCCP) Debarred Companies list, or otherwise debarred or suspended from participating in publicly procured projects.

Note: While an entity (e.g. individuals, Contractors, or corporations) is not allowed to submit more than one ELOR package or Proposal for the same Work under the same or different name, an entity may be a Subcontractor on more than one ELOR package or Proposal.

ELOR packages and Proposals may also be rejected if not received on or before the date and time specified as the due date for submission.

Any ELOR package submitted by a Proposer that did not sign-in at the mandatory pre-proposal meeting or any shortlisted Proposer that did not sign-in at the mandatory site visit may be deemed non-responsive. In addition, the Authority reserves the right to reject for any reason, and without liability, in its sole discretion, any and all Proposals at any time prior to full execution of a Contract and delivery of same to the Proposer.

1.3.3 No Tentative or Qualified Statements or Commitments will be Recognized

The Authority will not consider tentative or qualified commitments in ELOR packages or Price Proposals or Technical Proposals. For example, the Authority will not consider phrases such as "we may" or "we are considering" in the evaluation process for the reason that they do not indicate a firm commitment.

1.3.4 Waiver of Irregularities

The Authority reserves the right to waive any informalities, technicalities, abnormalities, and irregularities in an ELOR package, Technical Proposal or Price Proposal and to accept the ELOR package, Technical Proposal or Price Proposal which, in the Authority's sole judgment, is in the Authority's best interests.

The Authority reserves the right to request additional or missing information and make corrections to an ELOR package, Technical Proposal or Price Proposal, upon request by a Proposer, and to waive any irregularities in any ELOR package, Technical Proposal or Price Proposal, to reject any or all ELOR packages, Technical Proposals or Price Proposals, to re-advertise the Project or elect not to proceed with the Project.

1.3.5 Withdrawal of ELOR Package or Technical and Price Proposal

Proposers may withdraw previously submitted ELOR packages and/or Technical and Price Proposals at any time prior to the respective ELOR package and/or Technical and Price Proposal due dates. Requests for withdrawal of a submitted ELOR package and/or Technical and Price Proposal shall be in writing and shall be signed in the same manner as the ELOR package and/or Technical and Price Proposal. Electronic signatures are allowed. Requests for withdrawal must be received prior to the date and time ELOR packages and/or Technical and Price Proposals are due. Upon receipt and acceptance of such a request, the entire ELOR package and/or Technical and Price Proposal will not be considered. No ELOR package and/or Technical and Price Proposal may be withdrawn after it is submitted unless the Proposer adheres to this section. If the Proposer improperly withdraws its Technical and Price Proposal, the Authority may seek recourse against the Price Proposal Guaranty.

1.3.6 Right to Cancel

The Authority reserves the right to cancel this RFP if it is determined to be in the best interest of the Authority to do so.

1.3.7 RIGHT TO AMEND AND ADDENDA

The Authority reserves the right to amend, insert, clarify, or delete any item in this RFP if it is determined to be in the best interest of the Authority. If it becomes necessary to revise or clarify any part of this RFP, responses or supplemental instructions by the Authority to the Proposers will be in the form of a Letter of Clarification or written Addendum which if issued will be posted to the Authority's website at **https://www.tampa-xway.com/doing-business/procurement/** and on DemandStar at **https://network.demandstar.com/**.

Proposers are responsible for monitoring the Authority's website and DemandStar throughout the entire procurement process. Failure of any Proposers to receive any such letter of clarification or Addendum shall not relieve said Proposer from any obligations contained within this Solicitation.

The Authority will not be bound by, and the Proposer shall not rely on, any oral or written communication or representation regarding the RFP Documents, except to the extent that it is contained in an Addendum or letter of clarification to these RFP Documents or in the Questions and Answers as posted on the Authority's website. In the case of a conflict between Addenda, the latest Addendum shall apply. All Letters of Clarification and Addenda issued shall become part of the Contract Documents.

Proposers are required to provide acknowledgment of receipt of all Addenda issued to this RFP within both the ELOR package and the Technical Proposal by completing and submitting **Exhibit C, C-9 Acknowledgement of Receipt of Addenda Form**.

1.3.8 MATERIALS SUBMITTED BECOME AUTHORITY PROPERTY

All materials submitted in response to this RFP become the property of the Authority and subject to the Florida Public Records Law (Chapter 119) or other applicable laws. For any information submitted that the Proposer considers to be confidential or exempt or excepted from public disclosure Proposers shall identify information the Proposer considers to be confidential as instructed in **Section 1.3.9, Trade Secrets and Confidential Information**. Failure to properly identify and mark information the Proposer considers to be confidential as required in **Section 1.3.9, Trade Secrets and Confidential Information** will result in all information received being deemed non-confidential, non-proprietary, and in the public domain.

All presentations/interviews (if held) for this procurement will be conducted pursuant to Chapter 286, Florida Statutes, including Section 286.0113, Florida Statutes.

1.3.9 TRADE SECRETS AND CONFIDENTIAL INFORMATION

The Authority may maintain confidential information, including any designated as trade secrets or otherwise proprietary, only in accordance applicable to Federal and State laws or regulations. The Authority, therefore, expects that Proposers will keep confidential information designations to a minimum.

A Proposer, having formed a good faith opinion, upon consultation with legal or other knowledgeable advisors that information submitted in an ELOR package, Technical Proposal or Price Proposal may contain records or other information that are not required to be disclosed by the Authority by the Florida Public Records Law pursuant to Chapter 119, may so designate appropriate portions of its Proposal by marking the top and bottom of pages containing confidential information in boldface type "CONFIDENTIAL." However, labeling information provided in documents as "proprietary" or "confidential" or any other designation of restricted use shall not protect information from release if required or deemed appropriate by the Authority under applicable policies, opening meeting laws, or public records laws, see Chapters 119 and 286, Florida Statutes. Note: Special Submission requirements are set out for financial information in **Section 1.18.4.1.E, Proposer Financial Information**. The Authority serves only as a records custodian of information submitted by a Proposer. The Authority shall not provide legal opinions, nor act as an arbiter or defender of any claims related

to assertions of confidential information. If a request is made for disclosure of records or information submitted, or an action is brought to compel the Authority to disclose records or information marked confidential, the Authority only agrees to notify the affected Proposer of such request or action.

In submitting an ELOR package, Technical Proposal or Price Proposal in response to this RFP, a Proposer agrees to: (i) defend its assertions of confidentiality by instituting appropriate legal proceedings to prevent disclosure, at its own expense and through its counsel, or by intervening in an action brought against the Authority to compel disclosure; and (ii) indemnify and hold the Authority, and any officials or employees thereof harmless from any and all damages, costs, and attorney's fees awarded against the Authority arising out of any such actions. Nothing in this section shall preclude the Authority from participating in the defense of such actions, at its option and expense through its counsel. The Authority shall have no liability to a Proposer with respect to the disclosure of any records or information, including confidential records or information, subject to an order by a court of competent jurisdiction or any other applicable law or due to the Proposer's failure to contest such disclosure in a court of law.

1.3.10 PROPOSER'S BID

Proposers shall complete the Proposal Affirmation Form from **Exhibit C, Form C-1** which states the Proposer agrees to furnish the services stated within the Technical Proposal at the price(s) offered within the Price Proposal.

By submitting a Technical and Price Proposal to the Authority, the Proposer agrees that the Contractor's Technical Proposal and Price Proposal shall remain effective one hundred eighty (180) Calendar Days after the deadline for submitting the Proposals.

Proposers shall complete and include the completed form in Proposal Section 7 of the Technical Proposal as a portable document format (PDF).

1.4 REGISTRATION TO CONDUCT BUSINESS IN FLORIDA

Proposers and Subcontractors wishing to be considered shall be properly registered and licensed to conduct business in the State of Florida with the Office of the Secretary of State at the time the ELOR package is submitted.

It is the responsibility of the Proposers to verify the registration of any corporate subsidiary or Subcontractor prior to submitting a Proposal. Proposers shall be required to submit their proof of registration or license with their ELOR package.

1.5 WRITTEN CLARIFICATIONS

The Authority may request written clarifications to ELOR packages and/or Proposals. The Authority will identify in its request the due date for response. If the requested information is not received by the stated due date, the Proposer's scores may be adversely affected.

1.6 ORAL OR REFERENCED EXPLANATIONS

The Authority will not be bound by oral explanations or instructions given by anyone at any time during the procurement process or after Contract award. The Authority will not consider Proposer-referenced information not included in the ELOR package or Technical Proposal or Price Proposal; however, the Authority may consider other sources in the evaluation of ELOR packages or Proposals, such as reference reviews, financial ratings, and Proposer demonstrations and interviews.

1.7 PROPOSER'S REPRESENTATION AND AUTHORIZATION

In submitting an ELOR, each Proposer understands, represents, and acknowledges the following (if the Proposer cannot so certify to any of the following, the Proposer shall submit with its response a written explanation of why it cannot do so).

- The Proposer, nor any corporate subsidiary or Subcontractors, is not currently under suspension or debarment by the State or any other governmental authority.
- To the best of the knowledge of the person signing the response, the Proposer, its affiliates, subsidiaries, directors, officers, and employees are not currently under investigation by any governmental authority and have not in the last ten (10) years been convicted or found liable for any act prohibited by law in any jurisdiction, involving conspiracy or collusion with respect to bidding on any public contract.
- The submission is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any Contractor or person to submit a complementary or other noncompetitive response.
- The prices and amounts have been arrived at independently and without consultation, communication, or agreement with any other Proposer or potential Proposer; neither the prices nor amounts, actual or approximate, have been disclosed to any Proposer or potential Proposer, and they will not be disclosed before the Price Proposal opening.
- Neither the Proposer nor any person associated with it in the capacity of owner, partner, director, officer, principal, investigator, project director, manager, auditor, or position:
    - Has within the preceding ten (10) years been convicted of or had a civil judgment rendered against them or is presently indicted for or otherwise criminally or civilly charged for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state, or local government transaction or public contract; violation of federal or state antitrust statutes; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; or
    - Has within a three-year period preceding this certification had one or more federal, state, or local government contracts terminated for cause or default.
- If an award is made to the Proposer, the Proposer agrees that it intends to be legally bound to the Contract that is formed with the Authority.
- The Proposer has made a diligent inquiry of its employees and Agents responsible for preparing, approving, or submitting the response, and has been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, act, or other conduct inconsistent with any of the statements and representations made in the response.
- The Proposer shall indemnify, defend, and hold harmless the Authority and its employees against any cost, damage, or expense that may be incurred or be caused by any error in the Proposer's preparation of its Proposal.
- All information provided by, and representations made by, the Proposer are material and important and will be relied upon by the Authority in awarding the Contract. Any misstatement shall be treated as fraudulent concealment from the Authority of the true facts relating to the submission of the bid. A misrepresentation shall be punishable under law, including, but not limited to, Chapter 817 of the Florida Statutes.

1.8 CONTRACT

1.8.1 CONTRACTUAL OBLIGATIONS

The Authority will not be required to evaluate or consider any additional terms and conditions submitted with a Proposal. This applies to any language appearing in or attached to the document as part of the Proposer's Proposal. By execution and delivery of this RFP and Proposal, the Proposer agrees that any additional terms and conditions or changes to the terms and conditions, whether submitted purposely or inadvertently, shall have no force or effect unless such are specifically accepted by the Authority. Further, all exceptions must be taken in accordance with the instructions set forth in **Section 1.20.2.1, Technical Proposal Scored Criteria, Subsection H**.

1.9 PAYMENT AND PERFORMANCE BONDS

1.9.1 BOND REQUIREMENTS

Both a Payment and Performance Bond, satisfactory to the Authority, **and on the forms as provided in the RFP,** shall be required from the successful Proposer for, among other, the following purposes: a) to guarantee **Implementation Phase Acceptance**, as required in these Procurement Documents and pursuant to **Section 3.1.10.3, Implementation Phase Acceptance,** including all applicable warranties; b) to guarantee the payment of all labor, materials, or supplies used directly or indirectly in the prosecution of the work provided for in the Contract; c) to ensure stability and the meeting of the provided performance metrics of the system throughout the Operations and Maintenance Phase of the Project; and d) to comply fully with the requirements of Florida law.

The cost associated with obtaining and renewing the Performance and Payment Bonds shall be included in the Total Price Proposal amount within the Proposer's Price Proposal. The surety of the bonds shall have a resident Agent in the State of Florida, meet all the requirements of the laws of Florida and the regulations of the Authority, and have the Authority's Approval. The bonds shall have a surety that remains acceptable to the Authority throughout the duration of the Contract. In the event that the surety executing the bonds, although acceptable to the Authority at the time of execution of the Bonds, subsequently becomes insolvent or bankrupt, or becomes unreliable or otherwise unsatisfactory due to any cause that becomes apparent after the Authority's initial Approval of the company, then the Authority may require that the Proposer, at the Proposer's expense, immediately replace the bonds with similar bonds drawn on a surety company that is reliable and acceptable to the Authority.

a. Bonds for the Implementation Phase:

   - The Implementation Phase Payment and Performance Bonds must each be in the amount of not less than 100 percent of the Total Implementation Phase RTCS Cost stated on the Price Proposal.
   - The Implementation Phase Payment and Performance Bonds shall be provided at the time specified in **Section 1.22.4, Execution of the Contract**.
   - At Go-Live, at the Authority's sole option, the Implementation Phase Payment and Performance Bonds may be reduced to an amount not less than twenty-five (25) percent of the Total Implementation Phase RTCS Cost stated on the Price Proposal.

b. Bonds for the Operations and Maintenance Phase:

   - The first year of the Operations and Maintenance Phase Payment and Performance Bonds shall each be in the amount of not less than 100 percent of the total amount for Year 1 of the Operations and Maintenance Phase of the Project. The initial Operations

and Maintenance Phase Payment and Performance Bonds must be provided to the Authority prior to the Authority issuing NTP for the Operations and Maintenance Phase. The Payment and Performance Bonds for the Operations and Maintenance Phase shall be annually renewable, to be renewed each year at the anniversary date of NTP issuance for the Operations and Maintenance Phase. Starting at year 2 of the Operations and Maintenance Phase, the amount of the bond shall be equal to the sum of the gross invoice amounts (prior to any KPI deductions) of the total amount for Operations and Maintenance for the prior twelve (12) months.

In response to the ELOR package, Proposers shall be required to provide proof of bonding capacity in accordance with the instructions set forth in the Phase 1 ELOR package submittal procedure below.

The Proposer with the winning Proposal shall be required to provide the bond forms found in **Exhibit E, Performance and Payment Bond Forms** to the Authority in accordance with instructions in **Section 1.21.9, Execution of the Contract.**

1.10 INSURANCE REQUIREMENTS

Providing and maintaining adequate insurance coverage shall be a material obligation of the Contractor. The insurance coverage detailed in **Exhibit D, Insurance Requirements, Coverages, and Limits** is required. The cost of all insurance required by the Contract shall be included in the Proposer's Price Proposal.

Refer to **Section 3.1.12, Insurance Obligations** for additional insurance information.

1.11 SBE AVAILABILITY

The Authority's Small Business Enterprise (SBE) Policy requires nondiscrimination on the basis of race, color, national origin, and gender in its employment and contracting practices and encourages the solicitation and utilization of SBE's. It is the policy of the Authority to encourage the participation of small businesses and disadvantaged business enterprises ("SBE") in all facets of the business activities of the Authority, consistent with applicable laws and regulations. Contractors proposing for this Project shall aspire to have Work performed by SBEs. Contractors are encouraged to utilize qualified SBE's as vendors, contractors, Subcontractors, and consultants for the Project.

1.12 CERTIFICATIONS, NOTICES, AND ADDITIONAL INFORMATION

1.12.1 SCRUTINIZED COMPANY CERTIFICATIONS:

By submitting an ELOR package or Proposal, the Proposer certifies that: (a) (applicable to all agreements, regardless of value), it is not on the Scrutinized Companies that Boycott Israel List and is not engaged in a boycott of Israel, as defined in Florida Statutes § 287.135, as amended; and, (b) (applicable to agreements that may be $1,000,000 or more), it is: (i) not on the Scrutinized Companies with Activities in Sudan List, or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List as defined in Florida Statutes § 287.135; and, (ii) not engaged in business operations in Cuba or Syria, as defined in Florida Statutes § 287.135, as amended.

1.12.2 PUBLIC ENTITIES CRIMES ACT.

By submitting an ELOR package or Proposal, the Proposer certifies that it is not precluded from submitting an ELOR package or Proposal under Section 287.133(2)(a), which provides as follows: "A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid, Proposal or reply on a contract to provide any goods or Services to a public entity; may not submit a bid, Proposal or reply on a contract with a public entity for the construction or repair of a public

building or public work; may not submit bids on leases of real property to a public entity; may not be awarded or perform Work as a contractor, supplier, Subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount set forth in Florida Statutes s.287.017, for CATEGORY TWO for a period of thirty-six (36) months from the date of being placed on the convicted vendor list."

1.12.3 E-VERIFY.

Authority contracts require contractors/consultants to comply with the requirements of E-Verify. Contractors/consultants will be required to utilize the U.S. Department of Homeland Security's Employment Eligibility Verification System (E-Verify), in accordance with the terms governing the use of the system, to confirm the employment eligibility of persons employed by the contractor/consultant, during the term of the Contract, to perform employment duties within Florida. Prime contractors/consultants are required to include an express provision in their Subcontractor/Subconsultant agreements requiring the Subcontractors/Subconsultants to do the same.

1.12.4 CIVIL RIGHTS.

The Authority, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

1.12.5 DISCRIMINATORY VENDOR LIST.

By submitting an ELOR package or Proposal, the Proposer certifies that it is not precluded from submitting a bid or Proposal under Section 287.134, which provides as follows: An entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid, Proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a bid, Proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, Proposals, or replies on leases of real property to a public entity; may not be awarded or perform Work as a contractor, supplier, Subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity unless that entity or affiliate has been removed from the list pursuant to Florida law.

Florida Department of Transportation (FDOT) Qualification: By submitting an ELOR package or a proposal, the proposer represents that neither it nor its partners, key personal, key subcontractors/subconsultants, nor affiliates have had their certificate of qualification suspended, revoked or denied by the FDOT, or determined by the FDOT to be a non-responsible contractor.

1.12.6 PERMIT COSTS

Pursuant to section 218.80, Florida Statute, the "Public Bid Disclosure Act," the Authority gives notice to the Contractor that the Authority does not issue permits for the Work and accordingly there is no fee assessed by the Authority. However, the City of Tampa, Hillsborough County, and other governmental entities may require fees for building and other permits for the Work. The Contractor shall secure and pay for all required permits that are necessary for the proper execution and completion of the Work, including, but not limited to, all applicable site permits, building permits, engineering, dewatering, National Pollution Discharge Elimination System (NPDES) stormwater management and all other permits required to complete the Work. In addition, the Contractor shall procure all required certificates of inspection, use, occupancy, and completion. The Contractor shall be responsible for coordinating and scheduling all such permitting agencies' tests and inspections. All required certificates of inspection, use, occupancy, and completion shall be delivered to the

Authority by the Contractor in sufficient time for occupancy of the Project, if applicable, in accordance with the schedule for the Work. All costs incurred in connection with obtaining any permit, license, test, or inspection, including any required overtime in connection therewith, shall be included within the Proposer's Price Proposal.

1.13 PUBLIC RECORDS LAW

Proposers are hereby notified that the Authority is subject to the Florida Public Records Law and the Government in the Sunshine Act, as set forth in Florida Statutes Chapters 119 and 286; as such, most communications to the Authority are subject to public disclosure, and the selection meeting(s), if any, will be open to the public. All presentations/interviews (if held) for this procurement will be conducted pursuant to Chapter 286, Florida Statutes, including section 286.0113, Florida Statutes.

1.14 CONE OF SILENCE

Any communication directly or indirectly to seek to encourage any specific result in connection with an Authority selection process, including but not limited to, written communications, any and all forms of electronic communications or messaging, including social media, oral communications either in person or by telephone, initiated by a Proposer or through a lobbyist, Agent or third person, to any Authority employee and/or committee/board member who is a member of any committee constituted for the purposes of ranking submissions, making recommendations or making an award, is prohibited from the time that the procurement is released to the time that the award is made. Proposers or persons acting on their behalf **may not** contact members of the Evaluation Committee, other Authority staff, Authority officers or Authority Board Members, or the consultants representing the Authority with this Solicitation and project once the advertisement of the Solicitation has been published and until the Authority Board has made a final decision regarding the award of this Contract.

However, the Authority's Procurement Manager or its designee may initiate communication with a Proposer in order to obtain information or clarification needed to develop a proper and accurate evaluation related to this procurement.

Refer to **Section 1.1.4, RFP Inquiries / Notices and Contact Person** for instructions on how to contact the Authority regarding any item related to this Solicitation.

1.15 CONSULTANT ELIGIBILITY AND CONFLICT OF INTEREST POLICY

It is a basic tenet of the Authority's contracting program that Contracts are procured in a fair, open, and competitive manner. Proposers shall use the forms provided in **Exhibit C, C-3 Conflict of Interest Forms**, when submitting an ELOR package to the Authority regarding any potential conflict of interest related to this procurement.

1.15.1 CONSULTANT ELIGIBILITY

The Authority requires that consultants representing the Authority must be free of conflicting professional or personal interests.

A consultant firm, its affiliate, or subconsultant that is under contract with the Authority to provide procurement support services on this Project cannot be a Proposer or a subconsultant to a Proposer. A contractor cannot team, as a prime, with other firms to submit more than one proposal in response to this procurement.

The following consultant firms participated in the development of the RFP for this Project and are prohibited from proposing or participating with a Proposer to propose on this Project without approval from the

Authority.

HNTB Corp.
Gannett Fleming, Inc
RK&K
RS&H Inc.

The consultant firms identified above may not represent a comprehensive list. Consultant firms not listed above who performed services or who are later retained to perform services on this Project are also prohibited from proposing or participating with a Proposer to propose on this Project unless an exception is obtained from the Authority.

1.15.2 UNDUE INFLUENCE

The Contractor represents and agrees that it has not attempted, and will not attempt to, improperly influence an officer or employee of the Authority regarding any award, extension, continuation, renewal, contract amendment, or modification of any contract with the Authority.

1.16 CODE OF ETHICS

The Authority has adopted a Code of Ethics which addresses, the obligation of the Authority's Board members and employees to follow the Florida Statutes in reference to these issues. This includes, but is not limited to, the obligations of the Authority's Board members and employees with respect to having an interest in business entities, outside employment, gratuities, divulgence of information, unauthorized compensation, and acceptance of gifts. Please be aware that any violation of this policy by a Proposer and/or any attempt to influence an Authority Board member or employee to violate the policy is sufficient cause for the denial of the right of the Proposer to propose on any contract or sell any materials, supplies, equipment, or services to the Authority for a period of time that is determined by the Authority. A copy of this policy is on the Authority's website**https://www.tampa-xway.com**.

1.17 NOTICE OF PROTEST

Protests Prior to Notice of Award: Any potential Proposer wishing to protest the Authority's procurement process or its Solicitation documents for the procurement of Services must file a Notice of Intent to Protest accompanied by a Protest Bond in the amount of $5,000 within 72 hours of the Authority's publication of the Solicitation documents, (excluding Saturdays, Sundays, and legal Holidays). A person may not file a protest for which he or she is not certified to propose pursuant to the RFP requirements. Within five (5) Calendar Days of the filing of the Notice of Intent to Protest and posting of bond, the protesting party must file a written protest stating with particularity the facts and law upon which the protest is based. The protest should: (1) state the specific provision(s) of the bid or Proposal package or process applicable to the protest; (2) state the specific manner or method in which the protesting party alleges that the Authority erred in its interpretation or implementation of its Solicitation process, procedures or statutory provisions; (3) state the basis upon which the protest is premised; and (4) state the Protesting party's position and arguments of law, including any evidence supporting the position.

Protests After Notice of Award: Any unsuccessful Proposer wishing to protest the Authority's actions leading up to a notice of recommendation to either reject any or all bids, or to make an award ("Notice of Decision"), must file a Notice of Intent to Protest, accompanied by a Protest Bond in the amount one percent (1%) of the Total Evaluation Price proposed by the lowest Price Proposal submitted with the Authority within 72 hours of the Authority's publication of its Notice of Decision, (excluding Saturdays, Sundays, and legal Holidays). Within five (5) Calendar Days of the filing of the Notice of Intent to Protest and posting of bond, the protesting party must file a written protest stating with particularity the facts and law upon which the

protest is based. The protest should: (1) state the specific provision(s) of the RFP or process applicable to the protest; (2) state the specific manner or method in which the protesting party alleges that the Authority erred in its interpretation or implementation of its Solicitation process, procedures or statutory provisions; (3) state the basis upon which the protest is premised; and (4) state the protesting party's position and arguments of law, including any evidence supporting the position.

The protest bond required by this **Section 1.17, Notice of Protest,** shall be conditioned upon the payment of all costs which may be adjudged against the person filing the protest in the administrative hearing in which the action is brought and any subsequent appellate court proceeding. If, after completion of the administrative hearing process and any appellate court proceedings, the Authority prevails, it shall recover all costs and charges which shall be included in the final order or judgment, including attorney's fees and costs. Upon payment of such fees, costs and charges by the person filing the protest, the bond shall be returned. If the person filing the protest prevails, he or she shall recover from the Authority all costs and charges which shall be included in the final order or judgment, excluding attorney's fees. The entire amount of the bond shall be forfeited if the court determines that a protest was filed for a frivolous or improper purpose, including, but not limited to, the purpose of harassing, causing unnecessary delay, or causing needless cost for the Authority or parties.

1.18 PHASE 1 – PROCUREMENT PROCESS

1.18.1 GENERAL

The Authority is using a two-phase procurement process for this Solicitation. During Phase 1 of the procurement process, Proposers will be required to submit an ELOR package which will be reviewed and evaluated by the Evaluation Committee according to the criteria below. The contents of the ELOR package shall not discuss or reveal any price-related elements.

To be considered, Proposers must provide complete responses to all sections of the ELOR package, in accordance with the instructions and requirements of this section, and ELOR packages must be submitted in the format as instructed in this section, including sections, and heading descriptions. Omission of any section may render an ELOR package non-responsive, at the Authority's sole discretion, and it will not be evaluated.

1.18.2 ELOR PACKAGE SUBMITTAL DEADLINE

Proposers wishing to be considered for shortlisting must complete and submit an ELOR package per the deadline. ELOR packages shall be uploaded to the SharePoint folder provided by the Authority by the due date and time provided in **Table 1-1: Schedule of Events**. The Authority will not accept or consider ELOR packages received after the due date and time.

1.18.3 PHASE 1 ELOR PACKAGE SUBMITTAL PROCEDURE

ELOR packages shall only be submitted by uploading them in the Authority's SharePoint folder designated for the responding firm.

Proposer, in PDF format, including bookmarks for each section and with the ability to be searched using an Optical Character Recognition (OCR) tool. Bookmarks that provide links to content within the ELOR package are allowed. Bookmarks that provide links to information not included within the content of the ELOR package shall not be utilized. No macros shall be allowed.

Proposers shall be judicious regarding the inclusion of large, unnecessary images or other items not requested in this Solicitation (e.g. marketing materials) within their ELOR package.

ELOR packages transmitted by facsimile, e-mail or mail are non-responsive and will not be considered. Only

one (1) ELOR package, in one (1), combined PDF file download, per legal entity is acceptable.

It is solely the Proposer's responsibility to ensure that their ELOR package is received by the Authority by the ELOR package due date and time. Proposers are encouraged to provide themselves with ample time to ensure ELOR packages are received by the Authority on time. The Authority is not responsible for any Proposer's delay or failure to successfully upload ELOR packages on time.

The ELOR package will be made up of three (3) sections: 1) the Pass/Fail Criteria, 2) Cover Letter and 3) the Scored Criteria, as noted below. The ELOR package shall be formatted using 8½"x11" pages, Times New Roman font, and a minimum font size of twelve (12). A minimum font size of ten (10) may be used in headers/footers, graphics, and tables.

The ELOR package does have page limitations. The Cover Letter and the Staffing, Experience/Qualifications and Approach Section of the ELOR package, as noted in the sections below, shall make up the eleven (11) page limitation. The Pass/Fail Criteria and resumes shall not count toward the eleven (11) page limitation of the ELOR package. Reference **Table 1-2** and each section's requirements below for additional details regarding the ELOR package page limitation.

Table 1-2: Expanded Letter of Response – Page Limitations

Phase 1 - Expanded Letter of Response – Page Count		Maximum Page Count
Section 1 - Pass/Fail Criteria:		
	Pass/Fail Criteria a. Proof of Insurance b. Proof of Bonding Capacity c. Claims Disclosure d. Conflict of Interest e. Financial Information f. Acknowledgment of Addenda g. Proof of Registration to Conduct Business in Florida	n/a
Section 2 - Cover Letter:		
	Cover Letter	1 page
Section 3 - Staffing, Experience/Qualifications and Approach:		
A.	Proposed Staffing	2 pages
	Key Personnel Resumes	2 page limit per resume (not included in the 11 page count)
B.	Proposer Experience and Qualifications	5 pages
C.	High-level Approach to Design and Implementation and Operations and Maintenance	3 pages
	Total:	**11 pages**

Note: Proposers are allowed to provide a cover sheet on the ELOR package, and it does not count towards the page count limitations of the ELOR. The cover sheet shall only include the Proposer's name, Project Name and Project Number. No other text or content shall be allowed on the cover sheet. Proposers are also allowed to include an index/table of contents in the ELOR package, which also will not count towards the page limitation.

The Authority will not consider ELOR packages not in conformance with the requirements as outlined in this section. The Evaluation Committee also reserves the right to solicit from available sources relevant

information concerning a Proposer's past performance. The Evaluation Committee may consider all such information in its selection of shortlisted Proposers.

1.18.4 ELOR PACKAGE REQUIREMENTS

1.18.4.1 ELOR PACKAGE SECTION 1 – THE PASS / FAIL CRITERIA

The following Pass/Fail information must be submitted with the ELOR package and shall make up the first section of the ELOR package. Proposers must include each subsection as noted below (A through G) and label each section with the same section heading. Proposers that fail to meet and submit all of the Pass/Fail criteria below will not be shortlisted. All information required by this Pass/Fail section is excluded from the page count.

These Pass/Fail criteria are minimum criteria that a Proposer must meet and/or provide in order for its ELOR package to be considered responsive. The Pass/Fail evaluation includes a responsiveness review and a legal sufficiency review, as described in further detail below. All information provided in ELOR Section 1 may be used in the scoring of the Proposer's ELOR package.

Proposers must meet and/or provide all of the criteria below to be considered responsive.

A. Proof of Insurance

Provide evidence of the Proposer's ability to provide the insurance coverage required in **Exhibit D, Insurance Requirements, Coverages, and Limits**, either by means of an existing policy or other verifiable proof (such as an Agent/Broker commitment letter).

B. Proof of Bonding Capacity

Provide a letter from the Proposer's Surety of the Proposer's ability to provide 100% Performance and Payment Bonds for projects with a value of at least $25,000,000. The Surety must be rated no less than "A-" as to management and no less than "VIII" as to strength, by the latest edition of Best's Insurance Guide, published by A.M. Best Company, Post Office Box 1107, Summit, New Jersey 07901.

Information shall be provided by the Surety on behalf of the Proposer on the Surety's letterhead.

C. Claims Disclosure

Disclose all lawsuits, arbitrations, and claims filed or raised by or against the Proposer over the last (5) years. Include the case name, case number, jurisdiction, amount at issue, and a brief description of the dispute. Identify any contracts where the Proposer has been terminated for cause or defaulted within the past five (5) years.

D. Conflict of Interest

Provide completed **Exhibit C, C-3 Conflict of Interest Forms** regarding any potential conflict of interest related to this procurement.

E. Proposer Financial Information

Financial documentation shall be submitted in a separate PDF with the ELOR package, with the cover page clearly labeled as follows: "Confidential Financial Records Submitted under Seal and Exempt from Florida Public Records Disclosure". Include the Project title on the cover page, "Confidential Financial Records" and section 119.071(1)(c), Florida Statutes on each page of the financial documentation submitted.

Proposers shall provide the following financial information:

1. Annual revenues for the last five (5) years for the Proposer and for the subsidiary, division, or group responsible for this Project.

2. A copy of the Proposer's audited financial statements for the past two (2) years. If a Proposer does not produce audited financial statements, the Proposer shall submit any financial statements that it does have (e.g. lines of credit, statements compiled by an outside accounting firm, etc.) and any other information the Proposer feels is pertinent in establishing the financial stability of its business/organization. The Authority reserves the right to review other publicly available information regarding the Proposer's financial stability, as part of the evaluation. If a Proposer has questions about what evidence of the Proposer's financial stability will be acceptable to the Authority, the Proposer should communicate with the Authority as set forth in **Section 1.14, Cone of Silence**.

F. Acknowledgement of Addenda

Provide a completed **Exhibit C, C-9 Acknowledgment of Receipt of Addenda Form** to affirm acknowledgement of all Addenda issued to this RFP.

G. Proof of Registration to Conduct Business in Florida

Provide evidence that the Proposer is properly registered and licensed to conduct business in the State of Florida with the Office of the Secretary of State. For more information on registration in the State of Florida see: Florida Dept. of Revenue - Information for Out-of-State Businesses (floridarevenue.com).

1.18.4.2 ELOR PACKAGE SECTION 2 –COVER LETTER

A cover letter signed by a person with the authority to make legal commitments on behalf of the Proposer shall make up the second section of the ELOR package. The letter shall also include the name and contact information for the Contractor Project Manager. The Contractor Project Manager shall be the main point of contact for the Authority throughout the procurement process. The cover letter shall include the Proposer's Statement of the following:

1. The full legal name, address and phone number of the legal entity that will contract with the Authority if awarded the Contract. Indicate all former names, if any, under which the Proposer has conducted business within the past ten (10) years and the years of operation under each name.

2. Name, address, email address, and telephone number of one (1) individual (the Contractor Project Manager) to whom all future correspondence and/or communications related to this Solicitation and the Project will be directed.

The cover letter narrative in this section shall be restricted to one (1) page and shall count toward the eleven (11) page limitation of the ELOR package.

1.18.4.3 ELOR PACKAGE SECTION 3 –STAFFING, EXPERIENCE AND APPROACH

In addition to the Pass/Fail Criteria and Cover Letter, all Proposers must provide the following with their ELOR package. This shall make up the third section of the ELOR package. Proposers must include each subsection as noted below (A-C) and label each section with the same section heading.

A. Proposed Staffing (2 Pages)

1. Proposer shall provide a short narrative and biography describing each proposed Key Personnel listed in the Scope of Work and Requirements, Section 2.1. This description/biography shall include:

   - Staff name
   - Proposed position
   - Number of years of experience supporting Projects in a similar role
   - Primary discipline and related experience to their assignment on the Project
   - Acknowledgment of the required experience and certifications

2. Proposer shall indicate the availability and commitment of each Key Personnel member for the Implementation Phase and for the Operations and Maintenance Phase of the Project, including any Subcontractors or Subconsultants proposed for Key Personnel positions.

3. In addition to the two (2) pages that provide the narrative on Key Personnel and their availability and commitment, Proposer shall provide resumes (not to exceed two (2) pages), for each of the Key Personnel within this section of the ELOR package. Resumes shall denote any certifications attained and held by Key Personnel. **Note**: Resumes are not included in the page limitation of this section of the ELOR package.

The Proposed Staffing narrative in this section shall be restricted to two (2) pages and shall count toward the eleven (11) page limitation of the ELOR package.

B. Proposer Experience and Qualifications (5 Pages)

1. Proposers shall describe their firm and staff experience with Roadside System and On-premises, cloud-based, and/or hybrid (e.g. mixture of On-premises and cloud-based) Roadside Support System architectures in the following areas, as it directly relates to the solution that is being proposed:

   a. Design and Implementation – including System, Software, and network design and development, testing, transition, and Quality Assurance (QA)/Quality Control (QC) methods.

   b. Technical - including Roadside System technology, System scalability, capacity and performance, modular development, database technology and optimization, replication and storage, external interfaces, security, software, application programming interface (API) development, and network technology.

   c. Operation – including near real time transaction processing, Graphical User Interface (GUI) and data visualization, reporting and Dashboards, data retention and backup, and Disaster Recovery.

   d. Maintenance – including on-going monitoring, Maintenance ticket management system, corrective maintenance, preventative maintenance, vulnerability scans and audits and System Updates.

2. Proposer shall submit a short narrative describing:

   a. Past performance on three (3) projects of similar scope, complexity, and scale. One of the three (3) referenced projects must have been implemented within the last five (5) years and be under active operations and maintenance by the Proposer.

   b. For each of the three (3) projects included in the narrative above, the Proposer shall also include a description of the project scope, size, total dollar value and specific services provided. The Proposer shall also note the timeframes around each project (e.g. start and

end dates for the Design and Implementation Phase and start and end date for Operations and Maintenance Phase).

c. For each of the three (3) projects, complete the Company Reference form provided in **Exhibit C, Form C-4** and submit them in this section of the ELOR package as one (1) combined PDF. The Company Reference Forms do not count towards the ELOR package page limit.

The Proposer Experience narrative in this section shall be restricted to five (5) pages and shall count toward the eleven (11) page limitation of the ELOR package.

C. High-level Approach to Design and Implementation and Operations and Maintenance (3 Pages)

1. Proposer shall provide a concise description of their proposed approach to the design and implementation of the RTCS with specific information related to the proposed use of an On-premises and/or cloud-based architecture.

2. Proposer shall provide a concise description of their proposed approach to operations and Maintenance of the RTCS with specific information related to the proposed operations and Maintenance of the proposed solution (On-premises and/or cloud-based architecture).

The approach narratives in this section shall be restricted to three (3) pages and shall count toward the eleven (11) page limitation of the ELOR package.

1.18.5 ELOR PACKAGE EVALUATION CRITERIA

The criteria for evaluating the Phase 1 ELOR packages shall be as shown in Table 1-3 below:

Table 1-3: Expanded Letter of Response – Evaluation Criteria

Phase 1 - Expanded Letter of Response – Evaluation Criteria		**Maximum Point Value**
A.	Proposed Staffing	20
B.	Proposer Experience and Qualifications	50
C.	Approach to Design and Implementation and Operations and Maintenance	30
	Total:	**100**

The 100 total points are for determining the shortlist firms only and will not carry over to Phase 2.

1.18.6 PHASE 1 SCORING

The ELOR packages will first be opened and reviewed for responsiveness and responsibility based on the Pass/Fail criteria.

Each Evaluation Committee Member shall then individually score each responsive Proposer, and an average score for each Proposer shall be computed by the Authority.

The Evaluation Committee will select no fewer than three (3) and no more than five (5) of the most qualified Proposers to recommend for shortlist to the Authority's Board of Directors. The Authority will determine the

most qualified based on the evaluation and scoring criteria outlined in the ELOR package evaluation criteria above. The Phase 1 ELOR package scores will be used to select Proposers for the shortlist only and will not carry through to Phase 2. If fewer than three (3) qualified firms submit responses, the Authority, at its sole discretion, may elect to continue the selection process, reconvene the shortlisting meeting for reconsideration of the shortlist, or re-advertise the Project. Shortlisted Proposers will proceed to Phase 2.

1.19 PHASE 2 – PROCUREMENT PROCESS

1.19.1 GENERAL

Phase 2 of the procurement process will require submission of a separate Technical Proposal and Price Proposal. The Proposer shall not discuss or reveal elements of the Price Proposal within their written Technical Proposals.

Technical and Price Proposals must be submitted in the format, including sections, and heading descriptions, as instructed in **Phase 2 – Technical Proposal Contents and Submission** and **Phase 2 – Price Proposal** below. To be considered, Proposers must provide complete Technical and Price Proposals, including all required sections, in accordance with the instructions. Omission of any section may render a Proposal non-responsive, at the Authority's sole discretion, and it will not be evaluated.

1.19.2 TECHNICAL AND PRICE PROPOSAL SUBMITTAL DEADLINE

Complete and separate Technical and Price Proposals shall be uploaded to the SharePoint folders designated by the Authority by the due date and time provided in **Table 1-1: Schedule of Events**. Proposers shall upload two separate files into separate folders: one (1) for the Technical Proposal and one (1) for the Price Proposal. The Authority will not accept Proposals submitted after the due date and time. Technical and Price Proposals received after that time will not be considered.

1.20 PHASE 2 – TECHNICAL PROPOSAL CONTENTS AND SUBMISSION

1.20.1 TECHNICAL PROPOSAL FORMAT AND PAGE PRESENTATION

1. **Format of Technical Proposal.**

    a. The Technical Proposal shall only be submitted in the formats as noted in each section below. The document submitted in PDF format shall include bookmarks for each section and have the ability to be searched using an OCR tool. Bookmarks which provide links to content within the Technical Proposal are allowed. Bookmarks which provide links to information not included within the content of the Technical Proposal shall not be utilized. No macros will be allowed.

    b. All sections required in the Technical Proposal (e.g., Cover Letter, Executive Summary, Proposal Sections 1- 7, and Appendices) shall be compiled into a single PDF, with the exception of i) the required Microsoft (MS) Excel version of the Requirements Conformance Matrix; and ii) the required MS Project version of the Project Implementation schedule.

    c. Any Technical Proposal exhibits, or information prepared either as graphics or with other programs, such as scheduling programs, shall be viewable in the PDF file without any other software required for review.

    d. All documents to be returned within the Technical Proposal requiring the Proposer's signature may be signed electronically.

2. **Page Presentation.** Technical Proposal text shall be single-spaced, formatted to 8.5"x11" pages, using Times New Roman font with a minimum font size of twelve (12)-point. Each page header and/or footer should include the Proposer's name, page numbers, and date of the Proposal.

   A minimum font size of ten (10) may be used in headers/footers, graphics, schedules and tables.

1.20.2 TECHNICAL PROPOSAL CONTENT

Proposals shall be prepared simply and economically, providing a straightforward, concise description of the Proposer's ability to meet the requirements of the RFP. To that end, Technical Proposal Sections 1 through 5 shall be limited to a combined total of eighty (80) pages. Refer to **Table 1-2: Expanded Letter of Response – Page Limitations** below for more information on page limitations.

Table 1-4: Proposal Page Limitations

Technical Proposal Sections to be Completed by a Proposer	**Page Count Limitations**
Pass/Fail Criteria	No limitations
Cover Letter	2 pages
Executive Summary	5 pages
Section 1: Proposer Experience and Qualifications	Limited to a combined total of 80 printed pages (excluding all table of contents, table of tables, or table of figures)
Section 2: Key Personnel Qualifications	
Section 3: Approach to Scope of Work and Requirements	
Section 4: Approach to Project Management and Implementation	
Section 5: Approach to Operations and Maintenance	
Section 6: Adherence to the Scope of Work and Requirements, Terms and Conditions and Requirements Conformance Matrix	No limitations
Section 7: Forms and Submittals	No limitations
Appendix 1: Key Personnel Resumes	2 page limit per resume
Appendix 2: Product Cut Sheets	No limitations
Appendix 3: Preliminary Bill of Materials (BOM)	No limitations
Appendix 4: Sample Reports	10 pages (no more than 10 sample reports at 1 page per report)
Appendix 5: Automatically Detected Faults	No limitations
Appendix 6: Preliminary Implementation Phase Schedule	No limitations

Proposers are allowed to provide a cover sheet on the Technical Proposal, and it does not count towards the page count limitations of the Technical Proposal. The cover sheet shall only include the Proposer's name, Project Name and Project Number. No other text or content shall be allowed on the cover sheet. Proposers are also allowed to include an index/table of contents in the Technical Proposal, which will also not count towards

the page limitation.

1.20.2.1 TECHNICAL PROPOSAL SCORED CRITERIA

Each numbered section designates a specific and separate section Proposers shall include in their Technical Proposal:

A. Cover Letter

The Proposal shall include a cover letter signed by an officer of the proposing company with signature authority to enter into the proposed Contract with the Authority. Electronic signatures are allowed on the cover letter. This letter should be very brief (per the noted page limitations) and provide the corporate commitment that the Proposal meets the scope and Requirements of the RFP. The letter shall also include the name and contact information for the individual that shall be the main point of contact for the Authority throughout the procurement process.

B. Executive Summary

The executive summary shall summarize the Proposer's Technical Proposal and highlight the most important aspects of the Proposer's Technical Proposal.

C. Proposal Section 1: Proposer Experience and Qualifications

Provide the following information regarding the Proposer's experience and qualifications, including Subcontractors. Number and provide the information in the specific format provided below:

1. Company history and description of the Proposer's organizational structure, including size, capability, and area(s) of specialization.
2. A detailed discussion of the Proposer's (including any Subcontractors) qualifications and experience as it relates to this Project, in the following areas:
    a. Designing, developing, implementing, and maintaining systems of similar scope, complexity, and scale to the RTCS required with this Solicitation.
    b. Designing, developing, implementing and maintaining a system with a similar architecture to that being proposed including RSS hosting considerations (i.e. On-prem, Cloud-based or hybrid).
    c. Designing, implementing, and maintaining a system that is scalable and modular.
    d. Developing and maintaining a system that provides real time Transaction processing, GUI and data visualization, reporting and Dashboards.
    e. Development of Interface Control Documents (ICD) and data exchange interfaces utilizing file exchanges and APIs.
    f. Data replication, back-up, and Disaster Recovery.
    g. Maintaining a system with on-going monitoring, a ticket management system, response and resolution, system update and adherence to KPIs.
    h. System Security and vulnerability management.
    i. Working in an AET environment with ETC transaction and IBT tolling.
    j. Working with Interoperable transaction processing, specifically supporting Southeast U.S. Interoperability and National Interoperability Standards.

k. AET system maintenance, including supporting facility infrastructure, such as heating ventilation and air conditioning (HVAC) and back-up generators. Identify where this maintenance work has been previously performed.

3. Complete the List of Subcontractors Form from **Exhibit C, Form C-2** which includes the Subcontractor name, address, work to be performed and estimated percentage of total work value to be performed. Include the completed form in Section 7 of the Technical Proposal as a PDF.

4. Complete Company Reference Forms, using **Exhibit C, Form C-4**. Include the references in Proposal Section 7 and note in your response to this item that they are provided in Proposal Section 7. The completed forms must include reference(s) to demonstrate that the Proposer has successfully developed and delivered at least one (1) qualifying AET multi-travel lane system implementation project. The project must include ETC and IBT processing with both automated and manual image review services (performed by either Proposer or a Subcontractor) also provided. The Proposer shall have maintained the system and provided automated and manual image review services for at least one (1) year. For purposes of this RFP's minimum Proposer experience requirements, a qualifying AET multi-travel lane system is defined as an AET system comprised of two or more adjacent toll lanes in the same travel direction where vehicles move through the Toll Facility at highway speeds (55 miles per hour (mph) or greater). These lanes must be controlled and managed by a zone controller which functions as a single integrated Toll Zone for purposes of framing and capturing a vehicle traveling in any area of the Toll Zone and creating a transaction (including AVI, axle-based vehicle classification, and image capture).

D. Proposal Section 2: Key Personnel Qualifications

Provide the following information regarding the Proposer's Key Personnel qualifications, including Subcontractors. Please number and provide the information in the specific format provided below.

1. For each Key Personnel position listed in the Scope of Work and Requirements, Section 2.1, Staffing and Key Personnel, provide the name, title, and years of relevant experience, and describe how the experience relates specifically to this Project. Identify their specific role on this Project, specify which positions identified below will support the Implementation and/or Operations and Maintenance Phases of the Project, and provide the estimated percentage of time each will be dedicated to this Project.

   Note: Unless otherwise specified in the Scope of Work and Requirements, Section 2.1, Staffing and Key Personnel, no individual can fulfill more than one (1) Key Personnel position.

   Proposers are permitted, but not required, to name up to two (2) additional Key Personnel to reflect their commitment to work they believe to be key to the Project success. All named additional Key Personnel shall have resumes and reference forms as instructed below.

2. Provide resumes (not to exceed two (2) pages per individual), for each of the Key Personnel to provide the Authority with an understanding of the proposed staff's experience and expertise at each position. Include the resumes in Proposal Appendix 1 and note in your response to this item that they have been provided in Proposal Appendix 1.

3. Include **Exhibit C, C-5 Key Personnel and Qualifications Form** in Proposal Section 7 and note in your response to this item that it has been provided in Proposal Section 7. If Proposer included additional Key Personnel (up to two), add those names to this form.

4. Provide at least one (1) Key Personnel Reference Form, provided in **Exhibit C, C-6**, for each Key Personnel, including any additional Key Personnel added by the Proposer. Include the references in Proposal Section 7 and note in your response to this item that they have been provided in Proposal Section 7.

5. Complete the List of Subcontractors Form, provided in **Exhibit C, C-2**, which includes Subcontractor name, address, Work to be performed, and estimated percentage of total Work value to be performed. Include the completed list of Subcontractors in Proposal Section 7 and note in your response to this item that it has been provided in Proposal Section 7. Subcontractor substitutions after Proposal Submittal shall require the Authority's prior Approval.

The selected Contractor shall not change any of its Key Personnel identified in its Technical Proposal during performance of the Contract without prior written consent of the Authority of the proposed substitution, which shall not be unreasonably withheld. See Terms and Conditions at Section 3.1.9.

E. Proposal Section 3: Approach to Scope of Work and Requirements

Provide responses to the items below regarding the Proposer's approach to the Scope of Work and Requirements. Number the responses and describe the information in the specific format provided below.

1. Describe the overall architecture of the proposed solution. Specifically, address each of the following:

    a. Discuss Proposer's technical approach to satisfying all functional Requirements for the RTCS architecture with focus on redundancy and reliability. Describe how the Proposer's solution and choice of Equipment meet the availability Requirements.

    b. The Authority has historically used on-premise servers for all their toll technology solutions; if the proposing solution is on-premise, please refer to the Scope of Work and Requirements section for the RSS On-Premises Architectural Requirements that provides details on rack space available; however, the Authority accepts Proposals with components of the RTCS being in the cloud or hosted out of a data center. Describe the Proposer's proven ability to deliver their proposed RTCS. Include details on where and how long the proposed solution has been installed and a narrative on how the proposed solution includes availability, performance, security, redundancy, Disaster Recovery, or any other benefits, while minimizing total cost of ownership for the estimated future transaction volumes, data transmission, data storage, and end-user software licenses throughout the Contract Term. Include a description and diagram(s) to clearly indicate which proposed RTCS and RSS system or subsystem components are on-premise (in the primary or secondary data center or at the roadside), data center, or cloud based.

    c. Provide drawings identifying where Equipment will be located on a typical example of each of the following types of gantry: mainline, ramp, Reversible Express Lanes, and SSCP mainline using the provided reference drawings in **Reference Document R_1 – THEA General Tolling Requirements (GTR)** and **Reference Document R_4 – ORT Gantry Site Drawings**. In addition, wherever possible, provide supporting drawings to explain the Equipment layouts and sensor spacing using the concepts provided in the Scope of Work and Requirements.

    d. Identify all RTCS Equipment and their connectivity, including servers and/or cloud systems, with the aid of diagrams. Include details of each of the subsystems.

e. Include product cut sheets in Proposal Appendix 2 and state in the response to this question that the cut sheets are in Appendix 2.

2. Identify all third-party Software and vendor with version numbers including operating system, database, security Software, monitoring tools and Software and freeware (if applicable) for the Proposer's solution. Identify other Proposer projects where such Software is deployed. Include product cut sheets in Proposal Appendix 2 and state in your response to this item that the cut sheets are in Appendix 2.

3. Describe the proposed AVI Subsystem. Specifically discuss each of the following.

   a. Describe the proposed Hardware and Software used to detect and correlate Transponders to the correct vehicle; include identification of the proposed reader and antenna.

   b. Identify any physically redundant components pertaining to Transponder detection and correlation and describe the failover mechanism/technology used.

   c. Provide a description of Proposer's experience using multi-protocol readers that read and process data from Transponders that use each of the following protocols in a multiprotocol environment:

      - E-ZPass Time-division Multiplexing (TDM)
      - Super Ego (SeGo)
      - ISO 18000-63 "6C"

   d. Describe any mechanism(s) incorporated into the Proposer's solution to prevent cross lane reads and false reads.

   e. Describe how the Proposer's solution handles vehicles with multiple Transponders and how business rules for selecting the desired primary tag for transmission to the OBOS are implemented.

   f. Describe the Proposer's approach to mitigating potential radio frequency interference (RFI) between sites being installed by the Proposer and nearby Existing Toll Zones during the transition period while the nearby existing sites are still operating legacy AVI equipment.

4. Describe the proposed AVDC Subsystem. Specifically discuss each of the following:

   a. Describe the proposed Hardware, including in-pavement sensor placement, and how the proposed system determines vehicle classification.

   b. Identify any physically redundant components pertaining to detection and vehicle classification and describe the failover mechanism/technology used.

   c. Describe how the AVDC handles stop and go, bumper-to-bumper traffic with vehicles that are spaced as closely as three (3) feet apart.

   d. Describe how the AVDC handles vehicles that are lane straddling and lane changing.

   e. Describe how the AVDC handles detection of vehicles on the shoulders.

   f. Handling of detection, identification, and reporting of vehicles traveling in the wrong direction.

g. Any impacts of installing, maintaining, or operating in-pavement or overhead sensors for an asphalt or concrete paved tolling zone, and for elevated roadway sections.

h. Handling the environmental conditions in Florida, specifically strong winds, heat, heavy rain and lightning, and mist-like conditions and their impacts on vehicle detection, framing, and camera trigger. Explain how the Proposer's Equipment selection and logic will prevent false detection and triggers in the extreme weather conditions that are common to the area.

i. How processing rules will be implemented to provide vehicle classification that meets the current class structure for axle-based classification as described in the Scope of Work and Requirements.

j. The Authority requires initial installation of an in-pavement AVDC solution, however the Authority is interested in an all-overhead AVDC solution if benefits to cost and accuracy can be realized. The Contractor may propose to replace the in-pavement AVDC solution with an all-overhead AVDC solution after demonstrating the all-overhead solution's accuracy and ability to meet KPIs using the THEA test toll gantry. Following this large-scale demonstration the Contractor may propose to provide the all-overhead AVDC solution for any remaining Toll Zone installations and potentially to replace the installed in-pavement AVDC of previously installed Toll Zones when circumstances allow, e.g. during a mill and resurfacing project at a previously installed Toll Zone or if significant maintenance cost benefits or other benefits can be realized. The choice to permit installation of any all-overhead AVDC will remain the Authority's sole decision.

- If the Proposer is proposing an all-overhead AVDC solution option, describe the accuracies observed at other deployments and whether the Roadside System can meet the full performance requirements of the Contract, with emphasis on the classification accuracy requirements, using the all-overhead AVDC solution.
- If the Proposer is proposing an all-overhead AVDC solution option, describe the Design modifications that would be necessary to implement the all-overhead AVDC solution, the differences in vehicle tracking and transaction framing, and any expected accuracy improvements and cost savings.
- If the Proposer is proposing an all-overhead AVDC solution option, describe the maintenance which will be necessary for the all-overhead AVDC solution, including the frequency of this maintenance and how it will differ from the in-pavement sensor system maintenance.
- If the Proposer is proposing an all-overhead AVDC solution option, identify any conditions including but not limited to traffic conditions, weather conditions, and pavement conditions, under which the performance and accuracy of the overhead system may be compromised.

5. Describe the proposed ICPS. Specifically discuss each of the following:

a. Describe the hardware elements, including all cameras and lighting.

b. Describe how the camera triggering is architected and functions.

c. Address the means for focusing light and how driver distraction and light pollution due to supplemental lighting is avoided.

d. Identify any functional redundancy features for camera triggering included in the proposed solution and describe the failover mechanism/technology used.

e. Describe the closest nose-to-tail vehicle spacing that can be reliably separated for image triggering purposes and for a field of view wide enough to capture the entire front or back of the vehicle and identify, via photo, the make and model of the vehicle. Identification of this spacing should consider the proposed sensor and pavement geometry at THEA Toll Sites.

f. Describe how the ICPS handles coverage of shoulders.

6. Provide a preliminary bill of materials (BOM) in Proposal Appendix 3 that meets the requirements set forth and described in the Scope of Work and Requirements. Identify a second source for each type of Equipment where possible. The BOM shall fully match the Equipment and third-party products in the Price Proposal. Do not include any pricing in this version of the BOM. Note in your response to this item that it has been provided in Proposal Appendix 3.

7. Discuss how the Proposer's solution and architecture will accommodate changes in technology given anticipated Upgrades, obsolescence, end of support, growth in transaction volumes, and technology advances during the Contract Term. Describe any advantages in modularity or other design elements that impact the ability of the Proposer's solution to integrate new technologies as they become available.

8. Describe the Contractor's System security Design that prevents malware attacks and unauthorized access and identify included detection and alerting mechanisms which will notify appropriate personnel of attempted or successful intrusions.

9. Provide a description of the proposed System bandwidth requirements with back-up details, calculations, and a diagram of the proposed System network architecture that presents all RTCS and RSS LAN including Proposer's Design for redundancy to meet the network Requirements.

10. Describe clearly and with the aid of diagrams and flow charts the proposed System transaction processing logic. Explain how the Proposer's System processes and frames vehicle transactions. Provide a diagram that identifies framing logic, timing, and event processing with specific emphasis on vehicle spacing requirements. Details of the System's ability to handle single point of failures within each subsystem and handling of degraded mode operations and their impact on transaction processing and toll revenue shall be explained.

11. Describe the proposed method for meeting all image processing Key Performance Indicators. Specifically, address each of the following:

    a. Described the proposed ALPR solution. Include the observed levels of automation, including the error rate (sometimes called false positive rate) at those levels at other similar implementations.

    b. Provide a diagram of the workflow for the proposed image review system, including both ALPR and manual image review. The workflow should show the processing from the time an image is captured until processing is complete, including all possible processing pathways.

    c. Describe how audits of Image Review System functions will be performed including how to audit the following: plate data, image rejection reasons, individual reviewer performance, and overall accuracy.

d. Describe the proposer's approach to staffing for manual image review and meeting the related KPIs for timely delivery and accuracy of image review services. Describe how the proposer would react to a hypothetical manual image review backlog and approach to catching up to normal operations.

12. Describe where and how the full-formed complete IBT and ETC transactions will be generated for processing, transmission, reporting, and reconciliation with the OBOS, including logic for immediately sending IBT transactions followed subsequently by license plate data.

13. Discuss the Proposer's design approach and tools available for ensuring and confirming:

    a. That there are no missing transactions, and all vehicles are accurately captured and reported;

    b. Receipt of all transactions at the RSS;

    c. Subsequent transmission of all transactions to the OBOS;

    d. Subsequent transmission of license plate data and associated images to the OBOS; and

    e. That all errors and exceptions are identified and reported.

14. Discuss the Proposer's approach to handling request messages from the OBOS such as requests to re-transmit data or convert transactions (from ETC to IBT) and subsequently providing license plate data and images.

15. Provide details of the Proposer's solution to the transaction reconciliation and audit process described in the Requirements.

16. Discuss Proposer's adherence to the Requirements and explain how Proposer will meet or exceed the Key Performance Indicators. Provide actual examples, if available, of how each of the Key Performance Indicators was met or exceeded on other similar projects and how the performance was measured.

17. Discuss Proposer's approach to satisfying the specific reporting requirements of the Project, highlighting any unique features of Proposer's reporting system relating to performance reporting and other types of reports. Provide examples of the Proposer's flexibility in reporting by Toll Facility, Toll Zone, and lane. Provide examples of key reports and graphs to support your statements in Proposal Appendix 4 and note in your response to this item that it has been provided in Proposal Appendix 4. Note that Appendix 4 is limited to ten (10) sample reports at one (1) page per report.

18. Discuss Proposer's approach to testing, as described in the Scope of Work and Requirements to support the Project. Specifically, reference **Section 9.2 Factory Acceptance Test (FAT)**, **Section 9.3 On-site Installation Test (OSIT)**, **Section 9.4 Installation and Commissioning Test (ICT)**, and **Section 9.5 RTCS Operational Acceptance Test (OAT)** for more detailed information. Address the following:

    a. Proposer's overall test Plan approach.

    b. Plans for comprehensive and rigorous FAT, including test site location and configuration.

    c. Plans for conducting the OSIT.

    d. Approach to ICT for each Toll Zone.

e. Approach to the RTCS Operational Acceptance Test and how Proposer plans to conduct the accuracy and performance testing within the constraints of live traffic.

19. Discuss your MOMS. Provide the following:

    a. A complete list of all faults automatically detected by the System and reported in MOMS. Include this in Proposal Appendix 5 and note in your response to this item that it has been provided in Proposal Appendix 5. Include in the list whether each fault: i) generates an automatic work order, ii) records a recovery event and automatically closes the work order upon recovery, and iii) records an automatic recovery message but requires a technician to close the work order.

    b. Describe the inventory management functionality to be delivered as part of MOMS.

    c. Describe the reporting capabilities of MOMS, including those required to support the Maintenance Performance reporting.

    d. Describe how tickets are generated and closed in MOMS to support an efficient and verifiable maintenance program, including how the actual ticket open and close date/time will be traceable and auditable within the System and reports.

F. Proposal Section 4: Approach to Project Management and Implementation

Provide responses to the items below regarding the Proposer's approach to Project Management and Implementation. Number the responses and describe the information in the specific format provided below.

The Toll Zones included in the SSCP Project will be an active construction project with schedule affected by delays or acceleration due to many factors including but not limited to weather and resource availability. The Contractor shall be able to accommodate these schedule adjustments for the Authority without a change to the Contract price, subject to the Authority notifying the Contractor of the change in milestone date(s) at least nine (9) months in advance of the planned first SSCP Toll Zone installation in the Approved Baseline Project Implementation Schedule. For the preliminary Project Implementation Schedule, the Proposer shall assume the following dates: NTP by March 15, 2026 and first new Toll Zone installation starting no later than February 1, 2027, with sixty (60) days advance notice.

With these points in mind, Proposers shall provide the following information:

1. Provide a preliminary Project Implementation Schedule that has been developed using MS Project, in both MS Project and PDF file formats, that meets the schedule guidelines set forth above. The schedule shall be resource loaded, display the critical path with identified predecessor and successor tasks, identify each milestone separately, and utilize "finish no later than" constraints. The Project Schedule shall not contain hidden lag durations and must display available slack. Do not include Gantt chart bars in the PDF version of the schedule. All major elements of the Project Requirements shall be addressed in the preliminary Project Implementation Schedule, including draft submissions, review cycles, and final Approvals.

   Include the preliminary Project Implementation Schedule PDF in Proposal Appendix 6 and note in your response to this item that it was provided in Proposal Appendix 6.

   In addition, submit the Project Implementation Schedule in MS Project (.mpp) format as a separate file with the Technical Proposal package.

2. Discuss your plan to accommodate potential schedule adjustments discussed above. Identify any potential issues or conflicts with potential acceleration or postponement of the Project and provide potential solutions and workarounds.

3. Discuss the Proposer's approach to coordination with the Constructor and installation of the SSCP Existing Toll Zones and New Toll Zones. Specifically discuss Proposer's approach to the following:

    a. Proposer's approach to coordination with the SSCP Constructor's schedule and explain any benefits of this approach.

    b. Proposer's approach to coordination of the Design with the SSCP Constructor responsible for the provision of the overhead structures, pavement type through the Toll Zone (concrete), and concrete pad for the Toll Equipment Cabinet for the New Toll, given that the civil design-build work will commence during the Contract Term. Provide examples of similar experience and lessons learned to enhance communication and coordination that will be applied to the benefit of the Authority.

    c. What elements, such as processes, procedures, communications, meetings, issues tracking, and QC will be in place during the installation process to ensure timely communication and resolution of problems with the SSCP Constructor without the intervention of the Authority.

4. Discuss the Proposer's approach to the installation schedule, including any opportunity for efficiencies after the first Toll Zone is installed. Provide details on the following:

    a. Discuss elements related to the phasing of installation and Commissioning the RSS, New Toll Zones, and Existing Toll Zones for this Project.

    b. Discuss the installation process and how Proposer intends to meet the installation Requirements of the Scope of Work and Requirements while meeting the schedule Requirements.

    c. Details of Proposer's transition plan for Existing Toll Zones that minimizes lane closures, system downtime, and associated revenue loss.

    d. Describe Proposer's typical installation timelines for a single 2-lane or 3-lane New Tolling Zone and explain any benefits to your approach.

    e. Describe Proposer's typical installation and transition timelines for a single 2-lane or 3-lane Existing Tolling Zone and explain any benefits to your approach.

5. Discuss the Proposer's approach to project management for Implementation of the RTCS, addressing the Project Management Plan Requirements. Specifically discuss your approach to the following project management elements:

    a. Project Implementation Schedule management;

    b. Design, Hardware procurement, Software development, Implementation and testing, and Commissioning;

    c. Resources and availability of resources;

    d. Workflow and assignments;

    e. Project correspondence and report delivery, tracking, reviews, Approvals, and similar management activities;

    f. Proposed management initiatives and innovations for effectiveness and efficiency, such as management and cost control techniques, and cost saving ideas; and

    g. Approach to implementation of a Quality Assurance Program.

6. Provide an Implementation Phase organization chart that is consistent and coordinated with the pricing and staffing provided in the Price Proposal. Discuss how the Implementation Phase will be staffed and the intended level of effort. Include location of staff, headcounts, and full-time equivalents (FTEs). Provide details on staffing for Key Personnel and at least one level below the Key Personnel.

G. Proposal Section 5: Approach to Operations and Maintenance

Provide responses to the items below regarding the Proposer's approach to Operations and Maintenance. Number the responses and describe the information in the specific format provided below.

1. Discuss the Proposer's approach to Maintenance that will meet or exceed all Maintenance Services and warranty Requirements.

2. Discuss the Proposer's Plan to coordinate the delivery of Maintenance Services with the OBOS contractor and other interfacing third parties. Specifically address the applications and tools that facilitate identification of problems with interfacing systems and the ability to communicate effectively with the Authority and third-party providers on a long-term basis, such as when Maintenance services could impact OBOS operations.

3. The Authority desires a designated Maintenance Manager continuously between installation of the first site and Go-Live and throughout the Maintenance Phase. Discuss the Proposer's approach to Maintenance staffing throughout this transition period, including how the Maintenance Manager position will be staffed, if the Maintenance Manager and Installation Manager will be a shared role, and if installation staff will also undertake Maintenance during this transition period.

4. Discuss Proposer's staffing model and how all required Operations and Maintenance functions will be staffed with the intended level of effort identified. Include location of staff, headcounts, and FTEs. Provide details regarding daily Work hours and coverage schedules. Discuss how the Proposer intends to cost-effectively support Maintenance considering the need for on-site Maintenance and 24x7 Operation. In addition, provide an organizational chart that details this information and that is consistent with the pricing and staffing provided in the Price Proposal.

5. Provide Proposer's anticipated schedule for Upgrades, patches, and Updates, upon which pricing is based. Specifically address the Software and application Upgrades and Updates needed to meet the Requirements and on what frequency. Do not include any information regarding actual cost or price.

H. Proposal Section 6: Adherence to the Scope of Work and Requirements, Terms and Conditions and Requirements Conformance Matrix

The Proposer must complete and submit the MS Excel version of the Requirements Conformance Matrix which is provided in .xlsx format in **Exhibit C, C-7**. The matrix covers each of the functional and technical Requirements set forth in the Scope of Work and Requirements. Note: Proposers are not to modify the technical Requirements listed in the Requirements Conformance Matrix in any way and must use the worksheets and instructions below to complete the matrix. The Proposer shall submit a PDF version of the completed matrix in Proposal Section 6: Adherence to the Scope of Work and Requirements, Terms and Conditions and Requirements Conformance Matrix of the Technical Proposal as a PDF, in addition to submitting the Excel version of the matrix, as directed in the Technical Proposal submittal procedure.

1. If a Proposer indicates in the Requirements Conformance Matrix that a Technical Requirement is not provided ("N"), the specific Requirement(s) to which exception is taken

must also be separately identified and explained in Proposal Section 6. For each of the "N" items, indicate a description of the exception taken in the comment's column of the Requirements Conformance Matrix and provide a more detailed explanation in this Proposal Section 6, including the Section and Requirement number. A Requirement marked with "N" does not waive or alter the Requirement of the Contract.

2. The Proposer must submit its Technical Proposal on the basis of the terms and conditions set out in **Section 3, Terms and Conditions**. The Authority may reject any Proposal that is predicated on the negotiation of terms and conditions or to other provisions of the RFP as specifically identified above.

3. Within Proposal Section 6, Proposers must clearly identify any assumptions and any exceptions against any portion of the RFP. Assumptions and exceptions noted by the Proposer may be considered during the Proposal evaluation process and within the Contract, at the sole discretion of the Authority. An "assumption" is a Proposer's stated expectation or supposition that would require a change to an item within the RFP or the addition or deletion of an item with the RFP. A Proposer's Price Proposal shall not be based on any assumptions or exceptions identified by the Proposer.

   Note: The Proposer shall identify the specific part (e.g. section/subsection number, title, and page number) of the RFP when they identify an exception or an assumption.

I. Proposal Section 7: Forms and Submittals –

The Proposer shall submit the following materials in the form of Proposal Appendices within forms required to be submitted as part of the RFP in Proposal Section 7, unless otherwise specifically directed. Proposers shall submit properly completed forms that have been provided in **Exhibit C, List of Forms**, as well as other required Submittals. Refer to the checklist in the table below. The checklist identifies where the form or Submittal is to be included in the Proposal.

Proposers shall not modify any of the forms unless specifically instructed by the Authority to do so. Completion of forms will be checked during the initial Pass/Fail screening of the submitted Proposals. Proposals not adhering to this requirement may be considered as non-responsive.

Table 1-5: Forms and Submittal Checklist

Form #	Form/Submittal Name	Location of Form/Submittal in Proposal
C-1	Proposal Affirmation Form	Pass/Fail Criteria
C-2	List of Subcontractors Form	Technical Proposal Section 7
C-3.1	Conflict of Interest Statement Form	Pass/Fail Criteria
C-3.2	Conflict of Interest Disclosure Form	Pass/Fail Criteria
C-4	Company Reference Forms	Technical Proposal Section 7
C-5	Key Personnel and Qualifications Forms	Technical Proposal Section 7
C-6	Key Personnel Reference Forms	Technical Proposal Section 7

Form #	Form/Submittal Name	Location of Form/Submittal in Proposal
C-7	Requirements Conformance Matrix	Technical Proposal Section 7
C-9	Acknowledgment of Receipt of Addenda Form	Pass/Fail Criteria
N/A	Surety Commitment Letter	Pass/Fail Criteria

J. Proposal Appendices

The Proposer shall submit the following materials in the form of Proposal Appendices in accordance with the instructions provided in the sections above:

- Appendix 1 – Key Personnel Resumes
- Appendix 2 – Product Cut Sheets
- Appendix 3 – Preliminary BOM
- Appendix 4 – Sample Reports
- Appendix 5 – Automatically Detected Faults
- Appendix 6 – Preliminary Project Implementation Schedule

The Proposer shall not discuss or reveal cost elements of the Price Proposal in the written Technical Proposal.

1.20.3 TECHNICAL PROPOSAL EVALUATION

1.20.3.1 TECHNICAL PROPOSAL EVALUATION CRITERIA

1. **Evaluation Committee**. An Evaluation Committee will be established by the Authority to review, evaluate, and score all responses submitted in response to this Solicitation. The Authority reserves the right to request additional information and clarification of any information submitted, including any omission from the original response.

2. **Material Content Conformance and Responsiveness**. Technical Proposals will be evaluated on the conformance of the material content and their responsiveness to the requirements of **Section 1.20.2, Technical Proposal Contents** and degree of adherence to the Scope of Work and Requirements set forth in this document.

3. **Demonstration and Interview**. While each demonstration and interview will provide an opportunity for the Evaluation Committee to further its understanding of the Technical Proposals and the Proposer's product offering, they will also factor into the Evaluation Committee's technical evaluation and scoring.

4. **Technical Scoring**. The evaluation process will consist of a quantitative scoring and ranking of the Technical Proposals in order to ascertain which Proposer best meets the Authority's needs for the RTCS. Following the demonstration and interview period, the Evaluation Committee will complete and submit its technical scores to the Authority's Contracts and Procurement Manager. The scoring will consider both the Technical Proposal and the results of the demonstrations and interviews, with

maximum potential technical score points for each Technical Proposal as shown in **Table 1-6: Proposal Elements and Maximum Possible Points Breakdown** below.

5. **Responsive**. Any Technical Proposal that is found non-compliant with the requirements of the RFP or that is scored below 55 (averaged) points out of 75 possible total points on the evaluation will be considered non-responsive and will not be considered further. The Authority shall not open any Proposer's Price Proposal that does not meet the minimum average score of 55.

1.20.3.2 TECHNICAL PROPOSAL SCORING

The Evaluation Committee shall individually evaluate the written Technical Proposal submitted by each responsive Proposer, along with supplementary information provided during the Demonstration and Interview, based on the categories outlined in this section. Each Evaluation Committee Member shall score each Proposer individually. An average score for each Proposer shall then be computed by the Authority.

The Evaluation Committee will meet to confirm their scores of the Technical Proposal on the date, time and at the location stated in **Table 1-1: Schedule of Events**. Proposers are not required to attend; however, the meeting is open to the public.

Table 1-6: Proposal Elements and Maximum Possible Points Breakdown

Elements	Possible Points
Proposal Section 1: Proposer Experience and Qualifications	15
Proposal Section 2: Key Personnel Qualifications	10
Proposal Section 3: Approach to Scope of Work and Requirements	30
Proposal Section 4: Approach to Project Plan and Implementation	10
Proposal Section 5: Approach to Operations and Maintenance	10
Total	75

The 75 total points are for scoring of the Technical Proposal only and will be combined with the Price Proposal Score to provide a Final Score.

After ranking of the Respondents by the Evaluation Committee, the Price Proposals will be opened.

1.20.4 DEMONSTRATION AND INTERVIEW OVERVIEW

The Authority will invite responsive shortlisted Proposers to participate in demonstrations and interviews. The demonstration and interview portion of the technical evaluation will provide an opportunity for the Evaluation Committee to further its understanding of the Technical Proposal and the Proposer's product offering. Any such demonstrations and interviews will be conducted in accordance with Section 286.0113, Florida Statutes.

Demonstration and Interview Format:

Each demonstration and interview will last 110 minutes, and the agenda will be as follows:

- Proposer Room Setup – 10 minutes, which will not count towards the Proposer's time.
- Authority Announcements and Procurement Rules – 5 minutes, which will not count towards the Proposer's time.
- Presentation – 20 minutes
- Demonstration of items listed below – 45 minutes
    - Daily transaction report generation
    - Transaction search functionality
    - Inventory/Asset management module
    - Dashboards (Last set of transactions, file transfers, alerts, MIR status)
    - MIR functionality (first review, escalation, and auditing capabilities)
    - RSS Host Health Monitoring and 3rd party integration with the alert system
    - Cable Management and Mapping for the communications/server equipment
    - AVI Correlation and vehicle classification
    - Subsystems Overview
    - Final disposition of fully formed transactions before being sent to the back office
    - KPI Self-reporting
    - Future technology/ Innovation (Overhead classification/ Bluetooth/ Geo Fencing)
- Question and Answer Period – 45 minutes

Demonstration and Interview Rules:

- Proposers must provide their own equipment necessary to conduct the demonstration and interview (e.g. laptop computer with HDMI or C-port connection, computers, projector, screen, etc.)
- Proposers will be required to submit to the Proposer's designated SharePoint a copy of their presentation twenty-four (24) hours in advance of the first Proposer's demonstration and interview.
- Each demonstration and interview will be conducted in closed door sessions with the Proposer, Authority staff, the Evaluation Committee, and the Authority's Technical Advisors.
- Each demonstration and interview will be recorded.
- Proposers will not be allowed to ask any questions of the Authority during the demonstration and interview.
- Proposers will not be allowed to provide any handouts or leave any materials behind for the Authority other than business cards.

The Authority reserves the right to modify the demonstration and interview agenda and the rules. The Authority's Procurement Office shall include each Proposer's specific time and date in the **Notice of Invitation to Demonstration and Interview** to be distributed by the Authority.

1.21 PHASE 2 – PRICE PROPOSALS - PROVIDED TO SHORTLISTED PROPOSERS

1.21.1 GENERAL

The Price Proposal shall include all costs associated with both the Implementation Phase and Operations and Maintenance Phase of the Project based on the evaluation quantities provided in **Exhibit B, B-2 Price Proposal Forms**. The Price Proposal for the Implementation Phase shall reflect a firm, fixed price. The Price Proposal for the Operations and Maintenance Phase shall reflect a mix of firm, fixed price, subject only to approved Contract Modifications in accordance with the General Conditions. The Total Implementation Phase RTCS Cost shall not be subject to any economic price adjustments. Price Proposals shall be evaluated on the Total Evaluation Price as identified in the Price Proposal Instructions.

Proposers shall prepare the **Exhibit B, B-2 Price Proposal Forms** using instructions found in **Exhibit B, B-1 Price Proposal Instructions**. Any Price Proposal that is incomplete, contains significant inaccuracies or inconsistencies, or does not comply with the requirements herein, may cause the Proposer's Proposal to be rejected by the Authority.

Proposers shall not include any assumptions in their Price Proposals. Inclusion of assumptions in the Price Proposal may result in the Authority, in its sole discretion, deeming the Proposal non-responsive. Assumptions should be provided in the manner set forth in **Section 1.20.2.1, Technical Proposal Scored Criteria, Subsection H**.

1.21.2 PRICE PROPOSAL SUBMITTAL PROCEDURE

1.21.2.1 PRICE PROPOSAL SUBMITTAL REQUIREMENTS

The Price Proposal must be uploaded to the SharePoint folder as designated and directed by the Authority's procurement office by the due date and time provided in **Table 1-1: Schedule of Events**. The Authority will not accept or consider Price Proposals received after the due date and time. It is the Proposer's responsibility to ensure all files are uploaded to the SharePoint folder.

1. Price Proposals shall be provided in searchable PDF (Adobe Acrobat) and MS Excel (*.xlsx) formats. Both versions of the Price Proposal may be packaged into a single .ZIP file to upload to the Proposer's assigned SharePoint folder.
2. The file format for the electronic MS Excel copy of the Price Proposal shall be Microsoft Excel 2016 or later.
3. The Price Proposal for this Solicitation shall indicate clearly that it is the Price Proposal for this Solicitation and clearly identify the Proposer's name and address, contact number, Project number, and Project description. All file names associated with the Price Proposal shall also clearly identify the file as the Price Proposal. Price Proposals transmitted by facsimile, e-mail or mail are non-responsive and will not be considered. Only one (1) Price Proposal per legal entity is acceptable.
4. Proposers shall <u>not</u> include any assumptions in their Price Proposals. If the Proposer includes assumptions in its Price Proposal, the Authority may reject the Proposal.
5. Any costs for work that is not provided in the Price Proposal will be assumed as no charge to the Authority.
6. The Price Proposal may be signed electronically.

7. All pricing data shall be in United States dollars.

8. All prices for the Implementation Phase and Year 1 of the Operations and Maintenance Phase are fixed and shall not be subject to any economic price adjustments for quantity variation, inflation, tariffs, currency exchange, other economic conditions, or otherwise.

1.21.2.2 PRICE PROPOSAL SUBMITTAL LOCATION

Price Proposals must be received by the Authority via upload to the designated SharePoint folder by the time specified in **Table 1-1: Schedule of Events**.

The Price Proposal, and associated files, shall be secured and unopened until the date specified for opening of Price Proposals. Price Proposals received after the due date specified in this Procurement Document may not be considered.

It is solely the Proposer's responsibility to ensure that the Price Proposal is received by the Authority by the due date and time. Proposers are encouraged to provide themselves with ample time to ensure Price Proposals are received by the Authority on time. The Authority is not responsible for any Proposer's delay or failure to successfully transmit their Price Proposal on time.

Price Proposals will be publicly opened and the contents noted at the time and place specified in **Section 1.2.3, Current Schedule of Events**. Proposers or their authorized Agents are invited to be present during the Price Proposal opening.

1.21.3 FLORIDA SALES AND OTHER TAXES

The Proposer is responsible for paying to the appropriate governmental entity all applicable taxes. Any applicable tax shall be included in the Price Proposal provided by the Proposer, whether or not yet effective or merely scheduled to go into effect.

1.21.4 PRICE PROPOSAL GUARANTY

A Price Proposal Guaranty in an amount of not less than five percent (5%) of the Total Evaluation Price shall accompany each Proposer's Price Proposal. The Price Proposal Guaranty may, at the discretion of the Proposer, be in the form of a cashier's check, bank money order, bank draft of any national or state bank, certified check, or surety bond, payable to the Authority.

The surety on any Price Proposal Guaranty shall be a company recognized to execute bid bonds for contracts of the State of Florida. The Price Proposal Guaranty shall stand for the Proposer's obligation to timely and properly execute the Contract and supply all other submittals due therewith. If the Proposer improperly withdraws its Proposal, or if the Proposer receives a Notice of Decision and fails to execute and deliver to the Authority any of the Contract Documents or information required by this RFP within thirty (30) Calendar Days after the Authority's written request, the Authority shall be entitled to the full amount of the Price Proposal Guaranty, not as a penalty, but in liquidation of and compensation for damages. The amount of the Price Proposal Guaranty shall be a liquidated sum, which shall be due in full in the event of default, regardless of the actual damages suffered. A Notice of Decision may then be provided to the next highest scoring, qualified, responsible Proposer whose Technical and Price Proposal is responsive to the Request for Proposals. The Price Proposal Guaranty of all Proposers shall be released upon the Authority's award of the Contract.

1.21.5 PRICE PROPOSAL SCORING

Price Proposal scoring is the process of examining a prospective price without evaluation of the separate cost elements. Price analysis is conducted through the comparison of price quotations submitted. The procurement office will assign points based on the formula for Price Proposal points identified herein. The Price Proposal shall be worth a maximum of 25 points.

The criteria for Price Proposal scoring shall be based on the following formula:

(Lowest Total Evaluation Price of all Proposals / Proposer's Total Evaluation Price) x Maximum Price Points (25 points) = Proposer's Price Proposal Score (to the hundredth decimal)

FINAL SELECTION AND BASIS OF AWARD

1.21.6 FINAL SELECTION FORMULA

The Authority shall publicly open the sealed Price Proposals and calculate a final score using the following formula:

Technical Proposal Score + Price Proposal Score = *Final Score*

1.21.7 FINAL SELECTION PROCESS AND BASIS OF AWARD

After the sealed Price Proposals are received, the Authority will have a public meeting for the announcement of the Technical Proposal scores and opening of Price Proposals. At this meeting, the Authority will announce the score for each member of the Evaluation Committee, by category, for each Proposer and each Proposer's technical score. Following the announcement of the technical scores, the Price Proposals will be opened and the final scores calculated. The Authority will document the preliminary results as presented in the meeting.

The scoring of firms based on the Evaluation Committee's evaluation will be presented to the Authority's Board for consideration and Approval with a recommendation that the Proposer with the highest Final Score will be selected on the date, time and at the location stated for the **Board Approval of Final Ranking and Award of Contract** referenced in **Table 1-1: Schedule of Events**. The Authority's Board of Directors will review the recommendation of the Evaluation Committee and will make a final determination.

The Authority's Board reserves the right to correct any errors in the evaluation and selection process that may appear to have been made. The Authority's Board is not obligated to award the Contract and may decide to reject all Proposals. If the Authority's Board decides not to reject all Proposals and award the Contract, the results will be posted no later than the date, time and at the location stated for the posting of the Notice of Decision referenced in **Table 1-1: Schedule of Events**.

All decisions regarding the award of the RTCS Contract shall be made by the Authority's Board at open public meetings in accordance with the requirements of Florida Statutes, Section 286.011, and all interested parties are invited to attend such meetings.

1.21.8 REJECTION OF PROPOSALS

A Proposal may be considered irregular and may be rejected if, in the Authority's sole discretion, the Proposal contains any omissions, alterations of form, additions not called for, conditions, limitations, unauthorized alternate Proposals or other irregularities of any kind. In addition, the Authority reserves the right to reject for any reason, in its sole discretion, all Proposals at any time prior to full execution of a Contract and delivery of same to the Proposer.

1.21.9 EXECUTION OF THE CONTRACT

Unless all Proposals are rejected, the Authority intends to issue a Notice Decision for the RTCS Contract to the apparent successful Proposer. The Notice of Decision does not create a contractual relationship between the parties. Rather, it triggers the Proposer's obligation to, within thirty (30) Calendar Days of the date of Notice of Decision (or other such time fixed by the Authority in writing), execute and deliver to the Authority all of the required Contract Documents, including, but not limited to the following:

- The RTCS Contract in the form contained in the Contract Documents;
- The Performance Bond and Payment Bond in the form contained in the Contract Documents, each for not less than the amounts specified in **Section 1.9, Payment and Performance Bonds**;
- The Power of Attorney and Countersignature for the Performance and Payment Bonds;
- The Certificate of Insurance evidencing the required insurance coverage; and
- Any other documents requested by the Authority

The above documents must be furnished, executed, and delivered to the Authority before the Contract Documents will be executed by the Authority. The RTCS Contract shall not be deemed awarded and shall not be binding upon the Authority until it has been executed by the Authority and a copy of the fully executed Contract Documents, including an NTP, is delivered to the successful Proposer. The original copy will be retained in the Authority's Office.

In the event that the apparent successful Proposer fails to execute the awarded RTCS Contract and to submit the above documents within the time prescribed, the Authority may annul the award, causing the Proposer to forfeit the Price Proposal Guaranty to the Authority as liquidation of damages sustained. The Authority may then award the Contract to the responsible Proposer with the next highest Final Score, re-advertise, or accomplish the Project using alternate resources.

Proposers are hereby informed that the award of this Contract is contingent upon the Authority's available funding. The Authority reserves the right not to proceed with the award of the Contract for any reason, including, but not limited to, if the lowest Total Contract Amount exceeds the Authority's estimates or budget, or funding is otherwise unavailable. The Authority shall have the right to rescind its Notice of Decision without liability, except for the return of the Price Proposal Guaranty to the Proposer, at any time before the Contract Documents have been fully executed by all parties and delivered to the Proposer.

Section 2

Defined Terms and Acronyms

2 DEFINED TERMS AND ACRONYMS

2.1 DEFINED TERMS:

Term	Definition
Access Control Central System (ACCS)	The Authority-provided system for managing and monitoring the access to and traffic direction for the Reversible Express Lanes.
Access Control List (ACL)	A list of permissions associated with a system resource. An ACL specifies which Users or system processes are granted access to resources, as well as what operations are allowed on given resources.
Access Control and Security Monitoring System (ACSMS)	A comprehensive setup designed to manage and monitor access to physical or digital resources
Active	The System in a Disaster Recovery architecture that is currently handling all operations and serving user requests. It is the primary System that is fully operational and in use.
Addendum/Addenda	A written interpretation, correction, clarification or change to the Procurement Documents considered necessary by the Authority
Agent	A representative designated to act behalf of another party (for example, the Authority or the Contractor).
Alert	The automatic identification and/or notification to designated parties of an RTCS failure or anomaly that requires a response. These alerts may be generated by the RTCS or received by the RTCS from external entities.
All-Electronic Tolling (AET)	A tolling process that enables an agency to bill or debit the toll accounts of registered vehicles for fares they incur while moving along a Toll Facility. Patrons are identified by the use of an on-board Transponder or by capturing the vehicle's license plate.
Approve	The term "Approve" and its variations (e.g., "Approval" or "Approved"), when capitalized in the Contract refer to acceptance of a process, document, condition, action, or Deliverable in writing by the Authority. Approval by the Authority shall not be construed to mean endorsement or assumption of liability by the Authority, nor shall it relieve the Contractor of its responsibilities under the Contract.
Authority	The Tampa Hillsborough County Expressway Authority (the "Authority") is an independent agency of the state that owns, maintains, and operates toll facilities within Hillsborough County.
Authority-Designated Representative(s)	Person or persons authorized by the Authority to represent the Authority in all dealings with the Contractor.

Term	Definition
Authority Project Manager	The Authority's duly authorized representative designated to manage this Work and Contract.
Authorized User	Using a role-based login, a user with specific authority to perform a function(s) in the System. An Authorized User could be the Contractor, an individual, or a third-party service provider designated by the Authority.
Automatic License Plate Recognition (ALPR)	An automated Software process that recognizes license plate characteristics, as well as the license plate characters which, in this application, extracts the license plate numbers, plate types, and jurisdictions from the image of the license plate as well as any "specialty plate configurations" for proper identifications with Department of Motor Vehicles (DMV) or others.
Automatic Vehicle Detection and Classification (AVDC)	A system of integrated devices, components, and Software that perform the automatic detection of vehicles and detect the number of axles touching the pavement.
Automatic Vehicle Identification (AVI)	A system of integrated devices and components that perform the automatic recording and reporting of vehicle transactions through electronic media.
Baseline Project Implementation Schedule	The Baseline Project Implementation Schedule is the schedule that has been baselined and Approved by the Authority pursuant to the Contract. This schedule shall capture all activities needed to fully implement the RTCS, beginning with NTP and continuing through Implementation Phase Acceptance. Upon approval by the Authority, this schedule shall be maintained by the Contractor and used to track and measure all Project activities and progress. Also see "Project Implementation Schedule" and "Updated Project Implementation Schedule."
Business Day	A weekday, excluding Authority observed Holidays, beginning at 12:00:00 a.m. and ending at11:59:59 p.m.
Business Rules	A set of operational and System rules that detail how the RTCS operates based on business policies and procedures and Authority practices. Also: Business Rules Document
Calendar Day	Every day, including weekends and Holidays. beginning at 12:00:00 a.m. and ending at11:59:59 p.m.

Term	Definition
Certification	The Contractor's written verification and validation, with full supporting Documentation (including test results where applicable) that the Contractor has completed development of the Deliverable and certified its readiness for Approval, testing, or review, as applicable.
Change Order	Changes to the Project scope, cost, time to complete dates, Contract terms, request for enhancements, or modifications to the quantities of Work within the scope pursuant to the Contract are examples of activities that may result in a Change Order being necessary to capture and quantify a change.
Commission	The term Commission and its approved variations (e.g., "Commissioned" and "Commissioning"), when capitalized in the Contract, refer to the test that occurs upon completion and Approval of installation that indicates readiness for Operations.
Completed Transaction	A fully formed Transponder or Image based Transaction (including manual or automated (e.g. ALPR/OCR) Image processing) ready for transmission to the Authority OBOS as further set forth in the Scope of Work and Requirements.
Configurable	Functionality provided such that changes to the related thresholds, values, methods, parameters, and/or settings shall not require additional Software development and Software testing effort. Verification of the change for this purpose is not considered testing. This same meaning applies to all variations, e.g., Configured, Configuration.
Conformed Scope of Work and Requirements Document (CSWRD)	The updated Requirements as agreed to by the Authority, as identified in the Scope of Work (SOW). When the term "Scope of Work and Requirements" is referred to in the executed Contract Documents it is referring to the CSWRD, unless otherwise indicated.
Contract	The legally enforceable contract between the Authority and the Contractor covering the RFP solicitation; Section 4, Scope of Work and Requirements; the Contract Terms and Conditions; procurement questions and answers; the Contractor's Proposal; any appendices, exhibits, and attachments thereto; and any written Contract Amendments that may be agreed to during the Contract Term.
Contract Amendment	A change in the Contract executed in writing made by adding, altering, or omitting a certain part or term. Changes to the Project scope, cost, time to complete all Work prior to Go-Live, and/or modifications to Contract Terms are examples of activities that may result in a Contract Amendment being necessary to capture and quantify a change pursuant to Section 3, Terms and Conditions.

Term	Definition
Contract Documents	The documents forming the executed Contract between the Authority and the Contractor including all Addenda, attachments, exhibits and appendices thereto, any supplemental agreements, Contract Amendments, Deliverables, Contract modifications, and all provisions required by law to be inserted in the Contract, whether actually inserted or not.
Contract Term	The duration of the Contract, commencing when the Contract is fully executed through its termination, including any authorized renewals and extensions.
Constructor	The Authority's contractor for the South Selmon Capacity Project or any future tolling expansion construction. Also referred to as the "SSCP Contractor."
Contractor	The person, proposer, corporation, or entity undertaking the execution of the Work with whom the Authority has entered into a Contract.
Contractor Project Manager	The Contractor's duly authorized representative designated to manage the Contractor's performance of the Work in accordance with the Contract.
Custom Software	Any source code developed or modified specifically for the Authority, System or application customizations, and configuration settings, internal embedded Software, firmware provided for the Authority and to meet the obligations of this RTCS RFP.
Dashboard	A visual display of collected information that is consolidated, arranged, and displayed on a screen(s) in an interactive and intuitive manner so that the information can be monitored and interpreted at a glance. A Dashboard should include access to drill down links for more detailed information, including, but not limited to, additional screens, static and drill-down reports.
Days	Calendar Days, unless otherwise specified.
Deliverable(s)	All Documentation and any items of any nature submitted by the Contractor to the Authority's Project Manager for review and Approval pursuant to the terms of the Contract. See "Submittal."
Deposit Materials	The tangible and intangible assets a software developer places into escrow with a neutral third party as set forth in the Software Escrow Agreement.

Term	Definition
Design	The process, Documentation, and Deliverables that define and establish all elements of the System, including but not limited to the architecture, components, modules, interfaces, and data for the System to satisfy the Requirements. Also meant to refer to the completed Design Document. See "Design Documentation."
Design Documentation (Design Document)	Documentation, including Deliverables required by the Contract, that describe, document, and elaborate the Design for review and Approval by the Authority, including as examples: The Software Development Plan, System Requirements Document, System Detailed Design Document (SDDD), and other materials required to adequately document the System as Designed.
DevOps	A methodology in the software development and information technology (IT) industry that integrates and automates the work of software development (Dev) and IT operations (Ops).
DevOps Pipeline	A series of automated processes and tools that enable development (Dev) and operations (Ops) teams to collaborate on building, testing, and deploying code to production environment.
Disaster Recovery	A set of processes and techniques used to help an organization recover from a disaster and continue or resume routine business operations.
Disaster Recovery Plan (DRP)	A document that describes the process for continued RTCS operations and performance of RTCS and business functions in the event of an unplanned service disruption.
Disaster Recovery Test	A Formal Test to ensure that the RTCS can be returned to a fully operational state in the event of a catastrophic failure of the Primary RTCS.
Documentation	Material, Submittals, and Deliverables that provide official information or evidence that serves as a record in accordance with the Contract.
Electronic Document Management System (EDMS)	A digital solution designed to manage, store, and track electronic documents and images of paper-based information.
Electronic Toll Collection (ETC) Transaction	A transaction associated with a valid Transponder.

Term	Definition
Equipment	Refers to the electronic appliances and services related to the System, including peripherals necessary to facilitate communication between internal and external devices, as well as servers, routers, switches, power units, network devices, hard drives, racks, other computer Hardware and components, cabling, and related or ancillary Equipment, machinery, and components necessary for the System to operate. See also "Hardware."
Escrow Agreement	The agreement established to ensure the System software developed for this Project (e.g., source code or other critical materials) are securely held by a neutral third party to be released to the Authority under pre-defined conditions, thereby ensuring the continuity of business operations for the Authority. Also referred to "Software Escrow Agreement."
Existing Toll Zone	A Toll Zone with active tolling prior to the commencement of the Project.
Force Majeure	The failure of the Contractor or the Authority to actually and timely perform its obligations under the Contract due to an act of God, hurricane, flood, war, fire, riot, pandemic (not including COVID-19), or actions of governmental authorities wholly outside the control or fault of the performing party (excepting compliance with applicable codes and regulations) will not be considered a breach of the Contract. In this event, the time for performance of such obligations may be extended for a period commensurate with the delay, but the Contractor will not receive any additional compensation related to the delay.
Go-Live	The date on which live Operations commence, full and correct data transmission between the RTCS and the OBOS is taking place. The RSS and each Toll Zone may have separate Go-Live dates.
Go-Live Readiness	The Process of the Authority providing Acceptance that the RSS and at least 1 (one) Toll Zone have met the Go-Live prerequisites for revenue operations in accordance with the Go-Live Readiness provisions of Section 3 Terms and Conditions of the Contract.
Hardware	The physical components of the System, including but not limited to associated peripherals (e.g. internal pieces and connected eternal devices), firmware, electrical and communications cabling and other materials and supplies, furnished by the Contractor, necessary to provide Services pursuant to the Contract Documents.
Holiday(s)	Days that are designated by the Authority as Holidays for purposes of the Contract.

Term	Definition
Hotlist	An enforcement notification list that contains Transponder and/or license plate numbers that the Authority requires notification on.
Image-Based Transaction (IBT)	A transaction that uses license plate data rather than a Transponder to identify the vehicle.
Implementation Phase	The phase of the Project, which begins at Notice to Proceed and ends at Implementation Phase Acceptance, that includes but is not limited to, the System Design and Documentation, System development, implementation, testing, and training.
Implementation Phase Acceptance	The acceptance of the Implementation Phase in accordance with the Terms and Conditions of the Contract.
Incomplete Transactions	Transactions sent to the OBOS from the RTCS which are not ready for processing by the OBOS (e.g., IBTs which do not have license plate data).
Interface Control Document (ICD)	Unless the context dictates otherwise, the RTCS-OBOS ICD defining the data and interfaces for data sent from the RTCS to the OBOS (Transactions and images) as well as requests sent from the OBOS to the RTCS.
Interoperable (Interoperability)	A relationship between tolling agencies or entities where their systems are capable of capturing and transmitting transactions generated on an agency's roads by customers of the other agency or entity. Generally, requires that reciprocity agreements between agencies and entities are in place to govern payments and reconciliation.
Interoperable Agency(ies)	A toll or non-toll entity that has reciprocal rights for processing Transactions with the Authority. Interoperable agency customers may utilize their home account mechanism (Transponder or license plate) to travel on the Authority's facilities and have their home account charged for the Authority's toll.
Invoice Adjustment	A reduction in the Contractor's invoice as a result of non-compliance with KPIs.
Key Performance Indicator (KPI)	A subset of Requirements that will be subject to Invoice Adjustments if the Requirement is not met or exceeded.
Key Personnel	Staff designated as "key" in the Authority RTCS Contract, subject to the Approvals and conditions set forth therein

Term	Definition
Maintenance	Services performed by the Contractor pursuant to the Scope of Work and Requirements, such as System administration, upkeep, inspection, troubleshooting, and repair of the RTCS components.
Maintenance Online Management System (MOMS)	An automated, fully integrated System that monitors the status of operational Equipment in real time, records Equipment, and process failures, notifies Maintenance personnel, generates, and tracks work orders, maintains preventative Maintenance schedules, generates repair history, and maintains parts inventory and asset management.
National Institute of Standards and Technology (NIST)	An agency of the United States Department of Commerce. NIST is responsible for developing, maintaining, and disseminating national standards for measurement science, technology, and security.
National Interoperability (NIOP)	The allowance of customers to pay for travel across jurisdictions with a single account and multiple payment options. Agencies that abide by the NIOP adhere to the associated requirements that allow for the exchange and settlement of tolling transactions.
Network Time Server	A server that provides time synchronization services to other devices on a network.
Network Time Protocol	An internet protocol used to synchronize with computer clock time sources in a network.
New Toll Zone	A Toll Zone where a new toll gantry has been erected which has not previously been used for tolling. It refers to the SSCP and EMR sites as indicated in the SOW Table 7-1.
Non-custom Software	Any Software that is not Custom Software, including routines, libraries, tools, methodologies, processes, or technologies (collectively, the "Development Tools") created, adapted, or used by the Contractor in its business generally, including any or all associated intellectual property rights, licensed to the Authority that shall be and remain the sole property of the Contractor.
Notice	A formal communication addressing legal and Contractual matters.
Notice to Proceed (NTP)	A written communication issued by the Authority to the Contractor authorizing the Contractor to proceed with the Contract work. NTP is also referred to as the date that the Contractor is advised by the Authority, in writing, to commence work.
On-premises (On-prem)	Any software, service or application that is housed within the physical location of an enterprise, rather than in a hosted remote hosted data center.
Operational Back Office System (OBOS)	The Authority's toll transaction system of record, provided by a third-party contractor, that processes Complete Transactions transmitted by the RTCS.

Term	Definition
OBOS Contractor	The Contractor responsible for the OBOS and associated operations.
Operational	Refers to the state in which a system, subsystem, process, or Equipment is capable of performing its designated function in accordance with the Requirements.
Operations	Services performed by the Contractor, pursuant to the Scope of Work and Requirements, such as transaction processing and image review, to be furnished under the Contract.
Operations and Maintenance Phase	The Project phase which begins upon Go-Live into revenue operations. It includes, but is not limited to, System monitoring, transaction processing, Maintenance, and Performance in accordance with requirements of this Contract, and ends with the termination of the Contract.
Operations and Maintenance Services	The activities associated with ongoing Operations, Maintenance, and related Services required to be furnished by the Contractor, pursuant to the Contract.
Order of Precedence	The order in which Contract Documents control in the event of a conflict or ambiguity in such documents.
Performance Requirements	The required level of performance standards for the Contract as set forth in the Scope of Work and Requirements**.**
Pervasive Defect	A persistent or reoccurring issue or problem.
Positive (POSI) List	A list of the status of all Transponders that could be used in the Authority toll system.
Price Proposal	Contractor pricing provided in response to this RFP and in accordance with the instructions provided herein.
Priority	Ranking and assignment of importance used in the identification, monitoring, correction and reporting of System problems, bugs, and failures.
Procurement Documents	The documents that are included or referenced in this RFP or provided to Proposers, including without limitation as made applicable to this Solicitation through the RFP (including, but not limited to, the advertisement, the attachments, the Scope of Work and Requirements (Section 4), the draft Contract, Certifications, Addenda, and the documents, reports, and information referenced in such RFP unless otherwise explicitly stated.

Term	Definition
Project	The total Work set forth and detailed within the Contract Documents.
Project Implementation Schedule	The detailed schedule developed and maintained by the Contractor that lists all tasks related to the Design, development, testing, installation, and deployment of the System. The schedule is subject to Approval by the Authority. Upon Approval, it becomes the Baseline Project Implementation Schedule pursuant to the Contract. Also see "Approved Baseline Project Implementation Schedule" and "Updated Project Implementation Schedule."
Proposal	Contractor's entire submission in response to this RFP. Also see "Price Proposal" and "Technical Proposal."
Proposer	An entity that has submitted a Proposal to this RFP.
Quality Assurance (QA)	The documented guidelines, processes and procedures to ensure a product, System or document does not have defects.
Quality Control (QC)	The execution of the processes identified in Quality Assurance.
Recovery Point Objective (RPO)	The point in time, prior to a disruption or system outage, to which data can be recovered (given the most recent replication of the data) after an outage. It is a description of how much data loss can be tolerated during the recovery process.
Recovery Time Objective (RTO)	The maximum amount of time that a system resource can remain unavailable before there is an unacceptable impact on the operations.
Request for Proposal (RFP)	The mechanism used to communicate Procurement specifications and to request responses from potential proposers. An RFP may also be referred to as a "Solicitation." See also "Procurement Documents" and "Solicitation."
Requirements	Each of the required Work activities in numbered form as set forth in the Scope of Work and Requirements that the Contractor shall perform, including but not limited to technical, functional, project management, Operations and Maintenance, and Performance.
Revenue Day	The 24-hour toll collection day expressed from 00:00:00 a.m. to 11:59:59 p.m. in local time unless otherwise Approved during Design.
Revenue Service Commencement	When the RSS or a Toll Zone begin revenue service based on a successful commissioning test and Authority Approval to commence revenue service.

Term	Definition
Roadside System	The entirety of the Equipment and Software that detects vehicles traveling through a Toll Zone, captures vehicle data, distributes power, monitors Toll Zone Equipment and cabinets, or otherwise performs functions at a Toll Zone, including all auxiliary Equipment such as network switches, Uninterruptible Power Supplies (UPSs), etc. The Roadside System also includes server systems which are not part of the RSS, such as Plaza Servers, if they exist. Roadside System equipment resides at the Toll Zones.
Roadside Toll Collection System (RTCS)	The entirety of the Software and components including firmware, Hardware, Equipment, components, subcomponents, furniture, and fixtures provided, procured, furnished, and installed under the Contract to meet the Requirements, as further set forth in the Contract Documents. Also referred to as "System."
Roadway Support System (RSS)	The portions of the Roadside Toll Collection System which are not located at the Toll Zones, including but are not limited to the Toll Host System, Image Review System, facility servers (if provided), DVAS, and the MOMS.
Role-Based Access Control (RBAC)	A method of controlling and restricting system access based on the authorized roles of individual Users.
Services	All Contractor activities required by the Contract. Also referred to as "Work."
Simple Network Management Protocol (SNMP)	An internet standard protocol for collecting and organizing information about managed devices on internet protocol (IP) networks and for modifying that information to change device behavior.
Single Sign-on (SSO)	An authentication scheme that allows a User to log in with a single ID to any of several related, yet independent, Software systems.
Software	All computer programs, media, procedures, rules, and associated Documentation pertaining to the control and operation of the data processing and data storage for the System. Software includes all associated features and functions described in the Contract, including all updates, derivative works, enhancements, modifications or Upgrades thereto, and all error corrections, patches and bug fixes provided by the Contractor and which is made part of the System, as well as all related or ancillary data files, modules, libraries, tutorial and demonstration programs, and other components thereof, all source and object code, firmware and all Documentation.

Term	Definition
Software Escrow Agreement	See "Escrow Agreement."
Solicitation	See "Procurement Documents" and "Request for Proposal."
Standby	The System in a Disaster Recovery architecture that remains idle or in a passive state, ready to take over if the Active system fails. It does not handle any operations or user requests.
Subcontractor	Any person, firm, or corporation, other than the Contractor's employees, who contracts to furnish labor, or labor and materials, at the Site(s) or in connection with the Services, whether directly or indirectly, on the Contractor's behalf and whether or not in privity with the Contractor. Also referred to as "Subconsultant."
Subconsultant	See "Subcontractor."
Submittal	See "Deliverable."
System	See "Roadside Toll Collection System."
Technical Proposal	Technical details provided by Proposers in response to this RFP, and in accordance with the instructions provided herein.
Test Toll Zone	The Toll Zone that is associated with the legacy toll gantry on the East Selmon Mainline. This Toll Zone is used for testing purposes.
Toll Facility	A collection of Toll Sites within limits of a roadway or roadway segment.
Toll Site	One or more Toll Zones located in close proximity covering tolling in opposite directions of traffic.
Toll Zone	The aggregate of adjacent AET lanes and shoulders (if any) within a single direction of travel and supported by a single set of Equipment.
Total Evaluation Price	The total price of both the Implementation and Operations and Maintenance Phases of the Project, inclusive of all costs for the Contractor to implement and achieve Implementation Phase Acceptance and all costs necessary for the Contractor to operate, monitor and maintain the System in accordance with the Scope of Work and Requirements, including, but limited to: insurance, labor, software, hardware, licenses, subscriptions, bonding costs, any cloud-based costs, escrow costs, etc. as detailed in the Price Proposal submitted in response to this Solicitation.
Transponder	A radio frequency (RF) device mounted within or on a vehicle and read by the RTCS RF antenna(s) and reader Equipment in in a toll lane for the purpose of toll payment through AVI.

Term	Definition
Transportation Management Center (TMC)	The Authority's operations center.
Updated Baseline Project Implementation Schedule	As the Implementation Phase of the Project progresses and as updates to the Approved Baseline Project Implementation Schedule are necessary, the Contractor shall make updates to the Approved Baseline Project Implementation Schedule and submit it to the Authority for review. Upon submittal to the Authority, it becomes the Updated Project Implementation Schedule. The Updated Project Implementation Schedule is subject to Approval by the Authority. Upon Approval it again becomes the Approved Baseline Project Implementation Schedule that will be used to measure and track progress for the Project. **Note**: An update to the Approved Baseline Project Implementation Schedule does not automatically mean the schedule will be re-baselined. The Contractor will not re-baseline the Updated Project Schedule without the prior approval of the Authority. Also see "Project Implementation Schedule" and "Approved Baseline Project Implementation Schedule."
Updates	Generally, refers to a patch released for existing Software to fix any identified bugs, errors, or security issues; may also include providing support for new Hardware, as well as performance tuning.
Upgrade	Generally, refers to transforming existing Software to a new version; provides new features and functionalities rather than fixing existing bugs, errors or security issues but does not include significant new functionality.
Warranty	An assurance by the Contractor that the Services in furtherance of the Contract are guaranteed by the Contractor and the Services provided will operate in conformity with specifications as defined by the Contract.
Work	See "Services."
Work Breakdown Structure (WBS)	A hierarchical decomposition of a project into smaller, more manageable components.

2.2 ACRONYMS:

Acronym	Meaning
AAR	After Action Report
ACCS	Access Control Central System
ACL	Access Control List
ACSMS	Access Control and Security Monitoring System
AET	All-Electronic Tolling
API	Application Programming Interface
ALPR	Automatic License Plate Recognition
ATS	Automatic Transfer Switch
AVDC	Automatic Vehicle Detection and Classification
AVI	Automatic Vehicle Identification
BCP	Business Continuity Plan
BOM	Bill of Materials
BR	Business Rules
BTU	British Thermal Unit
CAD	Computer Aided Design
CADD	Computer Aided Drafting and Design
CAP	Corrective Action Plan
CCSS	Centralized Customer Service System
CCTV	Closed-Circuit Television Camera
CEMS	Critical Environmental Monitoring System
COTS	Commercial Off-the-Shelf
CPU	Central Processing Unit
CSWRD	Conformed Scope of Work and Requirements Document
CUSIOP	Central United States Interoperability Hub
DMV	Department of Motor Vehicles
DR	Disaster Recovery
DRP	Disaster Recovery Plan

Acronym	Meaning
DVAS	Digital Video Audit System
EDMS	Electronic Document Management System
ELOR	Expanded Letter of Response
EMI	Electromagnetic Interference
EMR	East Mainline Reconstruction
ETC	Electronic Toll Collection
FAT	Factory Acceptance Test
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FIFO	First In, First Out
GTR	General Tolling Requirements
GUI	Graphical User Interface
HTML	Hypertext Markup Language
HTTPS	Hypertext Transfer Protocol Secure
HVAC	Heating Ventilation and Air Conditioning
IAG	E-ZPass Interagency Group
IBT	Image-Based Transaction
ICD	Interface Control Document
ICPS	Image Capture and Processing System
ID	Identification
IEEE	Institute of Electrical and Electronics Engineers
IP	Internet Protocol
IRS	Internal Revenue Service
ISO	International Standards Organization
ISP	Internet Service Provider
IT	Information Technology
KPIs	Key Performance Indicators
LAN	Local Area Network

Acronym	Meaning
LED	Light-emitting Diode
LP	License Plate
MPH	Miles per Hour
MOMS	Maintenance Online Management System
MOT	Maintenance of Traffic
MS	Microsoft
MTBF	Mean Time Between Failures
MTP	Master Test Plan
NEC	National Electric(al) Code
NEMA	National Electrical Manufacturers Association
NIOP	National Interoperability
NIST	National Institute of Standards and Technology
NTP	Notice to Proceed
OAT	Operational Acceptance Testing
OBOS	Operational Back Office System
OCR	Optical Character Recognition
OSHA	Occupational Safety and Health Administration
OSIT	On-Site Installation Test
PDF	Portable Document Format
PDU	Power Distribution Unit
PII	Personally Identifiable Information
PIN	Personal Identification Number
PMP	Project Management Plan
QA	Quality Assurance
QC	Quality Control
RBAC	Role Based Access Control
RCA	Root Cause Analysis
RDBMS	Relational Database Management System

Acronym	Meaning
RF	Radio Frequency
RFI	Radio Frequency Interference
RFP	Request for Proposal
ROI	Region of Interest
ROIT	RTCS-OBOS Interface Test
RPO	Recovery Point Objective
RTCS	Roadside Toll Collection System
RTM	Requirements Traceability Matrix
RTO	Recovery Time Objective
RSS	Roadway Support System
SBE	Small Business Enterprise
SDDD	System Detailed Design Document
SDLC	Software Development Life Cycle
SDP	Software Development Plan
SEIOP	Southeast U.S. Interoperability
SNMP	Simple Network Management Protocol
SOC	System and Organization Controls
SOW	Scope of Work
SSCP	South Selmon Capacity Project
THEA	Tampa Hillsborough County Expressway Authority
TMC	Transportation Management Center
UII	Unique Item Identifier
UL	Underwriter's Laboratory
UO	Unusual Occurrence
UPS	Uninterruptible Power Supply
URL	Uniform Resource Locator
VLAN	Virtual Local Area Network
VPN	Virtual Private Network

Acronym	Meaning
WAN	Wide Area Network
WBS	Work Breakdown Structure
WWV	Wrong Way Vehicle
XML	Extensible Markup Language
ZFO	Zero Fare Operation

Section 3

Terms and Conditions

3 TERMS AND CONDITIONS

3.1 CONTRACT TERMS AND CONDITIONS

3.1.1 PAYMENT TERMS AND CONDITIONS

1. Payment terms are net thirty (30) Calendar Days after receipt of a correct invoice. The Authority is responsible for all payments under the Contract. A "correct" invoice is one that contains an accurate description of the amounts due, has no errors, includes all required supporting information including payment Approvals, and meets all other requirements for invoicing set forth in the Contract.

2. For all Work related to the Implementation Phase, up to and including Implementation Phase Acceptance, the Authority will pay the Contractor the final, fixed Total Implementation Phase RTCS Cost as stated in the Price Proposal, less retainage and less any imposed liquidated damages and other authorized deductions. The Authority shall retain five (5) percent of each payment milestone amount. Retainage shall be paid in full to the Contractor upon the Authority providing the Implementation Phase Acceptance. The prices in the Price Proposal are all-inclusive of costs and expenses, including but not limited to travel and meals, and any and all labor, material, Software licenses, profit, overhead, insurance, taxes, and subcontractors costs incurred by the Contractor. For all Work related to the Implementation Phase, the Contractor shall invoice the Authority based on milestone payments set forth in **Exhibit A, A-1 Payment Schedule**. The Contractor shall maintain and track payments against **Exhibit A, A-1 Payment Schedule** as payments are invoiced and made, identifying invoiced, paid and outstanding amounts. The tracking shall be provided to the Authority as part of each correct invoice submitted.

3. Upon Go-Live of the RSS and the first Toll Zone and continuing throughout the Operations and Maintenance Phase, the Authority will pay the Contractor monthly RSS Maintenance and Software Support Services as set forth in the Contractor's Price Proposal. This amount is all inclusive of costs and expenses including but not limited to travel, meals, and any and all labor, material, third-party Maintenance and support agreements, all Hardware and Software support, Maintenance, renewal costs, all security Updates, profit, overhead, insurance, taxes, and all Subcontractor costs. Deductions to these payments may be made if the Contractor's performance is below the required Key Performance Indicators.

4. Upon Revenue Service Commencement for each Toll Zone and continuing throughout the Operations and Maintenance Phase, the Authority will pay the Contractor monthly Roadside System Hardware Maintenance and Software Support Services as set forth in the Contactor's Price Proposal. Payment is based on the number of Toll Zones in revenue service for the month or portion thereof. This amount is all inclusive of costs and expenses including but not limited to travel, meals, and any and all labor, material, third-party Maintenance and support agreements, all Hardware and Software support, Maintenance, renewal and replacement costs, all security Updates, profit, overhead, insurance, taxes and all Subcontractor costs. Deductions to these payments may be made if the Contractor's performance is below the required Key Performance Indicators.

5. Upon Go-Live for the first Toll Zone and continuing throughout the Operations and Maintenance Phase, the Authority will pay the Contractor variable Manual Image Review Transaction Processing Costs as set forth in the Contractor's Price Proposal, subject to the Manual Image Review percentage maximum as set forth in the Scope of Work and

Requirements. This amount is all inclusive of costs and expenses including but not limited to travel, meals, and any and all labor, material, third-party support agreements, Hardware, Software support/renewal costs, profit, overhead, insurance, taxes, and all Subcontractor costs. Deductions to these payments may be made if Contractor or RTCS performance is below required Key Performance Indicators.

6. In addition to the above, for any Phase or payment, the Authority may withhold the following items/amounts from any invoice:

   1. The cost of replacing defective parts or work paid to other parties.
   2. An amount to cover claims filed by the Authority or other parties against the Contractor.
   3. The cost of licenses, fees or permits the Contractor has failed to obtain and or pay for.
   4. The cost to repair damages to first or third party work that the Contractor has failed to repair.
   5. An amount for any violation of or failure to meet or comply with these Contract provisions.

7. Economic Price Adjustments for Operations and Maintenance Phase/CPI Actual Cost Adjustments: Pricing for Work that is performed beginning in Year 2 of the Operations and Maintenance Phase (i.e. one year after the O&M NTP is issued) and beyond will be subject to price escalation using the following Bureau of Labor Statistics' (BLS) Employment Cost (CPI) index in accordance with the terms and conditions of this section including that the Contractor has successfully passed the Contractor-led Annual System Certification, including resolving any punch list items identified. The Contractor shall have a period of thirty (30) calendar days from the date of Annual System Certification completion data to resolve all identified items without forfeiting eligibility for the CPI-based price adjustment for that year of the Operations and Maintenance Phase. If any punch list items remain unresolved beyond the thirty (30) day period, the CPI adjustment shall be applied starting in the month following resolution of all outstanding punch list items.

   CPI: CUUR0000SA0 **Consumer Price Index for All Urban Consumers (CPI-U)**

   NOTE: The above index name and number were obtained from the BLS and are current as of the date of this Contract. In the event that the BLS updates an index name or number, THEA shall consult the BLS web site to determine the new name and number of the index. In the event that one of the above index ceases to be published, the Authority and the Contractor shall negotiate and agree on another index to be used in place of the discontinued index, except as otherwise provided herein. Any such new index shall be comparable to the index that it replaces. Foreign (non-U.S.) indices and/or any corrections for trading of currency shall be prohibited.

   Adjustments may be made to prices based on actual CPI for each applicable year, subject to a 3% annual maximum adjustment.

   The baseline for the referenced CPI table is the last month following one full year of maintenance. The basis for calculating the actual CPI to be applied shall be as follows: Upon the start of each new year of the Operations and Maintenance Phase, pricing for each

new year of the Operations and Maintenance Phase shall be determined by comparing CPI for the prior year (annual) to the baseline (annual) to determine the percentage adjustment for that year, subject to a 3% annual maximum adjustment. The actual baseline price will be determined by applying price escalation in accordance with the terms of the Agreement.

The following is an example of how the CPI index change will be measured (as provided by the Bureau of Labor Statistics):

Table 1: CPI Change Calculation Example

CPI for current period	321.5
Less CPI for baseline	313.131
Equals index point change	8.369
Divided by previous period CPI	313.131
Equals	0.026727
Result multiplied by 100	0.026727 x 100
Equals percent change	2.67

The adjustment calculated as shown above will then be applied to the maintenance price using the applicable index using the above example of a 2.67% increase as follows:

(Price before escalation used for evaluation purpose) times (1+.0267) = New Price

8. Spare Parts are reimbursed by the Authority to the Contractor on a cost-plus basis as set forth in the Contractor's Price Proposal. The Contractor shall include with its invoice to the Authority the supplier's invoice, evidence of receipt of the invoiced Spare Parts and an inventory report from the System logging the invoiced Spare Parts. The Authority's price for Spare Parts with the exception of Proprietary Parts (as listed in the Contractor's Price Proposal) shall not exceed the lowest available retail market price plus allowable markup not to exceed 5%. The Authority's price for Proprietary Parts shall not exceed the lowest price paid by other Contractor customers for the same or substantially similar part, and in no case shall the price of Proprietary Parts increase by more than 3% per year.

9. Extra Work may be completed during the life of the Contract and includes tasks or projects identified as necessary by the Authority. All Extra Work shall be contracted in the form of a Purchase Order as set forth in **Section 3.2.2, Purchase Orders**. Purchase Orders shall be contracted based on the labor rates identified in the labor rate card in the Contractor's Price Proposal. Labor hours and materials costs for Purchase Orders shall be negotiated between the Authority and the Contractor. While Purchase Orders may be negotiated as a fixed cost (e.g. lump sum) or as time and materials (T&M), the Contractor shall be required to provide a thorough breakdown of labor costs by staff positions and hours with associated costs being based on the labor rates provided in the Contractor's Price Proposal. Any labor rates not included in the Contractor's Price Proposal shall be negotiated between the Authority and the Contractor.

3.1.2 TERM

The base term of the Contract, which includes the Implementation Phase as well as the Operations and Maintenance Phase, is eight (8) years. At the sole discretion and option of the Authority, the Contractor shall provide continued Services to the Authority in the form of renewal(s) for up to two (2), two (2)-year optional, Operations and Maintenance periods. Such options shall be in accordance with the terms and conditions of this Contract. Any exercised renewal option shall specify the renewal price not to exceed the prices set forth in the Contractor's Price Proposal for such option year(s), except that the Authority may negotiate lower pricing. Renewal is contingent upon satisfactory performance evaluations and subject to the availability of funds.

3.1.3 PROJECT DAMAGES AND INCENTIVES

3.1.3.1 LIQUIDATED DAMAGES AND INCENTIVES

The Authority requires the Contractor to work with the Authority's contractors, Agents, consultants, external entities, and other stakeholders, as directed, to ensure project milestones are met without time extensions.

It is agreed by the Parties to the Contract that in the event of a delay in completing specified milestones beyond required dates set forth in the Approved Baseline Project Implementation Schedule, subject to extensions as authorized by the Authority, damage may be sustained by the Authority, and that it is or will be impracticable to determine the actual amount of the damage by reason of such delay. The parties therefore agree the Authority may impose liquidated damages, as described below, in the event of the Contractor's delay in completing the specified milestones beyond the required date. For the purposes of this section, the use of the term "Days" means "Calendar Days."

1. **Liquidated Damages for Delay in Completing the RTCS Factory Acceptance Test**

   Should the Contractor fail to achieve successful completion of the Authority-witnessed portion of the RTCS Factory Acceptance Test by the date set forth in the Approved Baseline Project Implementation Schedule, the Authority may assess liquidated damages in the amount of $1,000 for the first Calendar Day, or portion of a Calendar Day, that the Contractor is late in reaching the milestone.

   For every subsequent Calendar Day, or portion of a Calendar Day, from day two (2) through sixty (60) the Contractor is late in successful completion of the Authority-witnessed portion of the RTCS Factory Acceptance Test, the Authority may assess $2,500 for each Calendar Day, or portion of a Calendar Day, the Contractor is late in reaching the milestone.

   Beginning on day sixty-one (61) the Contractor is late in successful completion of the Authority-witnessed portion of the RTCS Factory Acceptance Test, the Authority may assess $5,000 for each Calendar Day, or portion of a Calendar Day, the Contractor is late in reaching the milestone. The Authority may continue to assess this penalty daily until the Authority-witnessed portion of the RTCS Factory Acceptance Test is successfully completed.

2. **Liquidated Damages for Delay in Completing the RTCS On-Site Installation Test**

   Should the Contractor fail to achieve successful completion of the Authority-witnessed portion of the RTCS On-Site Installation Test by the date set forth in the Approved Baseline Project Implementation Schedule, the Authority may assess liquidated damages in the amount of $1,000 for the first Calendar Day, or portion of a Calendar Day, that the Contractor is late in reaching the milestone.

   For every subsequent Calendar Day, or portion of a Calendar Day, from day two (2) through sixty (60) the Contractor is late in successful completion of the Authority-witnessed portion

of the RTCS On-Site Installation Test, the Authority may assess $2,500 for each Calendar Day, or portion of a Calendar Day, the Contractor is late in reaching the milestone.

Beginning on day sixty-one (61) the Contractor is late in successful completion of the Authority-witnessed portion of the RTCS On-Site Installation Test, the Authority may assess $5,000 for each Calendar Day, or portion of a Calendar Day, the Contractor is late in reaching the milestone. The Authority may continue to assess this penalty daily until the Authority-witnessed portion of the RTCS On-Site Installation Test is successfully completed.

3. **Liquidated Damages and Incentive for Completing Existing Toll Zone Implementation**

a. Liquidated Damages for Delay in Completing Existing Toll Zone Implementation

Should the Contractor require a longer duration than the time frame allotted in the Scope of Work and Requirements to complete Installation and Commissioning at any Existing Toll Zone, between cessation of toll collection at an Existing Toll Zone and successful completion of the Authority-witnessed portion of the Installation and Commissioning Test, the Authority may assess liquidated damages in the amount of $2,250 for ramps or $2,500 for mainline Toll Zones, for every Calendar Day, or portion of a Calendar Day, that the Contractor is late in reaching the milestone.

b. Incentive for Early Completion of Existing Toll Zone Implementation

Should the Contractor require a shorter duration than the time frame allotted in the Scope of Work and Requirements, to complete Installation and Commissioning at any Existing Toll Zone, between cessation of toll collection at an Existing Toll Zone and successful completion of the Authority-witnessed portion of the Installation and Commissioning Test, the Authority may compensate the Contractor in the amount of $1,125 for ramps or $1,250 for mainline Toll Zones, for every Calendar Day, or portion of a Calendar Day, that the Contractor is early in reaching the milestone. The maximum compensation amount shall not exceed $10,000 per Existing Toll Zone.

4. **Liquidated Damages for Delay in Starting First New Toll Zone Installation by February 1, 2027**

Should the Contractor fail to start First Toll Zone Installation by February 1, 2027, the Authority may assess liquidated damages in the amount of $1,000 for the first Calendar Day, or portion of a Calendar Day, that the Contractor is late in reaching the milestone. The Contractor may begin Installation upon Authority Approval, which shall occur after all requirements for Installation readiness as described in the Installation Plan have been met, including but not limited to Approval of FAT and completion of the Installation Checklist.

For every subsequent Calendar Day, or portion of a Calendar Day, from day two (2) through sixty (60) the Contractor is late in starting Installation, the Authority may assess $2,500 for each Calendar Day, or portion of a Calendar Day, the Contractor is late in reaching the milestone.

Beginning on day sixty-one (61) the Contractor is late in starting Installation, the Authority may assess $5,000 for each Calendar Day, or portion of a Calendar Day, the Contractor is late in reaching the milestone. The Authority may continue to assess this penalty, daily, until Installation is started.

5. **Liquidated Damages for Completing New Toll Zone Implementation**

Should the Contractor require a longer duration than the time frame allotted in the Scope of Work and Requirements to complete Installation and Commissioning at any New Toll Zone,

between the start of Installation at a New Toll Zone and successful completion of the Authority-witnessed portion of the Installation and Commissioning Test, the Authority may assess liquidated damages in the amount of $2,250 for ramps or $2,500 for mainline plazas, for every Calendar Day, or portion of a Calendar Day, that the Contractor is late in reaching the milestone.

6. **Liquidated Damages for Delay in Completing Implementation Phase**

Should the Contractor fail to achieve Implementation Phase Acceptance by August 1, 2028, the Authority may assess liquidated damages in the amount of $1,000 for the first Calendar Day, or portion of a Calendar Day, that the Contractor is late in reaching the milestone.

For every subsequent Calendar Day, or portion of a Calendar Day, from day two (2) through sixty (60) the Contractor is late in achieving Implementation Phase Acceptance, the Authority may assess $2,500 for each Calendar Day, or portion of a Calendar Day, the Contractor is late in reaching the milestone.

Beginning on day sixty-one (61) the Contractor is late in achieving Implementation Phase Acceptance, the Authority may assess $5,000 for each Calendar Day, or portion of a Calendar Day, the Contractor is late in reaching the milestone. The Authority may continue to assess this penalty, daily, until this milestone is achieved.

7. **Liquidated Damages for Improper Lane Closures**

All lane closure must be Approved by the Authority in accordance with the Scope of Work and Requirements**.** Should the Contractor fail to reopen any travel lane within the allowable lane closure time limits and the lanes remain closed during a time period in which a lane closure is not allowed, or should the Contractor implement unauthorized lane closures, the Authority may assess $250.00 per hour, or portion thereof, for any such unauthorized closure.

8. **Incentive for Exceeding 83% ALPR automation**

Should the Contractor exceed 83% ALPR automation for any given calendar month, the Authority may compensate the Contractor in the amount of 30% of the reduction in Manually Reviewed IBTs invoice amount compared with the calculated invoice amount at an 83% ALPR automation threshold. As an example, if the Contractor would have invoiced $10,000 for Manually Reviewed IBTs in a particular month at 83% ALPR automation but actually achieved 87% ALPR automation leading to a Manually Reviewed IBTs invoice of only $7,647, the Authority may compensate the Contractor 30% of the difference, which would be $705.90.

9. **Provisions Applicable to All Liquidated Damages Related to Project Implementation Phase Milestones**

a. The Contractor will be granted an extension of time and will not be assessed with liquidated damages for any delay beyond the time period specified above, for delays solely caused by a Force Majeure Event, provided Contractor notifies the Authority's Project Manager in writing of the causes of delay within five Calendar Days from the beginning of any such delay. The Authority's Project Manager will ascertain the nature of the delay and determine whether an extension of time is warranted, which determination will be final and conclusive. Contractor has the burden of proof that the delay was Force Majeure.

b. In the event the Contractor believes it will be unable to meet the dates scheduled for completion of a specified milestone subject to liquidated damages, the Contractor must notify the Authority in writing of the delay. Such notification must set forth the cause(s)

of the delay and measures and actions the Contractor is taking to remedy or minimize the delay.

c. The total and cumulative amount assessed by the Authority for liquidated damages under this provision shall not exceed the Total Implementation Phase Cost as in **Section 3.1.1, Payment Terms and Conditions**, or as modified by any Change Orders. Liquidated damages are the Authority's exclusive remedy for Contractor's delay in reaching successful completion of the Authority-witnessed portions of the Factory Acceptance Test, On-Site Installation Test, and each Installation and Commissioning Test.

d. The Authority may impose multiple liquidated damage amounts per day when more than one of the milestones listed in (1) – (8) above has been missed by the Contractor for that day.

e. The Authority may recover all liquidated damages by deducting the amount thereof from any monies due or that may become due to the Contractor.

f. The parties acknowledge and agree that the above liquidated damages are not a penalty, but instead represents that that damages, impacts, and costs resulting from the Contractor's failure to achieve the above milestones are impossible to reasonably quantify in advance or at the time of failure.

g. If the Authority, in its sole discretion, determines that Liquidated Damages are due in accordance with the Contract, the amount of Liquidated Damages shall be subtracted from the next payment owed to Contractor, or, upon the Authority's demand, Contractor shall pay to the Authority the amount due within ten (10) business days of receiving written notification. Failure to make the required payment to the Authority will result in the Authority's enforcement of its right to receive the payment in any manner allowed by law and Contractor may be prohibited from bidding on future projects with the Authority as a result. Liquidated Damages provided by the Contract Documents are exclusive of and do not compensate the Authority for third-party claims, demands, expenses, or costs; it is agreed and intended by the parties that Authority's right to recover from Contractor for such third-party claims, demands, expenses, and costs is expressly reserved.

10. In the event that liquidated damages are disallowed for any reason whatsoever, the Authority shall be entitled its actual damages including any and all consequential or incidental damages resulting from delay in Contractor successfully completing the Authority-witnessed portions of the Factory Acceptance Test, On-Site Installation Test, and each Installation and Commissioning Test.

11. Nothing herein contained shall be construed as limiting the Authority's rights to recover from the Contractor any and all other amounts due or that may become due to the Authority, or any and all costs and expenses sustained by the Authority for improper performance hereunder, or for breach or breaches in any other respect including, but not limited to, defective workmanship or materials.

12. Nothing herein shall be construed to negate, abridge, or otherwise reduce any other right of indemnity that Authority may have as to any party or person. The indemnity obligation of the Contract shall not be limited by any liquidated damages or actual damages remedy, it being the intent of the parties for such remedies to be cumulative and mutually exclusive.

3.1.3.2 ACTUAL AND CONSEQUENTIAL DAMAGES

1. The Contractor acknowledges that its performance after Go-Live is critical to the operation of the Authority in so much as the Services to be provided pursuant to the Contract directly involve the Authority's revenue and customer service. The Contractor agrees the actual and consequential damages set forth below, resulting from a failure of the RTCS, are fair and reasonable and shall be incurred by the Contractor in the event of unsatisfactory performance.

2. The Contractor shall reimburse the Authority for lost toll revenue, which the Authority identifies as having been lost due to the fault of the Contractor and cannot be reasonably recovered. The Authority may choose, in its sole discretion, to recover such lost toll revenue from the Contractor that has been demonstrated and documented by the Authority to have been lost due to the fault of the Contractor by deducting such amounts from any payments otherwise due and owing from the Authority to the Contractor. Lost toll revenue includes, but is not limited to, such events as lost Transactions; lost Images; lost or corrupt data; Transactions that are not able to be collected due to delays caused by the Contractor in Contractor processing; delays caused by the Contractor or sending the OBOS incorrect information. Delays, as defined in this paragraph, shall be defined as any of the listed events occurring where the pursuit of the Transaction is more than ninety (90) Calendar Days after the lane exit date of the Transaction.

   In the event the Authority incurs a loss of revenue due to the action or inaction of the Contractor, the Contractor shall be obligated to make payment to the Authority for all lost revenue and other direct damages associated with the loss. In the event that the Authority is unable to determine the amount of lost revenue because data is lost or otherwise unavailable, the Parties agree that lost revenue shall be based on historical revenue as determined by the Authority.

3. The Contractor shall be responsible for any other damages and costs incurred, which are the results of its improper handling of these Services, including but not limited to such things as the effort required (from the Authority's staff or consultants) to investigate and/or implement corrective actions, for special mailings to customers to notify them of issues with their toll Transactions due to Transaction gathering and processing failures and inaccuracies.

4. The Contractor shall be responsible for any damage to any property of the Authority arising out of, or alleged to have arisen out of, or in connection with the performance of Services pursuant to the Contract; the risk of loss or damage to any property of the Contractor's Agents, employees, and Subcontractors arising out of, or alleged to have arisen out of, or in connection with the performance of Services pursuant to the Contract.

5. Except for events resulting in Liquidated Damages being assessed for delay in successfully completing the Authority-witnessed portions of the Factory Acceptance Test, On-Site Installation Test, and each Installation and Commissioning Test, the Authority reserves the right to recoup actual damages from the Contractor whenever they occur throughout the term of the Contract. The Authority's failure or decision not to seek recovery for its damages from the Contractor for an event does not constitute a waiver of the Authority's right to seek damages for such event or any other event giving rise to damages.

3.1.4 CONTRACTOR COOPERATION

1. During the Contract, the Authority may undertake or award other agreements for additional Work. It is critical that close coordination with interfacing contractors occurs throughout the term of the Contract. The Contractor shall fully cooperate with the

Authority and the parties to all other contracts and carefully integrate and schedule the Contractor's Work with said parties.

2. The Authority will expect the Contractor and all Subcontractors to comply with all technical specifications, special provisions, and other terms and conditions applicable to the Contract at all times during the performance of the Contract. In the event of a dispute between contractors, clarifications may be sought from the Authority; provided Contract Terms, conditions, and/or obligations shall remain in effect, except in instances wherein a Purchase Order or other Contract Amendment is duly executed in writing; however contractors shall engage in all efforts to resolve disputes prior to participation of the Authority and further, such participation by the Authority does not imply or represent the Authority's responsibility for resolution or payment of claims that arise out of a dispute between two contractors.

3. Interface Control Document (ICD) Development and Ongoing Cooperation Requirements

   The Contractor shall fully cooperate with the Authority and its designated Agents, consultants, stakeholders, and/or contractor(s) as necessary to develop and/or support all required ICDs. The ICDs shall specify all specifications, parameters, System Requirements, programming interfaces and all other elements to effectively and completely interface to OBOS components and other external interfaces being provided by the various interfacing contractors and/or agencies.

4. Additional Coordination and Cooperation Requirements

   a. Should problems in coordination with other contractors occur, the Contractor shall make the Authority aware of these problems immediately and shall take steps to address the problems and mitigate any delays or additional costs. The Contractor shall not commit or permit any act that will interfere with the performance of Work by any other contractor or by the Authority

   b. It is anticipated that work by one or more contractors of the Authority, may be in progress adjacent to or within the limits of this Project during progress of the Work on the Contract. The Contractor shall work closely with the Authority and any other contractors who will be working for the Authority for the purpose of coordinating any activity which may affect both contractors. Examples of this Work include but are not limited to installation of toll Equipment, Equipment testing, power and conduit installation, and Maintenance and protection of traffic.

   c. Contractor shall cooperate with all other contractors or forces performing construction or work of any other nature within or adjacent to the limits of the Work specified in order to avoid any delay or hindrance to the other contractors or forces. the Authority reserves the right to perform other or additional Work at or near the site (including material sources) at any time, by the use of other forces.

3.1.5 WARRANTIES

3.1.5.1 SYSTEM WARRANTY DURING OPERATIONS AND MAINTENANCE PHASE

A full System Warranty shall be provided by the Contractor on all System Equipment, Hardware and Software for the term of the Contract and any extensions thereof regardless of whether the Contract implements a Cloud-based and/or On-premise based solution. As a result, the Authority shall not pay any additional charges above

the prices set forth in the Contractor's agreed-to Price Proposal for the Implementation Phase or the Operations and Maintenance Phase Work, other than Work related to agreed-to Force Majeure Events or agreed-to out of scope work requested by the Authority, pursuant to the Contract. Notwithstanding the foregoing, in the period prior to Go-Live or a Toll Zone is Commissioned into revenue service, all Maintenance and Work shall also be at the Contractor's sole expense with the exception of image-based transaction processing. Such Work shall be at no charge to the Authority and shall include replacement of any unit of Equipment, Hardware, or Software, or part or component thereof (including Equipment Upgrades, Software patches/fixes, Software/System enhancements, Service Provider System modifications, etc.), and/or revision of Software defects or Software which the Authority deems defective or insufficient, or which the Authority deems to have failed to comply with the Contract. All transportation, labor and fees associated with restocking canceled or returned orders shall also be the responsibility of the Contractor. All defective Equipment replaced by the Contractor will become the property of the Contractor.

Contractor shall ensure that each third-party service provider engaged by Contractor (a "Service Provider") to provide software services ("Software Services") or Cloud-based Systems ("Service Provider Systems") represents, warrants and covenants as follows: (a) the Software Services and the Service Provider Systems will perform in accordance with applicable Specifications contained in the latest release of the Documentation; (b) it is the owner of or is duly authorized to provide all Services, including all Software Services and the Service Provider Systems; (c) it has the right to grant the licenses set forth in this Contract, and generally to provide the Software Services and Service Provider Systems as contemplated by this Contract; (d) the Software Services and the Service Provider Systems do not and will not infringe or otherwise violate any statutory, common law or other rights of any Third-Party in or to any Intellectual Property Rights therein; and, to Service Provider's knowledge, no Third-Party has asserted, is asserting, has threatened, or has any reasonable basis to assert a claim of any of the foregoing; (d) the Software Services, the Service Provider Systems, and all supporting Documentation will be complete and will enable Customer personnel, with appropriate skills and experience, to fully utilize the Service Provider Systems and the Software Services for all purposes for which they are intended; and (e) the Software Services and the Service Provider Systems, as applicable, will be virus-free and will not include any Trojan horses, trap doors, lock outs, interrupt mechanisms or similar disabling Software or code that does or can disable, damage, corrupt, interfere with or delete any element of Software, data, computer or electronic records or files of Customer or any Affiliate of Customer including any such code that allows Service Provider or any Third-Party, including any Service Provider Personnel, to access or to perform any unauthorized operations on Customer's Systems or the Systems of a Customer Affiliate without Customer's prior authorization in each instance.

After expiration and termination of the Contract, Contractor shall have no liability with respect to any representation or Warranty set forth in this **Section 3.1.5, Warranties**, except with respect to 3rd party warranties that are still in effect shall be transferred to the Authority and the Authority may make claims for latent defects.

3.1.5.2 DESIGN AND SOFTWARE WARRANTIES

1. Upon Approval of the System Design, the Contractor shall assume responsibility for the Design to the extent that if the RTCS does not meet the Requirements of this Contract, the Contractor shall be responsible for the costs of any redesign and/or any other costs associated with the sub-standard performance. The Contractor shall be responsible for coordinating with the Authority to review and Approve any necessary system redesign.

2. The Software shall operate in accordance with the Scope of Work and Requirements. The Contractor warrants that, upon RSS Go-Live and for the Contract Term, thereafter, including any extensions thereof, the Software and each module or component and function thereof shall:

a. be free from defects in materials and workmanship under normal use;

b. remain in good working order, be free from viruses; trap doors; disabling devices; Trojan horses; disabling codes; back doors; time bombs; drop-dead devices; worms, and any other type of malicious or damaging code or other technology or means which has the ability to interfere with the use of the System by the Authority or its designees, or permit access to the Authority's computing systems without its knowledge or contrary to its System connectivity policies or procedures;

c. not interfere with toll collection;

d. operate and function fully, properly, and in conformity with the warranties in the Contract,

e. operate fully and correctly in the operating environment, including by means of the full and correct performance of the Software, and all Updates, enhancements, or new releases of the Software, on or in connection with the Equipment, any Updates, enhancements, or new releases to such Equipment, and any other Software used by or in connection with any such Equipment;

f. be fully compatible and interface completely and effectively with external interfaces and interfacing entities, the Equipment, including other Software programs provided to the Authority hereunder, such that the other Software and Equipment combined will perform and continuously attain the Key Performance Indicators as specified in the Scope of Work and Requirements; and

g. accurately direct the operation of the System, as required by the Scope of Work and Requirements, and the descriptions, specifications and Documentation set forth therein and herein.

3. During the term of the Contract, including any extensions, the Contractor shall provide Services to maintain the Software provided hereunder in good working order, keeping it free from defects such that the System shall perform in accordance with the Contract and the warranties set forth herein.

4. The Contractor shall provide technical support and shall remedy any failure, malfunction, defect, or non-conformity in Software, in accordance with the Contract, but in any event not later than the deadline(s) in the Scope of Work and Requirements for Maintenance Coverage and Repair Times.

5. The Contractor shall promptly provide Notice to the Authority in writing of any defects or malfunctions in the Software provided hereunder, regardless of the source of information. The Contractor shall promptly correct all defects or malfunctions in the Software or Documentation discovered and shall promptly provide the Authority with corrected copies of same, without additional charge. If Software can only be corrected in conjunction with additional or revised Hardware, the Contractor shall provide such Hardware to the Authority, and the cost of such Hardware shall be borne solely by the Contractor.

6. No Updates or enhancements shall adversely affect the performance of the System, in whole or in part, or result in any failure to meet any Requirements.

7. The Contractor shall ensure continued satisfactory performance of the Software in accordance with Requirements of the Contract.

8. With regard to Software, the Contractor shall provide Software Services in accordance with the Contract.

9. The Contractor shall be responsible for obtaining and maintaining agreements, licenses, and/or subscriptions for the implementation and Maintenance of third-party Software in accordance with the Contract. The Contractor shall secure such agreements, licenses and/or subscriptions for the same duration and upon the same terms and conditions as the Maintenance provisions between the Contractor and the Authority. All third-party contracts, subscriptions, and licenses shall be assignable to the Authority. The Contractor shall also be responsible for monitoring and managing all Software license and subscription renewals on behalf of the Authority, and shall not let any agreement, license or subscription expire without express written direction from the Authority.

10. In the event that the Software does not meet or exceed the Key Performance Indicators, the Contractor is obligated to promptly repair or replace such Software at the Contractor's sole cost and expense or, if expressly agreed to in writing by the Authority, provide different Equipment or Software or redesign, and perform Services required to promptly meet the Key Performance Indicators set forth in the Contract.

11. In the event of any defect in the media upon which any tangible portions of the Software are provided, the Contractor shall provide the Authority with a new copy of the Software.

12. Without releasing the Contractor from its obligations for Warranty (during an applicable Warranty period), support or Maintenance of the Software, the Authority shall have the right to use and maintain versions of the Software provided by the Contractor which are one or more levels behind the most current version of such Software and to refuse to install or delay installation of any Updates or enhancements if, in the Authority's discretion, installation of such Updates or enhancements would interfere with its operations. The Contractor shall not, however, be responsible or liable for the effect of any error or defect in the version of the Software then in use by the Authority that occurs after the Contractor has both (i) offered, by written Notice to the Authority, a suitable correction (by way of Update, enhancement or otherwise) of such error or defect and (ii) provided the Authority a reasonable opportunity to implement such existing correction, provided that the Contractor establishes that neither the Implementation nor the use of such correction would limit, interfere with, adversely affect, or materially alter the functionality or quality of the System.

13. All provisions of this **Section 3.1.5.2, Design and Software Warranties** referring or relating to obligations to be performed pursuant to an applicable Warranty period that extends beyond the term hereof, shall survive the expiration, cancellation, or termination of the Contract.

3.1.5.3 THIRD-PARTY WARRANTIES

In addition to the foregoing warranties, the Contractor shall, upon completion of the Work, assign to the Authority, and the Authority shall have the benefit of, any and all Subcontractors' and suppliers' warranties and representations with respect to the System and Services provided hereunder. The Contractor's agreements with Subcontractors, suppliers and any other third parties shall require that such parties (a) consent to the assignment of such warranties and representations to the Authority, (b) agree to the enforcement of such warranties and representations by the Authority in its own name, and (c) furnish to the Authority, the warranties set forth herein. At the Authority's request, the Contractor shall provide supporting Documentation that confirms that these warranties are enforceable in the Authority's name.

3.1.5.4 SERVICES WARRANTIES

The Contractor warrants that all Services shall be performed in a high-quality, professional manner by qualified and skilled personnel in compliance with the Authority's Requirements as set forth in the Contract. In the event the Authority determines, in its sole discretion, that any Services do not conform to the foregoing

Warranty, the Authority shall be entitled to elect one of the following remedies: (i) reperformance of the Services by the Contractor until the Authority deems them to be in conformity with the Requirements and Warranty in this **Section 3.1.5.4, Services Warranties**, at no charge to the Authority; (ii) refund from the Contractor for all fees paid in connection with the Services, which the Authority deems were not as warranted, subject to the provisions of the Contract such that the Contractor is not required to refund fees for non-provision of Services for which liquidated damages have been assessed, (iii) reimbursement by the Contractor for the Authority's costs and expenses incurred in having the Services re-performed by the Authority or someone other than the Contractor. Notwithstanding the foregoing, nothing in this **Section 3.1.5.4, Services Warranties** shall be construed to limit the Authority's rights pursuant to **Section 3.2.5.2, Termination for Cause**.

3.1.5.5 DATA ACCURACY

The Contractor acknowledges and understands that the data and/or information it collects, processes and/or provides to the Authority and the external interface partners will be relied upon by the Authority and other persons or entities that are now or will in the future be under Contract with the Authority. Should information derived and provided by the Contractor be inaccurate due to a failure by the Contractor to perform its obligations under the Contract, and cause the Authority to incur damages or additional expenses, the Authority shall notify the Contractor and the Contractor shall immediately place any applicable insurance carrier on Notice of a potential claim. This provision shall survive termination of the Contract, and the Contractor agrees to waive any applicable limitation periods consistent with enforcement of this provision.

3.1.5.6 ADDITIONAL WARRANTIES

The Contractor warrants the following:

1. All guarantees and warranties made herein are fully enforceable by the Authority acting in its own name.
2. The Equipment and Systems the Contractor installs and places into operation will not result in any damage to existing facilities, walls, or other parts of adjacent, abutting, or overhead buildings, structures, surfaces, or any physical/mental damage to any individual utilizing any units(s) of Equipment.
3. All provided Equipment is new and unused.

3.1.5.7 PERVASIVE DEFECTS

The Contractor agrees to promptly remedy, at no cost to the Authority, any defects determined by the Authority to be Pervasive, such that if the Authority determines that any Equipment, component, sub-component, or Software is experiencing continued or repetitive failure, the Contractor agrees that a "Pervasive Defect" shall be deemed to be present in such affected types of Equipment or Software. The Contractor shall promptly, and at its own expense, perform an investigation of the issues and prepare a report that includes a reason for the failure and its Plan for remedy. Such correction shall be in a time and manner satisfactory to the Authority and that permanently addresses the problem and corrects the defect so that such defect does not continue to occur.

The obligations set forth in this section shall be in addition to any Warranty obligations set forth in the Contract. After expiration and termination of the Contract, Contractor shall have no liability whatsoever with respect to any representation or Warranty set forth in this Section **3.1.5.7, Pervasive Defects**, except with respect to latent defects and claims made by the Authority whereby the basis for such claim arose prior to such expiration and termination.

3.1.5.8 GENERAL GUARANTY

Neither acceptance of the System and Services or payment therefor, nor any provision in the Contract, nor partial or entire use of the System and Services by the Authority shall constitute an acceptance of System and Services not performed in accordance with the Contract or relieve the Contractor of liability for any express or implied warranties or responsibility for faulty materials or workmanship.

3.1.6 SOFTWARE AND LICENSE

A Software license and Escrow Agreement shall be required for this Contract, and shall include the Terms and Conditions set forth below in this section and **Section 3.1.7, Escrow**.

3.1.6.1 DESCRIPTION OF LICENSE

The Contractor hereby grants to the Authority, for purposes of operating the System, an unlimited, fully-paid-up, royalty-free, perpetual, universal, irrevocable, non-exclusive license: (i) to use, maintain, disclose, modify, adapt, and improve any and all Software and other Equipment; notwithstanding the foregoing, any modifications not made by the Contractor, its Subcontractors or Agents shall be subject to Contractor validation in order to continue to maintain applicable warranties. (ii) to use all resulting versions, modifications, adaptations, and improvements of any and all Software and other Equipment; (iii) to make, have made, use, distribute and display copies, reproductions, and derivative Works of any and all Software and Documentation; (iv) to use all Contractor Property (defined below) in connection with the Authority's use of any and all Software and other Equipment; and (v) to permit any other person or entity providing Services to the Authority to do any and all of the foregoing (i) through (iv). "Contractor Property" shall mean all intellectual property, technology, know-how, methodologies, works of authorship, Software, Systems, processes, applications, technical data specifications and other materials in use by the Contractor pre-existing the Contract, or created, acquired, or licensed by the Contractor separately from the Contract, or created in the performance of the Contract which are not specific to the Authority, including any modifications, enhancements, improvements, or derivative works. The foregoing license includes the right to use any Systems, processes, methods, applications, technical data specifications and other Documentation (including those provided by the Contractor, any third-party or currently used by the Authority) comprised or practiced by the Equipment or that are necessary or useful to operate the System.

3.1.6.2 SCOPE OF LICENSE

All rights, licenses, and subscriptions granted to the Authority under the Contract shall be exercisable at any time by the Authority and each of the persons and entities provided Services by the Contractor. The license shall permit the Authority to add, at any time, entities or persons to receive Contractor Services with no additional license or subscription fees charged to the Authority. The foregoing shall apply to the Authority, and such persons and entities and their respective successors and assigns. Contractor shall include, without requirement of any payment or provision of any consideration other than or in addition to that which is expressly specified by the Contract, the right of the Authority and each other person or entity referred to in this subparagraph:

1. to utilize the System (including all Equipment and related Documentation), in whole or in part, in connection with Services provided by or to the Authority or such other persons or entities, without regard to present or future location, including for purposes of technical support, Maintenance or repair;

2. to make multiple copies of the Software and related Documentation for purposes of the exercise of the Authority's rights and licenses hereunder;

3. to use the Software and related Documentation on or in connection with multiple processors, components obtained by or on behalf of the Authority from the Contractor or third parties, and systems (including the System) utilized by the Authority or any person or entity providing

Services to or on behalf of the Authority;

4. to maintain and modify the Software subject to the Contractor validation set forth in **Section 3.1.6.1, Description of License** and to use the resulting versions and modifications thereof;

5. to sell or distribute User technology, device or method permitting public access to and use of the User interface of the System, to any person or entity; and

6. to exercise any and all such rights and licenses under the Contract through the Services of its employees, Agents, independent contractors or Subcontractors, or such other persons or entities as it may employ or engage in its own discretion, and to disclose the Software and related Documentation, in whole or in part, to such persons or entities for such purposes.

For the avoidance of doubt, nothing in the Contract shall restrict or preclude the Authority from providing to any other person or entity, or any such other person or entity from using, any of the Equipment, Software or other materials provided to the Authority hereunder by the Contractor, in connection with the provision of any products or Services to or on behalf of the Authority, or to any person or entity providing Services to or on behalf of the Authority.

Contractor Property shall remain the property of the Contractor and nothing in the Contract shall be construed to provide title to such Contractor Property to the Authority, subject to the license or subscription provided in the Contract.

3.1.6.3 SOFTWARE AND INTELLECTUAL PROPERTY

The Contractor represents that Custom Software (developed or modified) may be necessary under this Contract. If the Contractor develops or modifies the Software to meet the Deliverables under this Contract it will provide to the Authority all firmware upgrades, service releases, and patch releases as part of this Contract subject to the Contractor's commercial terms for Software/firmware license rights to embedded intellectual property. Separate and apart from the embedded intellectual property rights the Contractor has licensed to the Authority, the following provisions shall apply.

3.1.6.4 INTERNAL/EMBEDDED SOFTWARE LICENSE

1. This section on Software licenses applies to any source code developed or modified for the Authority, System or application customizations and configuration settings, internal embedded Software, firmware and unless otherwise provided in this the Authority's RTCS RFP, or in an attachment hereto ("Custom Software").

2. Deliverables, as used herein, include 'Work Product', and shall comprise all Project materials, analyses, conclusions, opinions, recommendations, ideas, techniques, know-how, Designs, programs, enhancements, goods, all Custom Software, Software licenses/subscriptions, technical information, specifications, drawings, records, Documentation, and data created during the performance or provision of Services hereunder. Deliverables are the property of the Authority. Contractor Property licensed to the Authority shall be identified to the Authority by the Contractor prior to use or provision of Services hereunder and shall remain the property of the Contractor. Embedded Software or firmware shall not be a severable Deliverable. All Contractor Property is the property of the Contractor ("Licensor") and is licensed nonexclusively to the Authority in perpetuity, at no additional license fee, pursuant to the terms of the Software license contained herein.

3. Work Product Deliverables shall be considered Works made for hire (as that term is used in the United States Copyright Act, 17 U.S.C. Section 101, or in analogous provisions of other applicable laws) provided by Contractor for the Authority and shall belong exclusively to the

Authority and its designees, unless specifically provided otherwise by mutual agreement of the Contractor and the Authority. If by operation of law any of the Work Product, including all related intellectual property rights, is not owned in its entirety by the Authority automatically upon creation thereof, the Contractor agrees to assign, and hereby assigns to the Authority and its designees the ownership of such Work Product, including all related intellectual property rights. The Authority shall grant the Contractor a royalty-free, fully paid worldwide, perpetual, irrevocable, non-exclusive license to use Custom Software and any other material or information that might be considered Work Product in connection with other Contractor Software improvements. The Contractor agrees to provide, at no additional charge, any assistance and to execute any action reasonably required for the Authority to perfect its intellectual property rights with respect to the aforementioned Work Product.

Notwithstanding any provision of this Contract to the contrary, any Contractor Property including, but not limited to, any Software which is not Custom Software, routines, libraries, tools, methodologies, processes or technologies (collectively, the "Development Tools") created, adapted or used by the Contractor in its business generally, including any or all associated intellectual property rights, shall be and remain the sole property of the Contractor, and the Authority shall have no interest in or claim to such Contractor Property, Work, materials or Development Tools, except as necessary to exercise its rights in the Work Product. Such rights belonging to the Authority shall include, but not be limited to, the right to use, execute, reproduce, display, perform and distribute copies of and prepare derivative works based upon the Work Product, and the right to authorize others to do any of the foregoing, irrespective of the existence therein of Contractor Property, materials and Development Tools, except as specifically limited in the Solicitation documents or any attachment or exhibit to this Contract.

The Contractor and its Subcontractors shall be free to use and employ their general skills, knowledge and expertise, and to use, disclose, and employ any generalized ideas, concepts, knowledge, methods, techniques or skills gained or learned during the course of performing the Services under this Contract, so long as the Contractor or its Subcontractors acquire and apply such information without disclosure of any confidential or proprietary information of the Authority, and without any unauthorized use or disclosure of any Work Product resulting from this Contract.

4. Deliverables comprising goods, Equipment, or products (Hardware) may contain Custom Software, embedded Software or firmware that is generally not sold or licensed as a severable Software product. Software may be provided on separate media or may be included within the Hardware at or prior to delivery. Such Software is proprietary, copyrighted, and may also contain valuable trade secrets and may be protected by patents. The Contractor grants the Authority a license to use the source and object code (or any replacement provided) on, or in conjunction with, the Deliverables purchased, or with any System identified in the Solicitation documents. The Authority shall have a worldwide, nonexclusive, fully-paid up, royalty-free, perpetual, irrevocable sub licensable license to use such Software and/or Documentation for its internal use. The Authority may make and install copies of the Software to support the authorized level of use described in this Contract. Provided, however that if the Hardware is inoperable, the Software may be copied for temporary use on other Hardware. The Authority shall promptly affix to any such copy the same proprietary and copyright Notices affixed to the original. The Authority may make one copy of the Software for archival, back-up or Disaster Recovery purposes.

5. Outsourcers, facilities management or service bureaus retained by the Authority shall have the right to use the Deliverables thereof to maintain the Authority's business Operations, including data processing, for the time period that they are engaged in such activities,

provided that the Authority gives Notice to Contractor of such party, site of intended use of the Deliverables, and means of access.

Any third-party with whom the Authority has a relationship to perform an Authority function or business operation shall have the temporary right to use Deliverables, provided that such use shall be limited to the time period during which the third-party is using the Deliverables for the function or business activity.

6. The parties acknowledge and agree that the Authority shall own all rights, title and interest in and to the copyright in any and all Software, technical information, specifications, drawings, records, Documentation, data, and other Work Products first originated and prepared by the Contractor for delivery to the Authority ("Deliverables"). To the extent that any Contractor Property or Contractor Technology (defined below) is contained in any of the Deliverable, the Contractor hereby grants the Authority a royalty-free, fully paid worldwide, irrevocable, perpetual, non-exclusive license to use such Contractor Property and Contractor Technology in connection with the Deliverable for the Authority's business purposes. Contractor shall not acquire any right, title, and interest in the copyrights for goods, any and all Software, technical information, specification, drawings, records, Documentation, data, or derivative Works thereof, or other Work Products provided by the Authority to Contractor.

7. As the Authority's business operations may be altered, expanded, or diminished, licenses or subscriptions granted hereunder may be transferred or combined for use at an alternative or consolidated site not originally specified in the license or subscription, including transfers between Agencies ("permitted license transfers"). The Authority will not have to obtain the approval of the Contractor for permitted transfers but must give thirty (30) Calendar Days prior written Notice to Contractor. There shall be no additional license, subscription, or other transfer fees due to the Contractor.

8. The Contractor shall provide to the Authority an executable copy of all Software developed for the Authority, including source code Documentation and application information. Included with the provision of source code, the Contractor shall demonstrate to the Authority that the provided executables are the correct Software for the Systems as delivered.

3.1.6.5 PATENT, COPYRIGHT AND TRADE SECRET PROTECTION

1. Contractor has created, acquired, or otherwise has rights in, and may, in connection with the performance of Services for the Authority, employ, provide, create, acquire, or otherwise obtain rights in various concepts, ideas, methods, methodologies, procedures, processes, know-how, techniques, models, templates and general-purpose consulting and Software tools, utilities and routines (collectively, the "Contractor Technology"). To the extent that any Contractor Technology is contained in any of the Deliverables including any derivative Works, the Contractor hereby grants the Authority (including without limitation its officers, directors, employees, contractors, and Agents) a royalty-free, fully paid, worldwide, perpetual, non-exclusive, non-assignable, non-sublicensable, and irrevocable license to use such Contractor technology in connection with the Deliverables for the Authority's purposes.

2. Contractor shall not acquire any right, title, and interest in and to the copyrights for goods, any and all Software, technical information, specifications, drawings, records, Documentation, data, or derivative Works thereof, or other Work Products provided by the Authority to Contractor. The Authority hereby grants the Contractor a royalty-free, fully paid, worldwide, perpetual, non-exclusive license for the Contractor's internal use to non-confidential Deliverables originated and prepared by the Contractor for delivery to the

Authority.

3. The Contractor, at its own expense, shall indemnify, hold harmless and defend the Authority's Board of Directors, the Authority and its officers, employees and anyone directly or indirectly employed by either of them from and against any action, suit, proceeding, claim, demand, loss or liability of any kind (an "Action") brought against the Authority, including, but not limited to, all litigation costs and expenses, attorney's fees, settlement payments and damages, to the extent that such action is based upon a claim that the Services or Deliverables supplied by the Contractor, or the operation of such Deliverables pursuant to a current version of Contractor-supplied Software, infringes a patent, copyright, trademark, or other intellectual property right or violates a trade secret in the United States. The Contractor shall pay those costs and damages finally awarded against the Authority in any such action. Such defense and payment shall be conditioned on the following:

   a. That the Contractor shall be notified within a reasonable time in writing by the Authority of any such claim; and,

   b. That the Contractor shall have the sole control of the defense of any action on such claim however, the Contractor may not settle any Action without the prior written consent of the Authority unless such settlement relieves the Authority of any and all liability and obligation and such settlement does not limit, unduly interfere, or otherwise adversely affect the rights granted herein or the Authority's obligations under this Contract The Authority shall have the option to participate in such action at its own expense.

   These obligations shall survive termination of the Contract and survive acceptance of any goods, Services, and/or performance and payment therefore by the Authority.

4. Should any Services or Software supplied by Contractor, or the operation thereof become, or in the Contractor's opinion are likely to become, the subject of a claim of infringement of a patent, copyright, trademark, or a trade secret in the United States, the Authority shall permit the Contractor, at its option and expense, either to procure for the Authority the right to continue using the goods/Hardware or Software, or to replace or modify the same to become non-infringing and continue to meet procurement specifications in all material respects. If neither of these options can reasonably be taken, or if the use of such goods/Hardware or Software by the Authority shall be prevented by injunction, the Contractor agrees to take back such goods/Hardware or Software and refund any sums the Authority has paid Contractor less any reasonable amount for use or damage and make every reasonable effort to assist the Authority in procuring substitute Deliverables. If, in the sole opinion of the Authority, the return of such infringing Deliverables makes the retention of other items of Deliverables acquired from the Contractor under this Contract impractical, the Authority shall then have the option of terminating the Contract, or applicable portions thereof, without penalty or termination charge. The Contractor agrees to take back such Deliverables and refund any sums the Authority has paid the Contractor less any reasonable amount for use or damage.

5. Nothing stated herein, however, shall affect the Contractor's ownership in, or rights to, the Contractor Property, including its pre-existing Software intellectual property and proprietary rights.

3.1.6.6 TOLLS DATA OWNERSHIP AND SECURITY

1. All Project materials, Designs, programs, enhancements, goods, technical information, specifications, drawings, records, Documentation, data, reports, and operations history information shall remain property of the Authority at all times during the life of the Contract and after Contract termination.

2. The Contractor shall ensure that no unauthorized personnel will have access to individual facilities, cabinets, data and records, payment histories, or any personal information of existing or potential Authority toll customers. Paper records shall be locked when not in use; Systems shall have secure password and identification controls for any data access.

1. Personally Identifiable Information (PII) of existing or potential Authority toll customers shall not be accessible to persons outside of the United States. Such data includes unmasked detailed Transaction data, Transponder and license plate data, and demographic information. Data used in test systems that is derived from production data that is accessible to persons outside of the United States shall be masked or otherwise anonymized. Persons outside of the United States accessing the production system for Maintenance or monitoring shall not be able to view or download unmasked PII.

3.1.6.7 SOFTWARE MAINTENANCE/SUPPORT SERVICES

1. This general requirement applies unless otherwise provided in the Authority's Solicitation document or in an attachment hereto.

2. For the first year and all subsequent Contract years, the Contractor agrees to provide the following Services for the current version and one previous version of any Software provided with the Deliverables, commencing upon RSS Go-Live:

   a. **Error Correction.** The Contractor shall use reasonable efforts to respond, resolve or provide a working solution for the error or defect at the Contractor's expense according to the Requirements of the Contract. The Authority shall comply with all reasonable instructions or requests of the Contractor in attempts to correct an error or defect in the Program. The Contractor shall act promptly and in a reasonably timely manner in communicating error or defect logs, other related information, proposed solutions or workarounds, and any action as may be necessary or proper to obtain or effect Operation and Maintenance Services under this paragraph.

   b. The Contractor shall immediately notify the Authority of any material errors or defects in the Deliverables known or made known to the Contractor from any source during the Contract Term that could cause the production of inaccurate or otherwise materially incorrect, results. The Contractor shall initiate actions as may be commercially necessary or proper to effect corrections of any such errors or defects.

   c. **Updates**. The Contractor shall provide to the Authority, at no additional charge, all new releases and bug fixes (collectively referred to as "Changes") for any Software Deliverable developed or published by the Contractor and made generally available to its other customers at no additional charge. All such Updates shall be a part of the Program and Documentation and, as such, shall be governed by the provisions of this Contract.

   d. **Telephone Assistance**. The Contractor shall provide the Authority with telephone access to technical support engineers for assistance in the proper installation and use of the Software, and to report and resolve Software errors and defects.

3.1.7 ESCROW

1. Establishing the Escrow Agreement

   Prior to Implementation Phase Acceptance, the parties shall enter into a Software Escrow Agreement ("Escrow Agreement"). Prior to finalizing the Escrow Agreement and prior to depositing the Software and related Documentation into escrow, the Contractor shall submit

the name of the escrow Agent, the Escrow Agreement, any associated costs borne by the Contractor, including any optional costs, to the Authority for its review and Approval. The form of Escrow Agreement used by the escrow Agent shall be subject to the Authority's review and potential revision prior to the Authority providing written Approval of the Escrow Agreement. If Escrow Agreement used by the escrow Agent is not Approved by the Authority, or if mutual agreement on revisions to the Escrow Agreement cannot be reached, then the Contractor shall select another escrow Agent. If the escrow Agent's form of Escrow Agreement is Approved by the Authority, said Escrow Agreement shall be used.

2. Deposits

Pursuant to the terms of the Escrow Agreement, the Contractor shall deposit with the escrow Agent, without charge to the Authority, all Deposit Materials (as hereinafter defined) necessary or useful to: (i) use, reproduce, modify, repair and maintain the Software; (ii) operate, modify, repair and maintain the Equipment, and (iii) operate, use, modify, repair and maintain the System in accordance with the Contract. Access to and rights in the materials in the escrow shall be governed by the terms and conditions hereof and as further defined in the Escrow Agreement.

Materials so deposited ("Deposit Materials") shall include but not be limited to: all Software programs (including all source and object code with respect thereto); configuration files; ICDs; operator's and User's manuals, and other associated Documentation; reports; control files, utilities, and packages; operating Systems; data base Systems; network packages; Maintenance items (including test programs and program specifications); functional Documentation, compilers, instructions for generating the Software, and any proprietary Software tools that are necessary in order to maintain the Software and other Equipment. A list of all deposit materials shall accompany the Deposit Materials.

The Contractor shall deposit a complete set of Deposit Materials as a condition precedent to Implementation Phase Acceptance and shall make deposit updates no less frequently than quarterly and when major Updates are made to Software pursuant to the following paragraph, whichever occurs first.

In the event the Contractor revises or supplements any of the Deposit Materials or creates additional materials related to the System, the Contractor shall deposit a complete set of such revised, supplemented, or additional Deposit Materials with the above-named escrow Agent within thirty (30) Calendar Days of such revision, supplement or addition and shall indicate with each deposit which documents and which pages have been revised, supplemented or added since the last deposit. Any deposits made pursuant to the two preceding sentences shall become part of the Deposit Materials.

The Contractor shall provide Notice to the Authority confirming and describing the content of any deposits made within thirty (30) Calendar Days of such deposits, certifying that all such deposits are complete and include accurate copies of the required materials.

To the extent the Software includes components developed by third parties, the Contractor shall ensure that the Deposit Materials include copies of license agreements, computer programs, disks and Documentation for all Software obtained by the Contractor from third parties. At the Contractor's expense, the Contractor shall ensure that all third-party licenses are transferable to the Authority at the time of any release of the escrow provided for hereunder.

3. Payment for Costs of Escrow

The Contractor shall be responsible for payment of all costs arising in connection with the

establishment and maintenance of the escrow, referred to in this **Section 3.1.7, Escrow**, throughout the Contract Term, including any fees of the escrow Agent, and the Authority shall not be charged by the Contractor for its time in compiling and depositing Deposit Materials. The Contractor's obligation to maintain the escrow in place shall continue after the expiration or termination of the Contract Term until the Contractor receives Notice from the Authority that the escrow is no longer required, pursuant to paragraph 5 below, Release of Escrow Deposits.

4. Verification of Escrow Deposits

The Contractor shall provide to the Authority, for each Escrow Deposit, a detailed summary of all Deposit Materials, both existing and newly deposited. From time to time while the escrow is in place, the Authority may, at its sole discretion, verify directly, using the escrow Agent, or hire a contractor qualified and mutually and reasonably acceptable to both parties, to provide verification of the applicable escrow deposits at the Authority's expense, and to prepare a report. The agreement between the Authority and such contractor will include non-disclosure provisions deemed appropriate by the Authority. Should any deficiencies or differences be noted between the System implemented under the Contract and the applicable deposits delivered to the escrow Agent, the Authority shall provide Notice to the Contractor and shall provide the Contractor with a copy of the audit report. Within thirty (30) Calendar Days after its receipt of such notification and accompanying audit report, the Contractor shall deliver to the escrow Agent for deposit the applicable Deposit Materials necessary to make the escrow deposits consistent with the System.

5. Release of Escrow Deposits

Except as may be otherwise provided in the Escrow Agreement, the Deposit Materials are to remain in escrow unless or until withdrawal of such Deposit Materials is permitted pursuant to this Contract, or upon end of the Contract, whether due to termination or expiration, at which time such Deposit Materials shall be provided to the Authority and shall be incorporated into the licenses granted to the Authority hereunder.

In addition, effective upon any release of the Deposit Materials to the Authority, the Contractor hereby grants to the Authority and its designees a perpetual, irrevocable, universal, non-exclusive, fully-paid-up, royalty-free license to use, reproduce, adapt, modify, enhance and reverse engineer the non-custom and custom source code form of the Software and all Deposit Materials for the purpose of supporting and maintaining the System, and for using, making, and having made derivatives of the Software and Deposit Materials in connection therewith. The license granted hereunder shall cover the full definition of Software, including components directly owned, developed, or licensed by the Contractor, as well as components owned, developed, or licensed by any Contractor affiliates, licensors, Contractor parties, including third-party Software suppliers.

3.1.8 AUTHORITY OF PROJECT MANAGER

1. The Authority's Project Manager shall determine in the first instance all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, the Contract including, without limitation: questions as to the value and acceptability of the Services; questions as to either party's fulfillment of its obligations under the Contract; negligence, fraud, or misrepresentation before or subsequent to the execution of the Contract; questions as to the interpretation of the Scope of Work and Requirements; and claims for damages, compensation and losses. The Authority's Project Manager is authorized to reject Work that does not conform to the Contract Documents. Whenever the Authority's Project Manager considers it necessary or advisable, the Authority's Project Manager is

authorized to require additional inspection, examination, or testing of the Work regardless of the stage of completion or delivery of the Work.

3.1.9 KEY PERSONNEL

The Contractor has designated an individual Project Principal, who is an officer authorized to sign the Contract, any Contract Amendments and to speak for and make commitments on behalf of the Contractor. The Contractor shall designate a Contractor Project Manager, identified in the Proposal, who shall act as the primary point of contact in all matters on behalf of the Contractor. The Contractor Project Manager shall assign other individuals as contacts with regard to specific functional areas of the Work, subject to the Approval of the Authority. The Authority shall have input into determining who shall be assigned as Contractor Project Manager and the Contractor may not change the Contractor Project Manager without consulting with the Authority and obtaining Approval from the Authority as set forth in the following paragraph.

The Contract identifies certain job categories as "Key Personnel" for the Contract. The Authority, in part, awarded the Contract based on the Authority's confidence and reliance on the expertise of the Contractor's Key Personnel. Key Personnel for this Project are identified in the Contractor's Proposal, in accordance with this RFP, and shall be required to work in the position and be committed to the Project as indicated in the Contract. Other than in the case of an unexpected departure, the Contractor shall not substitute Key Personnel assigned to this Contract or make any significant reduction in the level of effort/commitment for such Key Personnel until and unless the Authority, in its sole discretion, Approves a replacement in writing In the event of an unexpected departure of Key Personnel, the Contractor must: 1) inform the Authority of the departure with as much advance Notice as reasonably possible, and 2) provide a transition plan including the Contractor's identification of the proposed resource for replacement of the key position, how the position will be handled until a permanent staff is assigned and the plan and schedule for the identification and presentation for Approval of the replacement. The transition plan shall be provided for the Authority's review and Approval within ten (10) Business Days of the time the Contractor becomes aware of the unexpected departure.

The Authority reserves the right to direct the removal of any personnel when, in the Authority's opinion the individual's performance is unsatisfactory. Replacement of personnel does not excuse the Contractor from compliance with all Requirements of the Contract. If the Authority becomes dissatisfied with the performance of any person designated as Key Personnel performing under the Contract, the Authority shall notify the Contractor in writing. Within ten (10) Business Days of receipt of such Notice, the Contractor shall either propose a replacement person for evaluation and Approval by the Authority or present to the Authority a Plan for correcting the incumbent's performance deficiencies within a period of thirty (30) Calendar Days thereafter. If either the Authority rejects the Plan presented by the Contractor or the incumbent's performance deficiencies are not corrected to the Authority's satisfaction within the thirty (30) Calendar Day Plan period, the Contractor shall, within ten (10) Business Days after rejection of the Plan or expiration of the thirty (30) Business Day Plan period, propose to the Authority a replacement person for evaluation and Approval by the Authority.

When making a request to replace Key Personnel, the Contractor shall provide a resume detailing the proposed personnel's work history for the Authority's review and Approval, as well as professional references, with contact information. Replacement Key Personnel being proposed must meet the minimum qualifications for the position. The Authority will Approve or disapprove the request in a timely manner.

Should the Authority determine during the term of the Contract, and if the list of Key Personnel does not include personnel essential to the successful performance of the Work, the Authority may require the Contractor to add any existing job category to such list.

The Contractor shall maintain detailed and up to date organizational charts, escalation charts, and related contact information so the Authority may expeditiously escalate issues up the chain of command, if needed.

Such information will be reviewed and updated regularly (and as needed) for accuracy and submitted to the Authority as modifications are made.

3.1.10 ACCEPTANCE FOR PROJECT PHASES

3.1.10.1 GENERAL

Neither the Authority's beneficial use of the Project Deliverables, Approval of any milestones, payments made to the Contractor, nor any provision in the Contract, during any phase prior to Project Acceptance, shall constitute Approval of work not performed in accordance with the Contract or relieve the Contractor of liability for any express or implied warranties or responsibility for faulty materials of workmanship, nor shall such use give rise to equitable claim for adjustment.

Refer to the sections below regarding conditions the Contractor must achieve to be granted acceptance for Go-Live Readiness and Implementation Phase Acceptance.

3.1.10.2 GO-LIVE READINESS

Go-Live Readiness shall be deemed to have occurred when the following conditions have been met:

1. The Contractor has successfully passed, in the Authority's sole determination, all test phases required prior to Go-Live;
2. The RSS and at least one (1) Toll Zone have been granted Authority Approval to Go-Live and commence revenue service; and
3. The Authority has delivered to the Contractor a Notice of Go-Live Readiness.

3.1.10.3 IMPLEMENTATION PHASE ACCEPTANCE

The acceptance of the Implementation Phase shall be deemed to have occurred when the following conditions have been met:

1. The Contractor shall provide an Implementation Phase Acceptance letter Certification to close out the Implementation Phase. The Certification shall include but not be limited to: total costs associated with the Implementation Phase, date of Work completion, and any additional required information contained in items 2 through 11 below, if applicable;
2. Successful completion and the Authority's Approval of all Formal Tests defined in the Scope of Work and Requirements, up to and including the Operational Acceptance Test;
3. The Contractor has provided the Authority with all required materials, Equipment and Software, warranties, Documentation and manuals (including As-built Documentation). All such materials have been verified by the Authority to be in good, working order;
4. The Contractor has provided all required training for the Authority and its representatives;
5. Any and all punch list items (for example, installation, Documentation, or testing punch lists) have been satisfactorily completed and Approved by the Authority;
6. The Contractor has successfully completed, and the Authority has Approved the OAT;
7. The Contractor has deposited all current escrow materials required under the Contract, including all necessary Documentation and support materials;
8. An affidavit has been delivered to the Authority signed by the Contractor, stating all debts and

claims of suppliers and Subcontractors have been paid and/or settled;

9. All Contractor claims for the Implementation Phase are deemed to be resolved by the Authority, and the Contractor has submitted a statement that no such requests or protests will be applied for; any and all claims under the Contract are resolved, and that no such claims will be made;

10. All Requirements for the Design and Implementation Phase shall be verified and Certified by the Contractor to be successfully delivered, and shall be Approved by the Authority; and

11. The Authority shall have delivered to the Contractor a Notice of Implementation Phase Acceptance.

3.1.11 CONTRACT DOCUMENTS AND ORDER OF PRECEDENCE

The Contract is subject to the terms and conditions of this Solicitation, which, in case of conflict, shall have the following order of precedence:

1. Executed Contract Amendments, including all exhibits and attachments
2. Base Contract
3. RFP **Section 3, Terms and Conditions,** including Addenda
4. RFP **Section 1, Administrative**
5. RFP **Section 4, Conformed Scope of Work and Requirements**, including Attachments and Addenda
6. Contractor's Price Proposal
7. Contractor's Technical Proposal, including Exhibits and Appendices

The more stringent requirements shall apply in the event any conflicts cannot be resolved by applying the order of precedence. The Authority's standards, guidelines, specifications, quantity, and quality requirements represent the minimum standards and may not be lessened by omission, modification, or revision.

3.1.12 INSURANCE OBLIGATIONS

The limits of coverage under each policy maintained by the Contractor shall not be interpreted as limiting the Contractor's liability and obligations under the Contract.

The Authority shall not be required to purchase any insurance against loss or damage to property or any other subject matter relating to the Contract, nor shall the Contract require them to establish a "self-insurance" fund to protect against any such loss or damage. The Contractor shall bear the risk of any loss or damage to any property in which the Contractor holds title.

Before commencing Work for the Authority and as a condition of payment, the Contractor shall purchase and maintain insurance that will protect it from claims arising out of its Work under the Contract, whether the Work is performed by the Contractor, or any of its consultants or Subcontractors or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and, at a minimum, coverage and limits must meet the requirements as specified in **Exhibit D, Insurance Requirements, Coverages, and Limits**. The Contractor shall not allow any Subcontractor to commence Work on this Project until all insurance required of the Subcontractor has been obtained. Liability insurance coverage must be considered as primary and not as excess insurance to any coverage carried by the Authority and shall be non-contributory. The Contractor shall furnish a certificate evidencing such coverage, with the Authority named as an additional insured on a primary and non-contributory basis, except for professional

liability, workers' compensation, and employer's liability.

The Contractor shall submit the required Certificate(s) of Insurance to the Authority's Procurement Office in accordance with **Section 1.21.4, Execution of the Contract**. Certificate(s) shall remain in force during the duration of the Project/Services and will not be canceled or non-renewed until thirty (30) Calendar Days after the Authority receives written Notice of such change. All insurance must be with an insurance company with a minimum BEST rating of A-VII and licensed to do business in the State of Florida (must be acknowledged on the Proposal response form).

The Contractor shall assume all reasonability for risks or casualties of every description, for any and all damage, loss, or injury, to persons or property arising out of the nature of the Work, including but not limited to the negligence or failure of its Subcontractors (as well as Contractor's employees) to comply with Contract Documents.

3.2 CONTRACT CHANGES AND TERMINATION

3.2.1 GENERAL

The Authority may, at any time, by written Amendment, make changes within the SOW and Services described in the Contract. If such changes cause an increase or decrease in the budgeted cost of or the time required for the performance of the agreed upon Work, an equitable adjustment as mutually agreed will be made in the limit on compensation as set forth in **Section 3.1.1, Payment Terms and Conditions**, or in the time of required performance as set forth in **Section 1.1.3, Time for Completion**, or both.

3.2.2 PURCHASE ORDERS

The Authority may request the Contractor to modify or enhance the System during the term of the Contract. Upon the Authority's request, the Contractor shall be responsible for coordinating with the Authority to fully document and submit a Purchase Order for the Authority's review and Approval. Purchase Orders shall contain, but not be limited to, the following information as directed by the Authority:

- Detailed scope of work describing the desired modification and/or enhancement
- Impacts of the change on the RTCS, including System function, Maintenance, and operation;
- Level of effort to make the change (e.g. detailed hourly breakdown by Contractor staff);
- Testing needs and impacts;
- Proposed, detailed implementation schedule and timeline;
- Proposed price for the development, testing and implementation of the modification and/or enhancement

Purchase Orders shall be negotiated between the Authority and the Contractor prior to the Contractor performing any work to Design, develop, test, or implement the modification and/or enhancement. Any proposed, pricing for Purchase Orders shall be developed using the Contractor's labor rates identified on the labor rate card in the Contractor's Price Proposal. While Purchase Orders may be negotiated as a fixed cost (e.g. lump sum) or as time and materials (T&M), the Contractor shall be required to provide a thorough breakdown of labor costs by staff positions and hours with associated costs being based on the labor rates provided in the Contractor's Price Proposal. Any labor rates not included in the Contractor's Price Proposal shall be negotiated between the Authority and the Contractor.

Purchase Orders shall be payable based on the terms of the Purchase Order Approved by the Authority. Approved revisions to any Requirement must be tracked in the Requirements Traceability Matrix (RTM) to

be incorporated into the System Design and tests and/or as-built Documentation.

3.2.2.1 DISPUTED PURCHASE ORDER

In the event the Contractor and the Authority are unable to agree on the terms of a Purchase Order, the Contractor shall perform the scope of work as outlined in the Purchase Order as directed by the Authority, and in such cases, the cost for the work shall be based on the Contractor's actual cost, based on the labor rates provided in the Contractor's Price Proposal, plus a reasonable profit margin, as defined in this Contract or, if undefined, at an industry-standard rate. The Contractor shall provide detailed Documentation supporting their costs (e.g. Contractor staff utilized and associated hours, meetings attended, work produced, etc.), and the reasonable profit margin shall be agreed upon by both parties, or determined by an independent third-party if necessary. The Contractor shall furnish weekly status reports regarding such Work, including such Documentation as the Authority may require in order to support all costs.

3.2.3 TIME EXTENSIONS AND SCHEDULE CHANGES

In the event that Contractor believes it will be unable to meet any milestone dates within the Approved Baseline Project Implementation Schedule, the Contractor must notify Authority of the delay in writing. Such notification must set forth the cause(s) of the delay and measures and actions the Contractor is taking to remedy or minimize the delay. The Authority may require that the Contractor propose a schedule recovery plan to the Authority for Approval. The following provisions shall apply to modification of the Approved Baseline Project Implementation Schedule:

1. Submission of a schedule recovery plan made against the Approved Baseline Project Implementation Schedule (in the form of a proposed, Updated Project Implementation Schedule) shall not release or relieve the Contractor from full responsibility for completing the Work within the time set forth in the Approved Baseline Project Implementation Schedule.

2. Any changes to the Approved Baseline Project Implementation Schedule, as proposed in an Updated Project Implementation Schedule, require the Authority's written Approval.

3. Daily reports, applications for payments, requests for information, and other administrative documents required by the Contract do not constitute written Notice of a claim for additional time or compensation.

4. Unless otherwise expressly agreed to by the Authority, the Contractor shall not receive extra compensation or damages for any time extension Approved by the Authority for completion of additional and/or altered Work, with the exception of executed Purchase Orders for which compensation for the work shall be documented in the Purchase Order

3.2.4 SUSPENSION OF WORK

1. The Authority may in its sole discretion suspend any or all activities under the Contract or Purchase Order, at any time, when in the best interests of the Authority to do so. The Authority shall provide the Contractor with a written Notice outlining the particulars of suspension. Examples of the reason for suspension include, but are not limited to, budgetary constraints, declaration of emergency, or other such circumstances. After receiving a suspension Notice, the Contractor shall comply with the Notice Within ninety (90) Calendar Days, or any longer period agreed to by the Contractor, the Authority shall either (1) issue a Notice authorizing the resumption of Work, at which time activity shall resume, or (2) terminate the Contract or Purchase Order. Suspension of Work shall not entitle the Contractor to any additional compensation. The Contractor shall be granted an appropriate extension of time, which shall

not exceed the day-for-day period of suspension, and shall be granted an equitable adjustment to the Contractor's compensation for the increased direct costs of maintaining and securing the Project during the suspension period.

3.2.5 TERMINATION

3.2.5.1 TERMINATION GENERAL REQUIREMENTS

1. The Contract issued for Roadside Toll Collection Services will terminate at the end of the Contract Term(s) set forth above, inclusive of any Operations and Maintenance and/or extension periods as noted in **Section 3.1.2, Term**, unless otherwise terminated earlier as set forth below.

2. The Authority may terminate the Contract, in whole or in part, for cause or convenience, subject to the default provisions set forth below.

3. Any required Notices of termination made under this Contract shall be transmitted via U.S. Mail, Certified Return Receipt Requested or personal delivery to the Contractor's Project Manager. The period of Notice for termination shall begin two days after mailing or upon personal delivery to the Contractor(s) Project Manager.

4. The Authority may terminate this Contract, in whole or in part, pursuant to the Terms and Conditions in the Contract.

5. The Authority will notify the Contractor at least ninety (90) Calendar Days prior to the termination of the Contract in the absence of termination for cause. This notification will require the Contractor to initiate succession responsibilities and hand off Operations and Maintenance activities to replacement entities. These actions shall include:

   a. Acknowledgment of receipt of end of Contract notification, and

   b. Act in accordance with **Section 3.2.5, Termination** and **Section 3.2.6, End of Contract and Succession**.

3.2.5.2 TERMINATION FOR CAUSE

1. In the event any Equipment, Hardware, Software, or Services furnished by the Contractor during the performance of any Contract Term fails to conform to any material requirement of the Contract, and the failure is not cured within the specified time after providing written Notice thereof to Contractor, the Authority may terminate the Contract and procure the Work or Services from other sources; holding Contractor liable for any excess costs occasioned thereby. The rights and remedies of the Authority provided above shall not be exclusive and are in addition to any other rights and remedies provided by law or under the Contract. The Contractor shall not be relieved of liability to the Authority for damages sustained by the Authority arising from the Contractor's breach of this Contract; and the Authority may, in its discretion, withhold any payment due as a setoff until such time as the damages are finally determined or as agreed by the parties.

2. Cause shall mean a material breach of the Contract by the Contractor. Without limiting the generality of the foregoing and in addition to those instances referred to elsewhere in the Contract as a breach, a material breach shall include the following:

   a. the Contractor failed to receive, transmit and/or process Transactions and data in accordance with the Contract;

b. the Contractor materially inhibited the Authority's collection of toll revenue;

c. the Contractor has not submitted acceptable Deliverables to the Authority on a timely basis;

d. the Software/Equipment proves incapable of meeting the Requirements set forth in the Contract;

e. the Contractor exhibits a pattern of missing deadlines and/or milestone dates negatively impacting the Approved Baseline Project Implementation Schedule or the schedule of other Project entities, like that of the OBOS or SSCP contractor;

f. the Contractor refused or failed to supply enough properly skilled workers or proper materials to properly perform the Services required under the Contract;

g. the Contractor failed to make prompt payment to Subcontractors or suppliers for materials or labor;

h. the Contractor has become insolvent (other than as interdicted by the bankruptcy laws), or has assigned the proceeds received from the Contract for the benefit of its creditors, or it has taken advantage of any insolvency statute or debtor/creditor law or if the Contractor's property or affairs have been put in the hands of a receiver;

i. any case, proceeding or other action against the Contractor is commenced in bankruptcy, or seeking reorganization, liquidation or any relief under any bankruptcy, insolvency, reorganization, liquidation, dissolution or other similar act or law of any jurisdiction, which case, proceeding, or other action remains undismissed, undischarged or unbonded for a period of thirty (30) Calendar Days;

j. the Contractor fails to maintain insurance policies and coverages or fails to provide proof of insurance or copies of insurance policies as required by the Contract;

k. any Warranty, representation, certification, financial statement, or other information made or furnished to induce the Authority to enter into the Contract, or made or furnished, at any time, in or pursuant to the terms of the Contract or otherwise by the Contractor, or by any person who guarantees or who is liable for any obligation of the Contractor under the Contract, shall prove to have been false or misleading in any material respect when made;

l. any intentional violation by the Contractor of the ethics provisions, or applicable laws, rules, or regulations;

m. the Contractor has failed to obtain the Approval of the Authority where required by the Contract;

n. the Contractor's Audited Financial Statements or those of its parent company submitted to the Authority do not fairly represent the Contractor or its parent's true financial position;

o. the Contractor has failed in the representation of any warranties stated herein;

p. the Contractor makes a statement to any representative of the Authority indicating that the Contractor cannot or will not perform any one or more of its obligations under the Contract;

q. the Contractor fails to remedy Pervasive Defects;

r. any act or omission of the Contractor or any other occurrence which makes it improbable at the time that the Contractor will be able to perform any one or more of its obligations under the Contract;

s. any suspension of or failure to proceed with any part of the Services by the Contractor which makes it improbable that the Contractor will be able to perform any one or more of its obligations under the Contract;

t. a pattern of repeated failures to meet the Key Performance Indicators of the Contract;

u. the suspension or revocation of any license, permit, or registration necessary for the performance of the Contractor's obligations under the Contract;

v. the Contractor's appearance on any applicable debarment list; or

w. the default in the performance or observance of any of the Contractor's other obligations under the Contract and the continuance thereof for a period of thirty (30) Calendar Days after the Notice given to the Contractor by the Authority.

3. Cure/Warning Period. Prior to terminating the Contract for cause, the Authority may issue a Notice of cure/warning to the Contractor thirty (30) Calendar Days prior to the termination date if the Authority determines such breach can be curable. The Notice will be transmitted via U.S. Mail Certified Return Receipt Requested, commercial overnight carrier, or personal delivery to the Contractor contract administrator, and may send a copy of such Notice via email (read receipt requested) to the Contractor contract administrator. The period of Notice for termination shall begin on the date the Return Receipt is signed and dated, upon delivery to the Contractor contract administrator, or upon delivery of such Notice via email, whichever occurs first. The Notice will specify the corrective actions/Work required to be taken by the Contractor to come into compliance with the terms and conditions of the Contract. If the corrective actions/Work is performed within the cure/warning period, in a manner acceptable to the Authority, the Contract will remain in effect in accordance with the terms and conditions thereof.

4. Termination Without Notice of Cure/Warning. If (1) the Authority determines that the breach is not curable; or (2) the Authority has issued two (2) Notices of cure/warning to the Contractor, upon the issuance of the third or subsequent Notice, the Authority reserves the right to terminate the Contract without further Notice. The failure of the Authority to exercise this right on any occasion shall not be deemed a waiver of any future right.

3.2.5.3 TERMINATION FOR CONVENIENCE WITHOUT CAUSE

During the Implementation Phase, the Authority may terminate the Contract without cause, in whole or in part by giving thirty (30) Calendar Days prior Notice in writing to the Contractor. The Contractor shall be entitled to sums due as compensation for Deliverables provided and Services performed in conformance with the Contract prior to termination. In the event the Contract is terminated for convenience, the Authority will pay for all Work performed and products delivered in conformance with the Contract up to the date of termination.

During the Operations and Maintenance Phase, the Authority may terminate the Contract without cause, in whole or in part, by giving ninety (90) Calendar Days prior Notice in writing to the Contractor. This notification will require the Contractor to initiate succession responsibilities and hand off Operations and Maintenance activities to replacement entities. These actions shall include:

a. Acknowledgment of receipt of end of Contract notification, and

b. Act in accordance with **Section 3.2.5, Termination** and **Section 3.2.6, End of Contract and Succession**.

3.2.6 END OF CONTRACT AND SUCCESSION

If the Contract is not renewed at the end of the base term of the Contract, or has completed the Contract Term extensions, or is canceled prior to its expiration, for any reason, the Contractor shall cooperate with the Authority to facilitate a smooth succession to the Authority's selected successor for the expired or canceled portion of the Services, whether the successor is the Authority or a third-party, to enable the Authority's System and operations to continue without interruption or adverse effect. Succession Services provided prior to the end of the Contract shall be provided as set forth in the Requirements of the Contract.

Prior to beginning succession Services for the Authority, the Contractor and the Authority shall meet to discuss succession needs, and expectations, as well as payment terms. For example, the Authority may pay the Contractor, based on a time and materials basis, for any resources utilized in performing such transition assistance at the most current rates provided by the Contract for Contract performance.

Upon completion or termination of the Contract and as outlined within the Scope of Work and Requirements, the Contractor shall provide the Authority with copies of all data, owned by the Authority, and all documents, in-progress or completed created for this Project, and provide reasonable assistance with ensuring that such data is accessible, readable and usable by the Authority.

While providing succession Services to the Authority, the Contractor shall be required to submit a Succession Status Report weekly to the Authority to track activities the Contractor performed in support of succession activities and related expenses. The content of the status report shall include, at a minimum: a list of all activities the Contractor performed for the week, broken down by staff and/or position and associated labor rate, activities performed and/or meetings attended, and hours spent by staff members on each activity. The Succession Status Report shall be the total cost to be invoiced to the Authority for the week's Work. The Contractor shall invoice the Authority monthly for succession support.

If the Authority cancels the Contract for cause, then the Authority shall be entitled to offset the cost of paying the Contractor for the additional resources the Contractor utilized in providing succession assistance with any damages the Authority may have otherwise accrued as a result of said cancellation.

Upon termination or expiration of this Contract, Contractor shall promptly and at its sole cost, where permitted under the terms of the applicable agreements, take all steps and undertake all measures necessary, including the execution of documents, to assign to the Authority all rights, title, and interest in and to any contracts or agreements with Cloud service providers related to Cloud-based Services utilized under or in relation to the Contract.

3.3 GENERAL TERMS AND CONDITIONS

3.3.1 CONTRACTOR RESPONSIBILITY

The Contractor shall be responsible for the proper execution of all Work, including but not limited to, all required and necessary internal and external agency coordination; schedule development and management, updates and execution; workshop facilitation to refine all Business Rules and Work Requirements; meeting facilitation to update the Authority on Project status; preparation of all Documentation related to the Work for Authority's Approval; and completion of System Design, development, testing, implementation, monitoring, operation and Maintenance; and ensuring the System meets all Requirements set forth in the Contract.

The Contractor shall be responsible for compliance with the Requirements set forth in the Contract Documents.

The Contractor shall be responsible for coordinating with the Authority regarding Business Rules and/or Scope

of Work Requirements conformance and/or any information related to System interfaces, or other information necessary for the Contractor to complete the Work. The Contractor will not be compensated for any additional costs or time associated with re-evaluation(s) or re-work resulting from proposed Design changes due to Contractor assumptions or poor coordination or resulting from proposed changes that are not coordinated through or Approved by the Authority in advance of the change being made.

The Contractor shall be required to provide complete transparency to the Authority during all phases of the Project. For example, during the Implementation Phase of the Project, the Contractor shall provide full transparency to the Authority regarding Project progress, schedule updates (via Updated Project Schedules) and impacts related to changes and delays, RTCS Design, development progress, internal testing results (providing insight into the number and severity of bugs/issues, especially ahead of all formal tests), and Go-Live planning. During the Operations and Maintenance Phase of the Project, the Contractor shall provide the Authority with transparency into System issues, test results, and the implementation of any System update/patch/modification.

The Contractor shall demonstrate good project management practices while working on this Project. These include communication with the Authority and others as necessary and as directed by the Authority, management of time and resources, and Documentation.

3.3.2 SUBCONTRACTING

The Contractor may subcontract the performance of required Services with other contractors or third parties, or change Subcontractors, only with the prior written consent of the Authority. The Contractor shall provide the Authority with complete copies of any agreements made by and between the Contractor and all Subcontractors. The Contractor remains solely responsible for the performance of its Subcontractors. Subcontractors, if any, shall adhere to the same standards required of the Contractor. Any contracts made by the Contractor with a Subcontractor shall include an affirmative statement that the Authority is an intended third-party beneficiary of the Contract; that the Subcontractor has no agreement with the Authority; and that the Authority shall be indemnified by the Contractor for any claim presented by the Subcontractor. Notwithstanding any other term herein, the Contractor shall timely exercise its contractual remedies against any non-performing Subcontractor and, when appropriate, substitute another Subcontractor.

3.3.3 CONTRACTOR'S REPRESENTATION

1. The Contractor warrants that qualified personnel shall provide Services in a professional manner. "Professional manner" means that the personnel performing the Services will possess the skill and competence consistent with the prevailing business standards in the information technology industry. The Contractor agrees that it will not enter into any agreement with a third-party that might abridge any rights of the Authority under this Contract. The Contractor will serve as the prime Contractor under this Contract. Should Subcontractors be contracted by the Contractor, the Contractor shall be legally responsible for the performance and payment of the Subcontractor(s). Names of any third-party contractors or Subcontractors of Contractor may appear for purposes of convenience in Contract Documents; and shall not limit Contractor's obligations hereunder.

2. Intellectual Property. The Contractor represents that it has the right to provide the Services and other Deliverables without violating or infringing any law, rule, regulation, copyright, patent, trade secret or other proprietary right of any third-party. Contractor also represents that its Services and other Deliverables are not the subject of any actual or threatened actions arising from, or alleged under, any intellectual property rights of any third-party.

3. Inherent Services. If any Services or other Deliverables, functions, or responsibilities not specifically described in this Contract are required for Contractor's proper performance,

provision, and delivery of the Services and other Deliverables pursuant to this Contract, or are an inherent part of or necessary sub-task included within the Services, they will be deemed to be implied by and included within the scope of the Contract to the same extent and in the same manner as if specifically described in the Contract.

4. The Contractor warrants that it has the financial capacity to perform and to continue to perform its obligations under the Contract; that the Contractor has no constructive or actual knowledge of an actual or potential legal proceeding being brought against the Contractor that could materially adversely affect the performance of this Contract; and that entering into this Contract is not prohibited by any contract, or order by any court of competent jurisdiction.

3.3.4 OTHER GENERAL PROVISIONS

3.3.4.1 GOVERNMENTAL RESTRICTIONS

In the event any restrictions are imposed by governmental requirements after execution of the Contract that necessitates alteration of the material, quality, workmanship, or performance of the Deliverables offered prior to delivery thereof, the Contractor shall provide written notification of the necessary alteration(s) to the Authority. The Authority reserves the right to accept any such alterations, including any price adjustments occasioned thereby, or to cancel the Contract. The Authority may advise the Contractor of any restrictions or changes in specifications required by Federal or Florida legislation, rule or regulatory authority that require compliance by the Authority. In such event, the Contractor shall use its best efforts to comply with the required restrictions or changes. If compliance cannot be achieved by the date specified in the Contract, the Authority may terminate this Contract in accordance with **Section 3.2.5, Termination** or elect to enter into a Purchase Order to effectuate such compliance.

3.3.4.2 ADVERTISING / PRESS RELEASE / PUBLICITY

The Contractor, its employees, Subcontractors, and/or Agents will not publicly disseminate any information concerning the Contract or this Project, or refer to the Authority for use any logos, images, or photographs of the Authority for any commercial purpose, including, but not limited to, advertising, promotion, or public relations, without the Authority's prior written consent. Such written consent will not be required for the inclusion of the Authority's name on a customer list.

3.3.4.3 PUBLIC RECORDS, CONFIDENTIAL MATTERS AND DATA OWNERSHIP

1. The Contractor agrees all data, Documentation, records, and information that are property of or licensed to the Authority, are the subject of this Contract, and , which the Contractor, its Agents and employees, obtain access, remains at all times exclusively the property of the Authority or its licensors (other than Contractor). The Contractor agrees all such data, Documentation, records, Plans and information constitutes and shall be treated at all times by the Contractor as proprietary information of the Authority. The Contractor agrees that it will not disclose, provide, or make available any of such Authority data, Documentation, records or information in any form to any person or entity, except as authorized by the Authority. In addition, the Contractor agrees it will not use any names or addresses contained in such data, records, Documentation, Plans and information for the purpose of selling or offering for sale any property or service to any person or entity who resides at any address in such data. In addition, the Contractor agrees it will not sell, give, or otherwise make available to any person or entity any names or addresses contained in or derived from such data, Documentation, records, and information for the purpose of allowing such person to sell or offer for sale any property or service to any person or entity named in such data. The Contractor agrees it will take all reasonable steps and the same protective precautions to protect the Authority's proprietary information from disclosure to third parties as with the Contractor's own

proprietary and confidential information. The Contractor agrees that all data, regardless of form that is generated as a result of this Contract is the property of the Authority.

a. Care of Information: Contractor agrees to use commercial best efforts to safeguard and protect any data, documents, files, and other materials received from the Authority during the performance of any contractual obligation from loss, destruction or erasure.

b. The Contractor warrants that all its employees and any approved third-party contractors or Subcontractors are subject to a non-disclosure and confidentiality agreement enforceable in Florida. The Contractor will, upon request of the Authority, verify and produce true copies of any such agreements. Production of such agreements by the Contractor may be made subject to applicable confidentiality, non-disclosure, or privacy laws; provided that the Contractor produces satisfactory evidence supporting exclusion of such agreements from disclosure under the Florida Public Records Law in Chapter 119. The Authority may, in its sole discretion, provide a non-disclosure and confidentiality agreement satisfactory to the Authority for the Contractor's execution. The Authority may exercise its rights under this subparagraph as necessary or proper, in its discretion, to comply with applicable security regulations or statutes including, but not limited to 26 USC 6103 and IRS Publication 1075, (Tax Information Security Guidelines for Federal, State, and Local Agencies), HIPAA, 42 USC 1320(d) (Health Insurance Portability and Accountability Act), any implementing regulations in the Code of Federal Regulations, and any future regulations imposed upon the Office of Information Technology Services or the Florida Department of Revenue pursuant to future statutory or regulatory requirements.

c. Nondisclosure: Contractor agrees and specifically warrants that it, its officers, directors, principals and employees, and any Subcontractors, shall hold all information received during the performance of this Contract in the strictest confidence and shall not disclose the same to any third-party without the express written Approval of the Authority.

d. The Contractor shall protect the confidentiality of all information, data, instruments, studies, reports, records, and other materials provided to it by the Authority or maintained or created in accordance with this Contract. No such information, data, instruments, studies, reports, records, and other materials in the possession of the Contractor shall be disclosed in any form without the prior written consent of the Authority. The Contractor will have written policies governing access to and duplication and dissemination of all such information, data, instruments, studies, reports, records, and other materials.

e. All Project materials, including Software, data, and Documentation created during the performance or provision of Services hereunder that are not licensed to the Authority or are not proprietary to the Contractor are the property of the Authority and must be kept confidential or returned to the Authority, or destroyed.

f. Proprietary Contractor materials shall be identified to the Authority by Contractor prior to use or provision of Services hereunder and shall remain the property of the Contractor. Derivative Works of any Contractor proprietary materials prepared or created during the performance of provision of Services hereunder shall be subject to a perpetual, royalty free, nonexclusive license to the Authority.

g. Contractor shall mark all documents or Deliverables created during the performance or provision of Services hereunder as confidential and/or proprietary **only** if a document or Deliverable contains information that would result in harm to the Contractor if it's released, and **only** with the Approval of the Authority. The Contractor shall be judicious in marking documents and other Deliverables created for the Project as confidential and shall avoid over-utilization of confidential and/or proprietary markings on all Deliverables (e.g. meeting agendas, meeting notes, etc.). The Contractor acknowledges that the Authority is subject to Florida's public records laws and therefore cannot guarantee the confidentiality of any document provided by the Contractor to the Authority, regardless of its markings.

2. When the Contractor receives any request to inspect or copy any records that relate to the Contract, it shall promptly provide the Authority with a copy of the request. The Authority will respond to each such request on behalf of itself and the Contractor and the Contractor agrees to fully cooperate with the Authority with regard to all records requests and comply with all decisions made by the Authority regarding the production/disclosure. The Contractor shall:

a. Keep and maintain public records that ordinarily and necessarily would be required by the Authority in order to perform the Services being performed by the Contractor.

b. Upon request from the Authority's custodian of public records, provide the public with access to public records on the same terms and conditions that the Authority would provide the records and at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, as amended, or as otherwise provided by law.

c. Except as authorized by law, ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed for the duration of the Contract Term as well as following completion or termination of the Contract if the Contractor does not transfer the records to the Authority.

d. Upon completion or termination of the Contract, transfer, at no cost, to the Authority, all public records in possession of the Contractor or keep and maintain the public records required by the Authority and the law to perform the Service. If the Contractor transfers all public records to the Authority upon completion or termination of the Contract, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Contractor keeps and maintains public records upon completion or termination of the Contract, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the Authority in a format that is compatible with the information technology systems of the Authority.

e. Failure to grant such public access or otherwise comply with the Authority's request for records will be grounds for immediate termination of the Contract by the Authority. In the event of such failure, the Authority shall also enforce the Contract provisions in accordance with the Contract.

f. Failure to provide the public records to the Authority within a reasonable time may also subject the Contractor to penalties under section 119.10, Florida Statutes.

g. If a civil action is filed against the Contractor to compel the production of public records relating to the Contract, the Contractor will be solely responsible and liable for its attorney's fees and any resulting damages.

IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THE CONTRACT, THE CONTRACTOR MUST CONTACT THE AUTHORITY'S CUSTODIAN OF PUBLIC RECORDS, WHO CAN BE REACHED AT: (813-272-6740); AND 1104 E. Twiggs Street, Suite 300 Tampa, FL, 33602.

3.3.4.4 CLOUD PROVIDER AGREEMENTS

1. In the event the solution proposed by the Contractor and accepted by the Authority has any portion of the RTCS deployed within a Cloud-based environment/architecture, prior to execution of any agreements between the Contractor and a Cloud services provider the Contractor shall provide any agreements/contracts, language, associated costs, service level agreements, licensing, or other agreements between the Contractor and the Cloud service provider to the Authority for review and Approval.
2. The Contractor and/or Cloud service provider shall not alter or change any agreements/contracts, language, associated costs, service level agreements, licensing, or other agreements between the Contractor and the Cloud service provider without the Authority's Approval.
3. The Contractor shall request and provide the results of the most recent information security audit report for the Cloud service provider to the Authority for review and Approval prior to executing any agreement with the Cloud service provider.

3.3.4.5 LATE DELIVERY, BACK ORDER

Contractor shall advise the Authority immediately upon determining that any Deliverable will not, or may not, be delivered at the time (as specified in the Approved Baseline Project Schedule) or place specified. Together with such Notice, the Contractor shall state the projected delivery time and date. In the event the delay projected by the Contractor is unsatisfactory, the Authority shall so advise the Contractor and may proceed to procure substitute Deliverables or Services.

3.3.4.6 ASSIGNMENT

The Contractor may not assign this Contract or its obligations hereunder except as permitted in this paragraph. The Contractor shall not sell, assign, or transfer any of its rights, duties, or obligations under the Contract, or under any Purchase Order issued pursuant to the Contract, without the prior written consent of the Authority. In the event of any assignment, the Contractor remains secondarily liable for performance of the Contract, unless the Authority expressly waives such secondary liability. The Authority may assign the Contract with prior written Notice to the Contractor of its intent to do so.

The Contractor shall provide reasonable Notice of not less than thirty (30) Calendar Days prior to any consolidation, acquisition, or merger. Any assignee shall affirm this Contract atoning to the terms and conditions agreed, and the Contractor shall affirm that the assignee is fully capable of performing all obligations of the Contractor under this Contract.

An assignment may be made, if at all, in writing by the Contractor, Assignee and the Authority setting forth the foregoing obligation of the Contractor and Assignee.

3.3.4.7 CLAIMS

1. Time limits and claim substantiation. All claims by the Contractor must be made within fourteen (14) Calendar Days after occurrence of the event giving rise to such claim or within fourteen (14) Calendar Days after the Contractor first recognizes the condition giving rise to the claim, whichever is later. Claims must be initiated by written Notice to the Authority and contain a thorough description of the basis of the claim, with copies served on the Authority and the Authority's Project Manager. Daily reports, applications for payments and other administrative documents required by the Contract do not constitute written Notice of a claim.

2. The responsibility to substantiate a claim shall rest with the party making the claim. All claims made by the Contractor shall be substantiated and quantified within thirty (30) Calendar Days of the written Notice by an itemized, detailed cost breakdown sufficient to analyze the value and impact of the claim, stating applicable cost and time. Failure to comply with the time requirements for providing written Notice and substantiation of claims shall result in a waiver of the applicable claim. Under no circumstances shall the Contractor be entitled to any indirect, incidental, special, or consequential damages in any proceeding arising out of or relating to the Contract or the breach thereof.

3. Continuing Contract Performance. Pending final resolution of a claim, including, but not limited to during the process set forth in **Section 3.3.4.8, Dispute Resolution**, the Contractor shall proceed diligently with the performance of the Work. Neither the Authority's payment on an application for payment pending final resolution of a claim nor the Authority's agreement to relief in connection with a claim, Purchase Order request, or otherwise shall be deemed to expressly, impliedly, by course of conduct or otherwise waive the requirement for Notice and substantiation of claims.

4. By making the final payment, the Authority does not waive any claim that arises from: (a) liens, claims, security interests, or encumbrances arising out of the Contract and unsettled at the time final payment is made; (b) latent defects; (c) failure of the Work to comply with the Contract Documents; (d) terms of special warranties required by the Contract Documents; or (e) any claim for overpayment, including, but not limited to, those resulting directly or indirectly from any erroneous measurement, estimate, or quantity.

5. Claims for Concealed, Unforeseen or Unknown Conditions. If conditions are encountered at the site that are (1) concealed physical conditions that differ materially from those indicated in the Contract or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract, then the Contractor shall give written Notice to the Authority's Project Manager promptly before conditions are disturbed and in no event later than seven (7) Calendar Days after first observance of the conditions. This Notice shall include a written description of the concealed or unknown condition and the Contractor's proposed method to resolve the concealed or unknown condition. If the Authority's Project Manager determines that the conditions at the site are not materially different from those indicated in the Contract, and that no change in the terms of the Contract is justified, the Authority's Project Manager shall so notify the Contractor in writing. The Contractor shall notify the Authority's Project Manager of any opposition to the determination by the Authority's Project Manager within seven (7) Calendar Days after the Authority's Project Manager has given Notice of its determination. Substantiation and quantification of any claims related to concealed or unknown conditions must be provided within thirty (30) Calendar Days of the date that the Contractor's claim Notice is received by the Authority's Project Manager or thirty (30) Calendar Days from the date that the Authority's Project Manager has issued direction on how to resolve the concealed or unknown condition. If such concealed or unknown site conditions are encountered, and if the critical

path is directly impacted as a result, the Contractor shall be entitled to an adjustment in the Contract time for performance for the delay caused by the correction of concealed or unknown conditions, subject to the requirements of **Section 3.2, Contract Changes and Termination**. If such concealed or unknown site conditions are encountered, requests for compensation for the reasonable direct costs that are caused solely by the delay are subject to the requirements of **Section 3.2, Contract Changes and Termination**. If the concealed or unknown condition causes a decrease in the cost of performing the Work, the Authority shall be entitled to deduct the decreased cost from the Total Contract Amount.

6. Injury or Damage to Person or Property. If the Contractor suffers injury or damage to person or property because of an act or omission of the Authority, of the Authority's employees or Agents, or of others for whose acts the Authority is legally liable, written Notice of such injury or damage, whether or not insured, shall be given to the Authority, and no later than fourteen (14) Calendar Days after first observance. The Notice shall provide sufficient detail to enable the Authority to investigate the matter.

7. The Contractor shall, within fifteen (15) Business Days from delivery of Notice from the Authority or Authority's Project Manager, produce for examination by the Authority, Authority's Project Manager, or an authorized representative of either of them, all of the Contractor's records related to the Work or under the Contract, including, but not limited to, books of account, bills, invoices, payrolls, Subcontracts, Subcontractor payment requests, time sheets/cards, progress records, daily logs, daily reports, cost accounting records, correspondence, and any other document or record regarding all of the Contractor's acts and transactions in connection with or relating to or arising by reason of the Contract, and provide appropriate personnel familiar with such records to explain such records and answer questions regarding any claims made under the Contract. The Contractor's failure to furnish the requested information or appear for examination shall result in the Contractor's waiver and release of all claims arising out of, relating to, or by reason of the Contract, except for the sums certified by the Authority's Project Manager to be due under the provisions of the Contract. In addition to the foregoing, to the extent any claim by the Contractor includes any claims by Subcontractors or Subconsultants, arising under or by reason of the Contract, the Authority shall also have the right through its designees, upon written Notice, to require the Subcontractor to produce the above described records related to Work in connection with the Contract in the Subcontractor's or Subconsultant's possession and to submit itself and persons in its employ to similarly explain its records and answer questions, within fifteen (15) Business Days from delivery of written Notice from the Authority to the Contractor requesting same. The Contractor shall ensure that the Subcontractor or Subconsultant timely complies with this provision.

3.3.4.8 DISPUTE RESOLUTION

1. In the event of any dispute whatsoever arising out of or relating to the Contract Documents, the Work or the Project, the disputing party must furnish a written Notice to the other party, setting forth in detail the dispute. Such Notice must be addressed to the other party's Project Manager. Within five (5) Business Days after the receipt of the Notice by the receiving Project Manager, the two Project Managers shall meet in the Authority's offices to attempt to resolve the dispute. If the Project Managers cannot resolve the dispute then, within fourteen (14) Calendar Days after the date of written Notice by either Project Manager to the Executive Director of the Authority and the Project Principal, the Executive Director of the Authority and the Project Principal shall meet in the Authority's offices to attempt to resolve the dispute. If the Executive Director of the Authority and the Project Principal cannot resolve the dispute

or otherwise agree to extend the time within which to attempt to resolve the dispute, then either Party may pursue those remedies as allowed under this Contract.

2. MANDATORY PRE-SUIT MEDIATION. All Claims, disputes, or other matters in question arising out of or relating to the Contract, shall be subject to mandatory pre-suit mediation under the auspices of a mediator to be selected by the parties. Mediation must occur before a lawsuit is filed. Discovery prior to the scheduled mediation shall be limited to one (1) request for production of documents and two (2) depositions per party not exceeding 8 hours total time per deposition. Each party shall equally bear the costs of mediation and shall be solely responsible for its own attorneys' fees and other legal costs prior to and during the mediation process. In the event the case does not settle at mediation, the parties may re-depose either or both witnesses on non-repetitive matters.

3. The parties agree that all legal proceedings that relate in any way to the Contract shall be brought only in the Circuit Court of the Thirteenth Judicial Circuit in and for Hillsborough County, Florida. It is further stipulated and agreed that no person or entity has power to waive any of the foregoing provisions of this section, and that in any action against the Authority to recover on any claim or any sum in excess of the sums certified by the Authority's Project Manager to be due under or by reason of the Contract, the Contractor must allege in its complaint, and prove at trial, compliance with the provisions of this section.

4. CERTIFICATION OF SUBCONSULTANT OR SUBCONTRACTOR CLAIM. For any Claim made by the Contractor against the Authority, the basis of which includes a Claim by a Subconsultant, Subcontractor, or any other person or entity under the Contractor's control, for acts or omissions allegedly attributable to the Authority, the Contractor must certify by affidavit that it has carefully examined each Subconsultant's or Subcontractor's Claim and has verified the truth and accuracy of each Claim. Such certification under oath must be made by the Contractor prior to the submission of any Subconsultant or Subcontractor Claim to the Authority and shall constitute an express condition precedent to the Contractor having a cause of action against the Authority that includes a Subconsultant's Claim or a Subcontractor's Claim. A copy of such certification shall be provided to the Authority contemporaneously with the submission of any Subconsultant or Subcontractor Claim to the Authority. The Authority will not consider any Claim that has not been properly certified by the Contractor, nor is the Contractor entitled to relief by the Authority unless the certification contemplated by this section has been properly furnished to the Authority.

3.3.4.9 DEFAULT

1. In the event any Deliverable furnished or Work performed by the Contractor during performance of the Contract Term fails to conform to any Requirement of the Contract, a Notice of cure/warning shall be issued to the Contractor by the Authority, and if the failure is not cured within thirty (30) Calendar Days, or the Contractor fails to meet the acceptance Requirements of the Contract, the Authority may cancel and procure the articles or Services from other sources; holding Contractor liable for any excess costs occasioned thereby, subject only to the limitations of liability and the obligation to informally resolve disputes as provided in these Terms and Conditions. Default may be cause for debarment. The Authority reserves the right to require performance guarantees from the Contractor without expense to the Authority. The rights and remedies of the Authority provided above shall not be exclusive and are in addition to any other rights and remedies provided by law or under the Contract. The Authority allows for thirty (30) Calendar Days to cure a termination, pursuant to **Section 3.2.5.2, Termination for Cause**.

2. If the Contractor fails to deliver Deliverables within the time required by this Contract, the Authority may provide written Notice of said failure to Contractor, and by such Notice require payment of liquidated damages.

3. The Contractor will use reasonable efforts to mitigate delays, costs or expenses arising from assumptions in the Contractor's bid documents that prove erroneous or are otherwise invalid.

4. The Contractor shall provide a plan to cure any default if requested by the Authority. The plan shall state the nature of the default, the time required for cure, any mitigating factors causing or tending to cause the default, the details regarding the plan to cure, and such other information as the Contractor may deem necessary or proper to provide.

5. This **Section 3.3.4.9, Default** shall survive termination, cancellation, or expiration of the Contract.

3.3.4.10 WAIVER OF DEFAULT

Waiver by the Authority of any default or breach by the Contractor shall not be deemed a waiver or any subsequent default or breach and shall not be construed to be a modification or novation of the terms of this Contract.

3.3.4.11 LIMITATION OF CONTRACTOR'S LIABILITY

3.3.4.12 CONTRACTOR'S LIABILITY FOR INJURY TO PERSONS OR DAMAGE TO PROPERTY

1. The Contractor shall be liable for damages arising out of personal injuries and/or damage to real or tangible personal property of the Authority, employees of the Authority, persons designated by the Authority for training, or person(s) other than Agents or employees of the Contractor, designated by the Authority for any purpose, prior to, during, or subsequent to delivery, installation, acceptance, and use of the Deliverables either at the Contractor's site or at the Authority's place of business, provided that the injury or damage was caused by the fault or negligence of the Contractor.

2. The Contractor agrees to indemnify, defend and hold the Authority and its Officers, employees, Agents and assigns harmless from any liability relating to personal injury or injury to real or personal property of any kind, accruing or resulting to any other person, Contractor or corporation furnishing or supplying Work, Services, materials or supplies in connection with the performance of this Contract, whether tangible or intangible, arising out of the ordinary negligence, willful or wanton negligence, or intentional acts of the Contractor, its officers, employees, Agents, assigns or Subcontractors, in the performance of this Contract.

3. The Contractor shall not be liable for damages arising out of or caused by an alteration or an attachment not made or installed by the Contractor, or for damage to alterations or attachments that may result from the normal operation and Maintenance of the Contractor's goods.

3.3.4.13 FLORIDA SALES AND OTHER TAXES

The Proposer is responsible for paying to the appropriate governmental entity all applicable taxes. Any applicable tax legally enacted when the Proposals are received shall be included in the Total Contract Amount by the Proposer, whether or not yet effective or merely scheduled to go into effect.

3.3.4.14 FORCE MAJEURE

Neither party shall be liable or responsible to the other party, nor be deemed to have defaulted under or breached the Contract, for any failure or delay in fulfilling or performing any term of the Contract, when and to the extent such failure or delay is caused by or results from acts beyond the affected party's reasonable control, including, without limitation: acts of God; flood, fire or explosion; war, invasion, riot or other civil unrest; actions, embargoes or blockades in effect after the date of the Contract; pandemic or epidemic; or national or regional declared emergency (each of the foregoing, a "Force Majeure Event"). A party whose performance is affected by a Force Majeure Event shall give Notice to the other party, stating the period of time the occurrence is expected to continue and shall use diligent efforts to end the failure or delay and minimize the effects of such Force Majeure Event. Notwithstanding the foregoing, it is specifically acknowledged, understood and agreed that the terms and conditions set forth herein, including, without limitation the Project milestones and schedule reflect and include all considerations necessitated by the COVID-19 pandemic ("COVID") including, without limitation, delays, suspensions and interruptions of work and/or Services that are in place or scheduled, as well as restrictions on the working environment, construction means and methods, supply chain manufacturing lead times, and logistical methods, including freight and delivery time frames. Accordingly, the parties hereby acknowledge and agree that in no event shall either party be entitled to claim COVID or the impacts thereof (including, without limitation, supply chain or logistical issues, staffing shortages, changes in market prices or conditions, or financial distress) as a Force Majeure Event. Force Majeure Events shall not otherwise limit the Authority's rights to enforce contracts.

3.3.4.15 WAIVER

The delay or failure by the Authority to exercise or enforce any of its rights under this Contract shall not constitute or be deemed a waiver of the Authority's right thereafter to enforce those rights, nor shall any single or partial exercise of any such right preclude any other or further exercise thereof or the exercise of any other right.

3.3.4.16 SEVERABILITY

In the event that a court of competent jurisdiction holds that a provision or requirement of this Contract violates any applicable law, each such provision or requirement shall be enforced only to the extent it is not in violation of law or is not otherwise unenforceable and all other provisions and requirements of this Contract shall remain in full force and effect. All promises, requirements, terms, conditions, provisions, representations, guarantees, and warranties contained herein shall survive the expiration or termination date unless specifically provided otherwise herein, or unless superseded by applicable Federal or State statute, including statutes of repose or limitation.

Tampa Hillsborough County Expressway Authority

Section 4:

ROADSIDE TOLL COLLECTION SYSTEM SCOPE OF WORK AND REQUIREMENTS

July 24, 2025

Version 3.0 DRAFT

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TABLES AND FIGURES

4 APPLICABLE DOCUMENTS

Project Deliverables must be provided using industry best practices and standards. Major known applicable standards and supporting organizations are listed below; however, it is the Contractor's responsibility to meet all applicable standards and codes associated with the Work to be performed.
In the event of a conflict between standards or codes, the Contractor will utilize industry best practices and must document the decision-making process for Authority Approval, including the rationale for choosing one standard over another.

4.1 DESIGN INFORMATION AND SAFETY

ID#	REQUIREMENT
1	The Contractor shall adhere to Design and installation Requirements for the installation, Maintenance or additional Work performed throughout the duration of the Contract in accordance with latest edition/most recent guidance of the following:
	a) Equipment manufacturer's instructions;
	b) Florida Department of Transportation (FDOT) Design Manual https://www.fdot.gov/roadway/fdm/default.shtm;
	c) FDOT Standard Specifications for Road and Bridge Construction Divisions II and III https://www.fdot.gov/programmanagement/implemented/specbooks/default.shtm;
	d) FDOT Structures Manual https://www.fdot.gov/structures/StructuresManual/CurrentRelease/StructuresManual.shtm;
	e) FDOT Standard Plans, current version https://www.fdot.gov/design/standardplans/current;
	f) FDOT Computer Aided Drafting and Design (CADD) Manual https://www.fdot.gov/cadd/downloads/publications/caddmanualfdm/default.shtm;
	g) Reference Document R_01 – Tampa Hillsborough County Expressway Authority (THEA) General Tolling Requirements (GTR);
	h) Florida Building Code https://floridabuilding.org/c/default.aspx; and
	i) Section 508 of the Americans with Disabilities Act and the Florida Civil Rights Act https://www.section508.gov/manage/laws-and-policies/.
2	The Contractor shall adhere to all applicable safety standards for the installation, Operations and Maintenance, or additional Work performed throughout the duration of the Contract including but not limited to the latest editions/guidance of the following:
	a) Equipment manufacturer's guidance;
	b) National Electrical Manufacturers Association (NEMA);
	c) Underwriters Laboratory (UL) standards;
	d) Institute of Electrical and Electronics Engineers (IEEE);
	e) NEC (National Electrical Code (NEC);

ID#	REQUIREMENT
	f) National Fire Protection Association (NFPA);
	g) Occupational Safety & Health Administration (OSHA);
	h) Federal Highway Administration (FHWA) safety procedures;
	i) Authority safety procedures;
	j) State of Florida safety procedures; and
	k) any other local, state, or federal ordinance, procedure, or guideline that provides for a safe operational and working environment.

4.2 INFORMATION TECHNOLOGY (IT)

ID#	REQUIREMENT
3	The Contractor shall comply with all applicable IT standards required to successfully pass a System and Organization Controls (SOC)-2 Type 2 audit.

4.3 SECURITY

ID#	REQUIREMENT
4	The Contractor shall adhere to all applicable security Requirements from the National Institute of Standards and Technology (NIST) publication 800-53 Security and Privacy Controls for Information Systems and Organizations (latest version).

5 ROADSIDE TOLL COLLECTION SYSTEM (RTCS) PROJECT MANAGEMENT

The Contractor shall employ a Project Management System that is sufficiently detailed to enable the Authority to review and confirm that the Contractor has the necessary management, staff, and controls in place to meet the Requirements of the Contract .

5.1 STAFFING AND KEY PERSONNEL

ID#	REQUIREMENT
5	The Contractor is responsible for maintaining and assigning a sufficient number of competent and qualified professionals to meet the Requirements of the Contract. Unless otherwise stipulated, during the Implementation Phase, no Key Personnel shall serve in more than one role.
6	The Contractor shall ensure Key Personnel speak and write fluently in English and be readily accessible to the Authority or Authority-Designated Representatives during the Contractor's performance of this Contract.
7	The Contractor shall ensure Key Personnel are readily accessible to the Authority as to meet the Requirements, during the Implementation Phase regardless of their physical location and time zone.

ID#	REQUIREMENT
8	When required, Key Personnel shall be on-site at Authority offices located at 1104 E Twiggs St STE 300, Tampa Florida.
9	The Contractor shall ensure Key Personnel are readily accessible to the Authority throughout the Operations and Maintenance Phase and as needed to meet the Requirements, regardless of their physical location and time zone.
10	The Contractor shall provide staff at all times sufficient to meet the Project Requirements and Contract. The following are designated as Key Personnel for this Project and are subject to the Approval, replacement, and removal Requirements of the Authority for Key Personnel as set forth in the Contract:
	a) Project Principal – Shall be responsible for the overall conduct and performance of the Project; oversight of the Project, the performance of the Contractor Project Manager and Quality Assurance Manager, and a point of contact for any escalated Project issues that cannot be resolved by the Contractor Project Manager and/or Quality Assurance Manager. The Project Principal shall have ten (10) years of program or project management experience in the design, development, and installation of roadside toll collection systems, transactions processing, payment processing or similar industry and five (5) years of senior management responsibility for projects of similar scope.
	b) Contractor Project Manager – Shall be responsible for all daily work, the overall execution and delivery of the Project and the Contractor contact person on the Project. The Contractor Project Manager shall be one hundred percent (100%) dedicated to the Project for the Implementation Phase, and a minimum of twenty-five percent (25%) dedicated to the Project for the Operations and Maintenance Phase. The Contractor Project Manager shall be on site for all meetings, workshops, and all Project status meetings during the Implementation Phase. The Contractor Project Manager shall have worked as Project Manager for a minimum of five (5) years and a minimum of two (2) All-Electronic Tolling (AET) projects similar to this Project.
	c) Deputy Project Manager – Shall be responsible for assisting the Contractor Project Manager in the day-to-day execution and delivery of the Project during the Implementation Phase at a minimum of twenty-five percent (25%) dedication to the Project. The Deputy Project Manager shall have worked in an equivalent position for a minimum of two (2) years and a minimum of one (1) AET RTCS project similar to this Project.
	d) Technical Manager, Roadside System – Shall be responsible for management of all Roadside System technology and resources, including selection of the lane solutions, zone-level data retention, network architecture, peripherals, subsystems, and Software development. The Technical Manager, Roadside System and the Technical Manager, Roadway Support System shall have experience in the System being proposed and share the responsibility of being the overall RTCS solution architect, including management of Software development, Software backlog, and Systems and information security as required to satisfy the Requirements of the Contract. The Technical Manager, Roadside System shall be one hundred percent (100%) dedicated to the Project during the Implementation Phase of the Project. The Technical Manager Roadside Systems shall have worked in an equivalent position on a minimum of five (5) years and a minimum of two (2) transaction processing projects similar to this Project.

ID#	REQUIREMENT
	e) Technical Manager, Roadway Support System – Shall be responsible for the management of all the Design, development and implementation of the technology solution and resources related to the Roadway Support System (RSS), including interfaces to the Operational Back Office System (OBOS). The Technical Manager, Roadway Support System and the Technical Manager Roadside System shall have experience in the System being proposed and share the responsibility of being the overall RTCS solution architect, including management of Software development, Software backlog, and Systems and information security as required to satisfy the Requirements of the Contract. The Technical Manager, Roadway Support System shall be one hundred percent (100%) dedicated to the Project during the Implementation Phase of the Project. The Technical Manager, Roadway Support System shall have worked in an equivalent position on a minimum of two (2) transaction processing projects, similar to this Project, and shall have experience with the System architecture and platform where the proposed System will be hosted (cloud, hosted, or On-premises). The same person may serve as both Technical Manager, Roadside System and Technical Manager, Roadway Support System for the Project as long as they meet the Requirements for both positions.
	f) Installation Manager – Shall be responsible for the installation of the RTCS. The Installation Manager shall be on-site, and one hundred percent (100%) dedicated to the Project. The Installation Manager shall have worked in an equivalent position on a minimum of two (2) AET projects, similar to this Project. The same person may serve as both Installation Manager and Maintenance Manager for the Project as long as they meet the Requirements for both positions.
	g) Maintenance Manager – Shall be responsible for Operations and Maintenance Services of the RTCS. During the Operations and Maintenance Phase of the Project the Maintenance Manager shall be one hundred percent (100%) dedicated to the Project. The Maintenance Manager shall have a minimum of five (5) years of experience maintaining a system of similar scope. The same person may serve as both Installation Manager and Maintenance Manager for the Project as long as they meet the Requirements for both positions.
	h) Quality Assurance Manager – Shall be responsible for consistent quality throughout the Design, development, testing, and implementation of the Project through good Quality Assurance (QA) and Quality Control (QC) practices. Shall also be responsible for quality reviews for Software releases during the Operations and Maintenance Phase. The QA Manager shall be a minimum of fifty percent (50%) dedicated to the Project during the Implementation Phase and a minimum of twenty-five percent (25%) dedicated to the Project during the Operations and Maintenance Phase. The QA Manager shall have at least five (5) years of experience as a QA Manager and QA Manager for at least two (2) projects of similar scope to this Project.

ID#	REQUIREMENT
	i) Test Manager – Shall be responsible for the overall planning and implementation of the Project's testing program and Commissioning of the RTCS lanes into revenue operations. The Test Manager shall be one hundred percent (100%) dedicated to the Project during the development of testing plans and procedures and during the testing of the Project. The Test Manager shall have a minimum of five (5) years of experience with testing, including both hardware and software, and shall have worked in an equivalent position on a minimum of two (2) AET projects similar to this Project.

5.2 COOPERATION AND COORDINATION WITH OTHER CONTRACTORS AND PROVIDERS

ID#	REQUIREMENT
11	The Contractor shall cooperate and coordinate to the fullest extent with the Authority, the existing system integrators, the Constructor, and the OBOS Contractor to ensure the RTCS implementation and Maintenance do not conflict with or cause any interruption to RTCS capability or impede the Authority's ability to collect tolls. Such cooperation shall also be exercised to limit any service or safety issues for the traveling public and customers.
12	To support any activity related to the RTCS Project, the Contractor shall cooperate and coordinate with the following as directed by the Authority, including but not limited to:
	a) Authority employees;
	b) the Constructor;
	c) the OBOS Contractor;
	d) Authority-Designated Representatives;
	e) other third parties, as directed by the Authority;
	f) law enforcement;
	g) inspectors;
	h) auditors; and
	i) all contractors.
13	The Contractor shall cooperate with and immediately notify the Authority (both verbal and written) of any customer complaints and System issues identified in the toll lanes or facilities that come to the Contractor's attention during the course of implementation or Operations and Maintenance Services.

5.3 MONTHLY PROGRESS REPORT AND MEETINGS DURING THE IMPLEMENTATION PHASE

Monthly progress reports and meetings will enable the Authority and the Contractor to monitor the status, progress, and quality of the Work performed on the Project and to take proactive steps to ensure successful delivery of the Project.

ID#	REQUIREMENT
14	The Contractor shall provide and maintain a schedule for monthly progress meetings (in addition to the weekly Design/installation meetings during the active Design/installation periods) at a location designated by the Authority. The meetings shall be scheduled to occur no later than the fifteenth (15th) Calendar Day of the subsequent month.
15	No less than five (5) Business Days prior to the monthly progress meeting, the Contractor shall submit a draft monthly progress report to the Authority for the period covering the previous month and a look-ahead for the upcoming six (6) weeks.
16	The Contractor shall obtain updated Project status prior to the monthly progress meeting. In addition to the Project status, the Contractor shall also obtain updated construction and installation status from the Constructor and project status from the OBOS Contractor prior to the monthly progress meeting and include such updates in the Baseline Project Implementation Schedule, which shall be submitted with the monthly progress report.
17	The Contractor Project Manager shall attend the monthly progress meetings on-site and in person. The Contractor shall ensure that the appropriate additional personnel are present at these meetings who can represent the Contractor's interest and provide the information necessary in a meaningful manner.
18	The format of the monthly progress report shall be agreed upon as one of the initial Project tasks upon Notice to Proceed (NTP) and shall be incorporated by the Contractor into the Project Management Plan.
19	The monthly progress report shall include but not be limited to the following items:
	a) a summary outlining progress, status, and percentage of Work performed for each task as compared to planned activities in the Baseline Project Implementation Schedule. Comments shall be included where appropriate. The summary shall also identify key milestones met and missed in the period;
	b) an analysis of all critical path tasks, potential risks associated with the tasks, and proposed contingency/workaround plan to mitigate delays to the Project;
	c) identification of any Approved changes to Approved milestone dates and Baseline Project Implementation Schedule, clearly noting the details, and identifying the Contract Amendment;
	d) a discussion of schedule compliance and an Updated Baseline Project Implementation Schedule showing current status against the Baseline Project Implementation Schedule. Past due tasks shall be updated, and actual dates shall be recorded for completed tasks;
	e) construction/installation coordination status, including required coordination with the Constructor and the OBOS Contractor;
	f) an updated action items list that tracks the status of all outstanding action items, activities and issues that need decision/resolution;
	g) an updated Deliverables list showing Submittal dates, current version, current review status, responsible party, and due date;
	h) a risk log that tracks the status of all outstanding risks that need decision/resolution;
	i) a list of invoices submitted to the Authority by the Contractor and their status;
	j) a list of change requests (Contractor and Authority-initiated) and their status;

ID#	REQUIREMENT
	k) the previous monthly final meeting minutes; and
	l) a six (6)-week look-ahead schedule.
20	No more than five (5) Business Days after the monthly progress meeting, the Contractor shall submit the final monthly progress report and draft monthly progress meeting minutes for the Authority's review and Approval.

5.4 MONTHLY MAINTENANCE AND PERFORMANCE REPORT AND MEETING DURING THE OPERATIONS AND MAINTENANCE PHASE

The monthly Maintenance and performance report and meetings will enable the Authority and the Contractor to monitor the Operations and Maintenance of the RTCS, review adherence to the Performance Requirements, and take proactive steps to ensure the RTCS is maintained and operated in accordance with the Requirements.

ID#	REQUIREMENT
21	During the Operations and Maintenance Phase, the Contractor shall conduct a monthly meeting with the Authority to review the monthly Maintenance and performance report and discuss any outstanding issues with the RTCS and Operations. The meetings shall be scheduled to occur no later than the fifteenth (15th) Calendar Day of the subsequent month or as Approved by the Authority.
22	No less than five (5) Business Days prior to the meeting, the Contractor shall submit a draft monthly Maintenance and performance report to the Authority for the period covering the previous month and the planning period. The planning period for the report shall be the upcoming six (6) weeks.
23	The format of the monthly Maintenance and performance report shall be Approved by the Authority and included in the System Maintenance Plan.
24	The monthly Maintenance and performance report shall also be readily available on-demand through the System in detail and summary format to Authority authorized personnel via the network on a daily, weekly, or other time period basis determined by the Authority.
25	The monthly Maintenance and performance report shall include but not be limited to the following items:
	a) a summary of the Contractor's performance for the month under review noting all accomplishments and deficiencies;
	b) the completed Contractor's Monthly Performance Scorecard for the month under review;
	c) all monthly Maintenance and performance reports, worksheets, and other supporting material according to the Key Performance Indicator (KPI) Guidebook that show Contractor's Key Performance Indicator (KPI) scores for the period;
	d) all corrective, preventive, and pervasive Maintenance activities, including supporting Documentation, performed during the reporting period;
	e) detailed listing of failures and outages and the impacted subsystems where Contractor's and RTCS performance for the month were not in compliance with the Performance Requirements;

ID#	REQUIREMENT
	f) any exceptions the Contractor believes are non-chargeable failures that the Contractor is not responsible for. Such exceptions shall be accompanied by a waiver request to the Authority;
	g) detailed list of parts replaced as a result of Maintenance actions, with an identification of Warranty (via the return material authorization process) versus non-Warranty replacement;
	h) status of removed parts and Equipment with an aging status for parts under repair or replacement (serial numbers, being repaired in the Maintenance shop, purchase replacement part);
	i) trend analysis for repetitive failures (for example, recurring Equipment breakdown, repeated process failures, frequent service interruptions or recurring human errors);
	j) status of spare parts inventory;
	k) details of data-store Maintenance and administration activities carried out during the month;
	l) Software and firmware releases and System patches implemented for the month and status of the deployment;
	m) Software and firmware releases planned to be implemented over next three (3) months (if applicable);
	n) incidents that invoked emergency response or resulted in loss of toll revenue including any incident response plans utilized;
	o) status of Root Cause Analysis (RCA), Correction Action Plan (CAP), and After Action Report (AAR);
	p) summary and detail of work orders, Software defects and trouble tickets by Priority and category;
	q) disincentives that were applied to the monthly invoice due to missed KPIs;
	r) audit results for any audits performed during the period; and
	s) the Work plan and Maintenance (corrective, preventive and pervasive) schedule for the upcoming six (6)-week planning period including all planned lane closures and MOT plans.
26	The Contractor shall provide an annual executive summary report to the Authority that summarizes the Contractor's performance for the Maintenance Year. The format of the executive summary reports shall be Approved by the Authority and included in the System Maintenance Plan.

5.5 PROJECT MEETINGS

ID#	REQUIREMENT
27	In addition to the monthly progress meeting, weekly or bi-weekly Project status meetings, as applicable and Approved by the Authority, and other regularly scheduled installation and ad-hoc Project meetings shall be required during the course of the Project to address specific Deliverables, Work items, Maintenance procedures and issues as they arise.

ID#	REQUIREMENT
28	The Contractor shall perform the following tasks related to all meetings, including but not limited to:
	a) develop and coordinate the Project meeting schedule;
	b) distribute notice of Project meetings;
	c) attend the meeting with all required staff in attendance on-site; and
	d) document and distribute meeting minutes.

5.6 BASELINE PROJECT IMPLEMENTATION SCHEDULE

The Baseline Project Implementation Schedule is a comprehensive list of Project milestones, activities, and Deliverables, with intended start and finish dates, including a detailed Work Breakdown Structure (WBS) that identifies Project tasks down to the Work package level and the activities required to complete the Work package Deliverables.

ID#	REQUIREMENT
29	The Contractor shall provide and maintain a detailed Baseline Project Implementation Schedule for the Project in Microsoft Project format (Project 365 or higher) and portable document format (PDF) that lists all Project activities and tasks for all Phases of the Project, including but not limited to:
	a) planning;
	b) Requirements;
	c) Design, including Documentation Deliverables and review cycles;
	d) development;
	e) procurement of Hardware and Software, including long lead items and items subjected to logistical risks (import tariffs, logistical exemptions, FCC bands, etc.);
	f) testing and remediation of defects;
	g) installation;
	h) transition; and
	i) deployment and Acceptance of the RTCS at the various RTCS Toll Zones.
30	The Baseline Project Implementation Schedule shall include coordination with the Constructor, the OBOS Contractor, the existing system integrators, third-party Digital Video Audit System (DVAS) provider, other Authority auditors, and the Authority, and shall clearly document all interfacing tasks.
31	The Baseline Project Implementation Schedule shall identify all milestones and tasks, starting with the NTP through the date of Acceptance for the entire Implementation Phase of the Contract.
32	The Baseline Project Implementation Schedule shall be resource loaded, shall include all draft and final Submittals and review cycles, and shall include all tasks required of the Authority, and other contractors.

ID#	REQUIREMENT
33	The Baseline Project Implementation Schedule shall identify all critical path tasks and shall be used to manage the Project.
34	The Baseline Project Implementation Schedule shall be submitted to the Authority for Approval twenty (20) Business Days after NTP. Once Approved, any modifications to the Baseline Project Implementation Schedule shall require notification (both verbal and written). The written notification shall provide clear documentation and details outlining the basis and reasoning for the need to modify the Baseline Project Implementation Schedule. Any request to modify the baseline schedule is subject to Authority Approval.
35	The Contractor shall maintain status and update the Baseline Project Implementation Schedule at least once a month, as identified in the Requirements for the monthly progress report. Each update shall be accompanied by a detailed written narrative that communicates the progress made against the baseline schedule as well as all changes and deviations.
36	The Contractor shall use the Baseline Project Implementation Schedule as the basis for all subsequent schedules and updates throughout the duration of the Project.

5.7 QUALITY ASSURANCE (QA) PROGRAM

The Contractor must establish and maintain an effective QA program on all aspects of the Project to ensure compliance with the Contract and adherence to the QA Plan.

ID#	REQUIREMENT
37	The Contractor shall establish and maintain an effective QA program that ensures adequate quality throughout all areas/phases of the Project, in accordance with the Authority Approved QA Plan.
38	All supplies and Services under this Contract, whether manufactured or performed within the Contractor's facilities or at any other source, shall be controlled by the Contractor at all points necessary to ensure conformance to the Requirements of the Contract.
39	Purchase, delivery, verification, testing and assembly of Equipment, Hardware and Software conducted within the Contractor's facilities and on-site shall be controlled completely by the Contractor.
40	Delivery, verification, testing and assembly of servers and network Equipment conducted within the Contractor's facilities shall be controlled completely by the Contractor.
41	The QA program shall provide for the prevention and early detection of discrepancies and for timely and positive corrective action.
42	The QA program shall include effective QC of purchased materials and Subcontractor Work.
43	The Contractor shall make objective evidence of quality conformance readily available to the Authority, and the Authority shall have the right to review and verify the Contractor's compliance to the process.

5.7.1 RECORDS

ID#	REQUIREMENT
44	The Contractor shall maintain records or data essential to providing objective evidence of quality until the expiration of the Contract, and these records shall be made available to the Authority upon request.
	Quality-related records and data shall include but not be limited to:

ID#	REQUIREMENT
45	a) inspection and test results;
	b) records of Subcontractor QA programs;
	c) cost records pertinent to Acceptance of nonconforming material;
	d) inspection check-off of Work;
	e) change request Documentation;
	f) development and submission of Deliverables;
	g) testing and release of Software;
	h) Design reviews and walkthroughs; and
	i) results of internal and Contractor audits.
46	Records shall be maintained in a manner that allows for easy access and analysis of the status of the overall QA Program.

5.7.2 CONTROL OF PURCHASE

ID#	REQUIREMENT
47	The Contractor shall be responsible for ensuring that all supplies, components, developmental tools, assemblies, subassemblies, and Services procured from Subcontractors and vendors conform to the technical Requirements and Contract.
48	The Contractor shall have a QC process in place for tracking and handling non-conforming Equipment and products.
49	The Contractor's responsibility includes the establishment of procedures for the selection of qualified suppliers. In selecting qualified suppliers, the Contractor shall ensure that the Subcontractors and vendors control the quality of the Equipment and Services provided. The Contractor shall be responsible for the inspection and verification of the quality of Third-Party supplied Equipment and Services.

5.7.3 HANDLING, STORAGE AND DELIVERY

ID#	REQUIREMENT
50	The Contractor shall document the approach to assembly of the Equipment, including the location where Equipment and systems are assembled and/or configured.
51	The Contractor's QA Program shall provide for adequate and documented handling, storage, preservation, packaging, and shipping instructions to protect the quality of products.
52	All Authority assets shall be tracked and entered into the Maintenance Online Management System (MOMS) inventory, and the location of each asset shall be recorded.
53	The Contractor shall affix Authority-issued asset tags to each RTCS asset and the Authority-issued asset tag numbers shall be recorded in the MOMS along with all pertinent part information.
54	The Contractor shall track all RTCS assets in the Authority's ArcGIS database. This database shall be maintained by the Contractor with any updates throughout the Contract.

ID#	REQUIREMENT
55	Any unique or special Requirements applicable to procured items shall be delineated in the Procurement Documents. All Procurement Documents shall be made available to the Authority upon request.

5.7.4 ACCESS TO/INSPECTION OF CONTRACTOR'S FACILITIES

ID#	REQUIREMENT
56	Upon notification, the Authority or Authority-Designated Representative shall have access to the personnel responsible for the Contractor's facilities to coordinate the Contractor's facilities inspections.
57	This access may be restricted to those portions of the facilities and personnel involved with or who are otherwise performing Work under this Contract.
58	Such access shall be for the purpose of inspecting the facilities, verifying progress, inspection of materials, Work-in-progress, finished goods, or verifying test performance or results.
59	The Authority's inspection shall not constitute Acceptance or Approval, nor shall it in any way replace the Contractor's inspection activity or relieve the Contractor of the responsibility to furnish an acceptable end product. The Contractor shall be solely responsible to meet the requirements of this RFP regardless of any inspection or verification conducted by THEA or THEA's designates.

6 CONSTRUCTOR DESIGN SUPPORT

The Constructor is responsible for the design and construction of all roadway and Toll Zone infrastructure (including toll gantries) for the South Selmon Capacity Project (SSCP) New Toll Zones where the Contractor will install, test, and Commission a portion of the RTCS. The SSCP New Toll Zones will be designed according to the THEA General Tolling Requirements (Reference Document R_01 – Tampa Hillsborough County Expressway Authority (THEA) General Tolling Requirements (GTR)). The Contractor will provide over the shoulder review and input which will assist the Constructor to refine the SSCP design within the outline of the THEA GTR.

6.1 GENERAL DESIGN REQUIREMENTS

ID#	REQUIREMENT
60	The Contractor shall work with the Authority to provide input and support for the civil design and construction schedule, including requirements for all civil construction work to be performed by others on the Project. This shall include, but is not limited to toll gantry, toll Equipment pads, roadway/pavement, and conduit, particularly in aspects that integrate with the Design and installation of the RTCS. The Contractor's support during civil design shall include responding to information requests for clarification on proposed civil designs and actively reviewing civil plans and drawings.
61	During construction, the Contractor shall provide review and comment on site drawings and design submittals as they relate to the RTCS.
62	Upon Contractor approval of site drawings or similar design submittals by the Constructor, the Contractor shall assume responsibility for those elements to the extent that if the civil work is installed as designed and does not meet the Performance Requirements of this Scope of Work (SOW) and Requirements, the Contractor shall be responsible for the costs of redesign, civil rework, and additional Equipment costs as further set forth in the Contract.

ID#	REQUIREMENT
63	The Contractor shall ensure that all locations, positions, installations, connections, and other elements specified in the civil design and installation drawings provided by the Constructor are accurate and correct. This applies to all Contractor and Authority-provided Equipment, whether in-pavement, structure/toll gantry-mounted, or in or around the toll Equipment pads.
64	The Contractor shall also ensure that the installed roadway, infrastructure, structures/toll gantries, and toll Equipment pads meet the design requirements provided by the Contractor and shall certify this in writing. Any changes to the configuration required by the Contractor shall be adjusted or moved by the Contractor at no additional cost to the Authority.
65	The Contractor shall review and comment on the Constructor infrastructure installation and confirm it is in compliance with the approved civil drawings. A site acceptance checklist, based on the approved civil drawings, will be generated by the Authority. The site acceptance checklist shall be reviewed and approved by the Contractor, and signed by the Contractor and the Authority, prior to site acceptance.

6.1.1 SOUTH SELMON CAPACITY PROJECT TOLL GANTRY DESIGN

ID#	REQUIREMENT
66	The Contractor shall coordinate in-lane Equipment Design, installation specifications, structural requirements, and drawings for mounting the Equipment to the overhead toll gantry at each New Toll Zone as it relates to the Contractor's Equipment requirements with the Constructor, including but not limited to:
	j) Equipment mounting locations for all gantry mounted devices and the associated dimensions and weights (including all mounting apparatuses);
	k) installation instructions for mounting structure and mounting brackets;
	l) conduit;
	m) junction boxes and Equipment cabinet sizing;
	n) electrical requirements;
	o) wind load;
	p) Equipment load and power calculations;
	q) deflection and vibration limits for the various tolling Equipment;
	r) Contractor requirements related to special electrical grounding and isolated circuit integrity by Equipment; and
	s) network connectivity requirements and locations.
67	The Contractor shall be responsible for all necessary installation and mounting Hardware required to install the toll Equipment on each toll gantry at each lane as specified in this Section 4 – Scope of Work and Requirements.

6.1.2 TOLL EQUIPMENT PAD

ID#	REQUIREMENT
68	The Contractor shall review and comment on all aspects of toll Equipment pad design drawings, power specifications, electrical and cabling design (including conduit runs and stub up locations), circuit breaker and switches, and grounding design submitted by the Constructor that are related to the Roadside System Equipment, when applicable.
69	The Contractor shall coordinate with the Constructor on the design and installation of the toll Equipment pads and shall ensure consistency with the detailed drawings of Equipment cabinets and enclosures layout provided by the Contractor.
70	The Contractor shall procure, furnish, and install the toll Equipment cabinets and enclosures for the SSCP New Toll Zones.
71	The Constructor will procure, furnish, and install the conduits between the toll Equipment pad and the toll gantry, pull boxes, and in-pavement. The Contractor shall procure, furnish, and install any additional conduit required in addition to the Constructor installed conduit on the toll gantry to the Equipment and between the various components on the toll gantry.

6.1.3 SOUTH SELMON CAPACITY PROJECT COMMUNICATIONS

ID#	REQUIREMENT
72	Other contractors will provide and test the fiber connections from Toll Zone to Toll Zone that connects the wide area network (WAN) for the SSCP. The Contractor shall procure, furnish, and install all WAN and local area network (LAN) Equipment at each Toll Site and/or Toll Zone, including but not limited to fiber patch panels and network switches.
73	The Contractor shall coordinate with the Authority and the Constructor regarding demarcation points between the onsite fiber network and Internet Service Providers (ISPs). The Contractor shall coordinate with the Authority and the Constructor regarding overall network design (including network security components) and splicing for the physical network between the Toll Zones. Once network design is finalized, the Contractor shall certify in writing that network design meets all RTCS needs.
74	The Contractor shall Design the network communication interfaces between the Roadside System and the RSS that compromise the RTCS and the network communication interfaces between the RSS and the OBOS.
75	The Contractor shall provide final Acceptance of the physical network that will be designed and installed by the Constructor. The site final Acceptance shall be based on the completion of all items on an Authority-developed and Approved installation checklist.

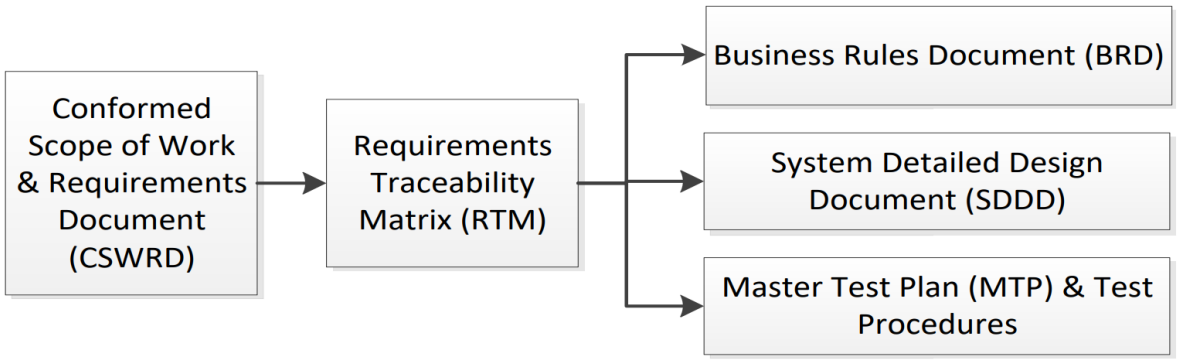
7 DESIGN AND DEVELOPMENT REQUIREMENTS

The Authority expects the Contractor to propose a baseline product for the RTCS, and that some custom development will be required. To ensure the Design Requirements for the RTCS are fully understood by the Authority and the Contractor, a series of Requirements and Design review steps are specified following a sequential Design process or waterfall model. Requirements derived during Contract negotiations and during the Design process will become part of the Contract Conformed Scope of Work and Requirements Document (CSWRD) and will be the basis for the Contractor to produce a Requirements Traceability Matrix (RTM). The RTM allows for verification that the Requirements are addressed in the Design and documented in the System Detailed Design Document (SDDD) and traced to test procedures that validate the developed RTCS meets the Contract Requirements. The RTM shall be the basis for all Design, development and testing

efforts and Documentation to be developed by the Contractor.

The Authority has developed the GTR that serves as the main source of requirements for roadside tolling infrastructure design criteria that applies to all new Toll Sites. The Contractor must follow the GTR directives and guidelines for the SSCP, and for all other existing sites, the Contractor must use the existing site civil infrastructure.

Figure 7-1 System Design Approach



7.1 GENERAL DESIGN AND DEVELOPMENT REQUIREMENTS

ID#	REQUIREMENT
76	The Contractor shall establish and maintain an effective Software Design and development program along with a documented Software Development Life Cycle (SDLC) to ensure compliance with the Requirements of the Contract.
77	The Contractor shall employ effective techniques, methodologies, and tools to develop the System Requirements and Business Rules (BR) for the Project and deliver the Project.
78	All workshops identified in this Scope of Work and Requirements shall be conducted with all applicable Contractor and Subcontractor management and subject matter experts in attendance.
79	Prior to conducting any workshops, Requirements reviews, Business Rules reviews, and Design reviews, the Contractor shall develop the necessary Documentation for Authority review and submit such Documentation ten (10) Business Days prior to such meetings.
80	All Documentation shall be tailored for the Project, and the CSWRD shall be used for developing such Documentation.

7.2 RTCS REQUIREMENTS REVIEW

The outcome of the RTCS Requirements review meetings will be the RTM that will be used to validate each Requirement against a Design item(s), Design Documentation, and testing procedure(s).

ID#	REQUIREMENT
81	The Contractor shall manage, facilitate, and conduct a series of RTCS Requirements reviews with Authority-Designated Representatives to review and clarify all of the RTCS Requirements.

ID#	REQUIREMENT
82	The Contractor shall schedule the initial RTCS Requirements review workshops with the Authority within sixty (60) Days of NTP to fully understand the Requirements.
83	During the Requirements reviews, the Contractor shall present the Contractor's standard product to the Authority to solicit feedback and use the feedback obtained in the development of the RTM, SDDD, and Business Rules Document.
84	Any modifications to Requirements identified during the Requirement review and Design process shall be tracked and submitted to the Authority for Approval.
85	Any modification or clarifications to the Requirements identified and coordinated with the Authority during the Requirement review and Design process shall be tracked within the RTM and remain for the lifetime of the document.

7.3 BUSINESS RULES DEVELOPMENT

ID#	REQUIREMENT
86	The Contractor shall manage, facilitate, and conduct Business Rules development workshops with Authority-Designated Representatives to capture and document the RTCS Business Rules.
87	With Approval from the Authority, the Business Rules workshops may be held concurrently with the RTCS Requirements review and Design and shall be an iterative process.
88	The Contractor shall add and then track the Business Rules in the RTM and the Business Rules shall be incorporated into the RTCS Design.
89	The Contractor shall provide updates to the Business Rules Document to the Authority for the remainder of the Contract Term with any changes to the Business Rules or the RTCS.

7.4 SYSTEM DETAILED DESIGN REVIEW

Based on the RTM and Business Rules Document, the Contractor will Design the RTCS and submit a preliminary Design Document for the Authority to review and provide comments. The Contractor will then conduct a series of Design meetings with the Authority to address the comments and to create the SDDD, defining how the System Design will meet the Contract Requirements.

ID#	REQUIREMENT
90	The Contractor shall manage, facilitate, and conduct a series of System Design meetings with the Authority-Designated Representatives.
91	The Contractor shall demonstrate pre-production working products (such as beta versions) during the Design review process, and Authority-Designated Representatives shall be walked through the workflow, utilizing screens and data flow diagrams.
92	The Contractor shall present lane logic and transaction framing rules of the baseline solution as documented in the CSWRD.
93	The Contractor shall trace how the System Design meets the Business Rules and the Contract Requirements using the RTM.
94	The RTM shall map all Requirements to the Contractor-developed SDDD.
95	The Contractor shall conduct as many System Design meetings and Design Submittal review cycles as deemed necessary by the Authority to address all Authority comments to the Authority's satisfaction and finalize the Design.

7.5 REPORTS AND DASHBOARDS DESIGN WORKSHOPS

The Contractor will conduct a series of workshops with the Authority to facilitate the Design of the RTCS reports and Dashboards. The Contractor's existing reports and Dashboards will be used as a basis for the workshops.

ID#	REQUIREMENT
96	The Contractor shall manage, facilitate, and conduct a series of reports and Dashboard Design workshops with the Authority to facilitate the Design of the RTCS reports and Dashboards.
97	The Contractor shall employ an effective and productive methodology for Designing and finalizing the reports and Dashboards for the Project.
98	The reports and Dashboards Design process shall be iterative, and the Contractor shall conduct multiple workshops with the Authority-Designated Representatives, and the Contractor shall bring subject matter experts to the meetings.
99	The Contractor's subject matter experts shall explain each report and Dashboard, its intended purpose, columns, fields, filters, sorting controls, and other components, how they are mapped to the database, and the connection with other reconciling and validating reports and Dashboards.
100	The Contractor's report and Dashboard templates shall be submitted, and changes required to meet the Authority RTCS Requirements shall be noted.
101	Upon receiving feedback from the Authority-Designated Representatives, the Contractor shall develop/modify the reports and Dashboards and resubmit the updated reports and Dashboards for review.
102	The modified and new reports and Dashboards shall be demonstrated to the Authority. Reports and Dashboards that are expected to reconcile to one another shall be demonstrated together.
103	The iterative series of reports and Dashboard Design workshops and demonstrations shall continue until baseline reports and Dashboards are Approved by the Authority.
104	At the conclusion of the workshops, the Contractor shall document the results of the meetings and incorporate the baseline reports and Dashboards and Design decisions into the SDDD.

7.6 SOFTWARE WALKTHROUGH

The intent of the Software walkthrough is to provide an overall status on the Contractor's Software development progress to ensure the Contractor is on track to deliver the Project on schedule and to obtain the Authority's feedback on the direction of the development prior to the full rollout of the Software.

ID#	REQUIREMENT
105	The Contractor shall manage, facilitate, and conduct a series of Software walkthroughs including product demonstrations to solicit input from the Authority during the development of the RTCS.
106	Prior to each Software walkthrough, the Contractor shall develop and submit the use cases that will be demonstrated to the Authority for review and Approval. The walkthrough shall follow the process flow and emulate normal Operations.
107	The product shall be demonstrated in a test environment that allows data to flow as it will in the final System.
108	The Software walkthrough shall demonstrate to the Authority that the developed Software product meets the technical, functional, related non-functional, and security Requirements of the Contract.

ID#	REQUIREMENT
109	Comments and feedback provided during the Software walkthrough shall be documented and resolved by the Contractor and the resolution shall be Approved by the Authority. Resolution shall include updates to relevant Design Documents as necessary.
110	The Contractor shall be responsible for identifying and correcting any Software issues or defects in its Design or product that impact the Contractor's ability to deliver the RTCS that meets the Contract Requirements. This shall apply to issues or defects found during or after Software walkthrough, the Factory Acceptance Test (FAT), or in the subsequent testing and implementation. Any such changes shall be Approved by the Authority in writing.

7.7 INFORMATION TECHNOLOGY INFRASTRUCTURE AND SECURITY WORKSHOPS

ID#	REQUIREMENT
111	The Contractor shall manage, facilitate, and conduct a series of information technology infrastructure and security workshops with Authority-Designated Representatives.
112	Prior to these information technology infrastructure and security workshops, the Contractor shall have prepared and submitted for Authority review, the following items to be discussed during the workshops:
	a) approach to System integration, including third-party security monitoring software and tools;
	b) approach to network integration, including firewalls and routers;
	c) approach to security integration, including how applicable Authority Security, NIST, Security Management Plan, and State of Florida Cybersecurity Standards will be met;
	d) the Disaster Recovery Plan (DRP); and
	e) approach to trouble escalation and coordination.
113	The Contractor shall use the RTM during the workshops to demonstrate that all information technology infrastructure and security Requirements are satisfied.
114	During the information technology infrastructure and security workshops, the Contractor shall present the Design concepts for the integration with the Authority's facilities and networks for Authority review and discussion. The Contractor shall adjust the Design if directed by the Authority.
115	The Contractor shall Design and propose a port delegation solution for Authority Approval. The Contractor shall modify port delegation if directed by the Authority.
116	At the conclusion of the information technology infrastructure and security workshops, the Contractor shall document the results of the meetings and incorporate the security Design decisions into the SDDD and other Project Documentation as applicable.

7.8 PERFORMANCE REPORTING WORKSHOPS

The Performance reporting workshops will allow the Contractor and the Authority to review the Authority-developed Key Performance Indicator (KPI) Guidebook and the Performance Requirements and determine how performance-related data will be captured, measured, and reported.

ID#	REQUIREMENT
117	The Contractor shall manage, facilitate, and conduct a series of Performance reporting workshops with Authority-Designated Representatives.
118	During the performance reporting workshops, the Contractor and the Authority shall discuss and refine the Authority-developed Key Performance Indicator (KPI) Guidebook (Reference Document R_02 – Key Performance Indicators Guidebook), including the following items pertaining to Performance Requirement measurements:
	a) how each Performance Requirement will be measured and frequency of measurement;
	b) measurement formula including formula examples, with details on data sampling, sample size, error determination, and assembly of sample sets, as applicable to each Performance Requirement;
	c) data and evidence sources, including System reports, images, queries, logs, or other applicable records;
	d) Approved waivers and evidence sources to substantiate the Contractor's claim for exclusion/waiver;
	e) methods for dealing with exclusions/waivers Approved by the Authority such as omitting known exclusions from data samples or removing exclusions after the sample has been collected; and
	f) execution and oversight of sample evaluations, as appropriate.
119	At the conclusion of the performance reporting workshops, the Contractor shall:
	a) document the results of the meetings;
	b) submit a revised KPI Guidebook for the Authority's review; and
	c) incorporate the Performance Reports Design decisions into the SDDD.

7.9 OBOS INTERFACE WORKSHOPS

ID#	REQUIREMENT
120	The Contractor shall manage, facilitate, and conduct a series of OBOS interface workshops with the OBOS Contractor and Authority-Designated Representatives. The purpose of these workshops shall be to refine the Interface Control Document (ICD) (RTCS-OBOS ICD); based on Reference Document R_03 – RTCS-OBOS ICD Overview, and to Design the Contractor-provided web Services.
121	The Contractor shall use the RTM and the ICD between the OBOS and the Centralized Customer Service System (CCSS) during the OBOS interface workshops to demonstrate that all OBOS interface Requirements are satisfied.
122	Based on revisions identified in the OBOS interface workshops, the Contractor shall coordinate with the OBOS Contractor and prepare an updated version of the RTCS-OBOS ICD and submit it for Authority Approval.

7.10 ENGINEERING DESIGN WORKSHOPS

Site drawings for existing sites are provided in Reference Document R_04 – ORT Gantry Site Drawings and

in the GTR. For new sites and during construction, the Authority will provide site drawings depicting the infrastructure of the New Toll Zones. The Contractor will then develop typical drawings. Typical drawings are used to define uniform details that apply across multiple Toll Zones thus eliminating redundancies.

ID#	REQUIREMENT
123	The Contractor shall manage, facilitate, and conduct engineering Design workshops with Authority-Designated Representatives regarding the installation of Equipment on the toll gantries and associated structural analysis needed to generate the typical drawings.
124	During construction, the Authority will provide site drawings for the New Toll Zone infrastructure to the Contractor, and the Contractor shall utilize the site drawings or similar within the context of the toll System functional and Performance Requirements to facilitate the engineering Design workshops and generation of typical drawings. Sample site drawings for the existing toll gantry structures are provided in Reference Document R_04 - ORT Gantry Site Drawings and as-built plans included within the GTR.
125	At the conclusion of the engineering Design workshops, the Contractor shall document the results of the meetings and incorporate the Design decisions into the Installation Design and Documentation Package and the SDDD.

8 DOCUMENTATION

8.1 GENERAL DOCUMENTATION REQUIREMENTS

The Contractor is required to provide various Project, Hardware, Software, Requirements, Business Rules, Design, testing, installation, and Maintenance and Operations Documentation that include Contractor-developed Documentation and third-party Documentation. All Documentation provided under this Contract must meet the Requirements described below. The Contractor must adhere to the Requirements and related processes detailed below in the execution of all applicable Work under this Contract.

ID#	REQUIREMENT
126	The Contractor shall provide and maintain throughout the life of the Contract a secure, online, Electronic Document Management System (EDMS) (such as SharePoint), that is accessible to both the Authority-Designated Representatives and the Contractor, to control all Project-related Documentation, Submittals, and drawings and from which the Authority shall be able to download Submittals.
127	The EDMS shall be indexed and searchable.
128	All Project Documentation Submitted under this Contract shall be available to the Authority-Designated Representatives at all times using the EDMS provided by the Contractor.
129	The Contractor shall maintain a Deliverable tracking list that accurately tracks all Contractor Deliverables, the Authority's comments review documents, resubmittals, versions, dates, and final Approval.
130	Each document shall be properly titled, and have a revision table with date updated, revision version, nature of the changes, and authors. The Contractor shall provide a logical indexing system making use of document metadata for ease of access for the Authority to locate documents in the EDMS.
131	Updated Submittals of the document shall also include the red-lined version showing all revisions to the document since the last Submittal.
132	The Contractor shall utilize acceptable standards agreed upon by the Contractor and the Authority when updating documents and Submitting revisions.

ID#	REQUIREMENT
133	All Documentation Submitted by the Contractor under this Contract shall be accurate and comply with Contract Requirements.
134	All Deliverables shall be Submitted in accordance with the Baseline Project Implementation Schedule.
135	A table of contents, for all Documentation that requires one, shall be Submitted by the Contractor to the Authority in accordance with the Baseline Project Implementation Schedule for review and comment prior to the Submittal of the draft document.
136	The Contractor shall submit a minimum of a draft and a one hundred percent (100%) final Deliverable to the Authority for review and comment. The Authority will provide new comments for each draft Submittal. All final documents shall incorporate resolution to all Authority review comments to the Authority's satisfaction. Each subsequent Submittal of a Deliverable shall also include the Authority's comments review log with the resolution of each comment updated by the Contractor.
137	The Authority shall have the right to require additional interim Submittals from the Contractor at no additional cost should the draft Deliverable submitted not be of adequate quality, have missing or incorrect information, have significant revisions or added materials resulting in additional Authority comments, or if it does not satisfactorily address the Authority's review comments.
138	All documents Submitted under the Contract shall be subject to Authority review and Approval or rejection. For documents containing less than one hundred (100) pages, the Authority will review and provide comment on documents within ten (10) Business Days. For documents containing more than one hundred (100) pages, ten (10) Business Days of review time will be added for every additional one hundred (100) pages or prorated fraction thereof. Total maximum review time shall be capped at twenty-five (25) Business Days. When multiple documents are Submitted to the Authority simultaneously, or within one (1) week of each other, the number of Business Days required for review shall be adjusted to add five (5) additional Business Days per overlapping document to reflect the overlapping Submittals.
139	The Authority will provide the Contractor with written comments on all Submitted documents, and the Contractor shall respond in writing to all comments. A meeting may be conducted to clarify and resolve any remaining questions and issues concerning the comments and responses provided.
140	The Contractor shall provide an electronic version of all Contractor-developed Documentation for Authority review and Approval. Acceptable electronic formats are the most current version of Microsoft Office suite, and unsecured PDF. If requested by the Authority, drawing Submittals may be supplemented with professional computer aided design (CAD) applications Documentation where appropriate.
141	The Contractor shall update Documentation as changes occur, but no less frequently than before and after a formal test phase during the Implementation Phase unless otherwise directed by the Authority.
142	The Contractor shall ensure that the EDMS is maintained and is up to date with the most recent version of all Documentation. The Contractor shall maintain a document Submittals list on the EDMS site identifying all versions of documents, the date Submitted, the nature of changes and provide relevant updates to the Authority as they are published.

8.2 PROJECT MANAGEMENT PLAN

The Project Management Plan (PMP) describes how the Contractor plans to implement and manage the

Project, including staffing, scheduling, and communication procedures for controlling all correspondence, Submittals, and other communications between the Contractor and the Authority, and communications with third-party entities, Constructor, OBOS Contractor and with existing system integrators.

ID#	REQUIREMENT
143	The Contractor shall develop and submit the PMP to the Authority for review and Approval within fifteen (15) Business Days from NTP.
144	The PMP shall at a minimum include the following elements:
	a) Project scope and key Deliverables;
	b) description of the management and organization of the Project, an organization chart for each Project phase (Implementation, and Operations and Maintenance), identification of Key Personnel and their responsibilities, percentage commitment to the Project, task leads for each functional area, and location and identification of the resources to be used in fulfilling the Requirements of the Contract;
	c) Project team contact information (including the Contractor, the Authority, Authority-Designated Representatives, Constructor, OBOS Contractor, and existing system integrators);
	d) succession and transition plan for Key Personnel (All successors should be familiar with the Project and be able to engage in the Project, if necessary, should Key Personnel no longer be on the Project);
	e) description of the Project planning, Documentation, and reporting methods to be utilized;
	f) description of the issue management process for identification, logging, analysis, communication, escalation, and resolution of Project issues with the Authority;
	g) the types and format of meetings to be held with the Authority and other entities;
	h) the communication procedures that address the format, transmission methods, and other details for Project correspondence and Submittals;
	i) description of the process for reporting, updating, and tracking the Baseline Project Implementation Schedule and Project performance;
	j) description of the coordination process with the Constructor and the Authority during the New Toll Zone implementation;
	k) description of the coordination process with the Authority during the Existing Toll Zone implementation;
	l) description of the coordination process with the Authority during the installation drawing review process;
	m) Description of the coordination process with the OBOS Contractor;
	n) approach to change management, the Approval process and how the change management approach will be integrated into day-to-day Project management;
	o) approach to configuration management related to Software and Hardware Updates, changes and releases;

ID#	REQUIREMENT
	p) approach to document control, including the EDMS;
	q) approach to risk management, including defined risk levels and the procedures to be followed in order to evaluate implementation, Operations and Maintenance actions for assignment of the appropriate risk level;
	r) approach to QA and QC;
	s) process for documenting the invoice submission and invoice backup information;
	t) a section with all Approved Project forms, including but not limited to meeting agenda, meeting notes, action items tracking log, comments log, monthly progress report, and invoices;
	u) an emergency contact list as described further below;
	v) approach to Subcontractor management, including how issues with Subcontractors will be resolved in a timely manner;
	w) approach to procurement management; and
	x) approach to Project closeout and succession planning.
145	The emergency contact list – provided as part of the PMP - shall name primary and secondary (multiple secondary contacts as applicable) points of contact for each anticipated emergency type and shall name the preferred points of contact in order of precedence. It shall include, at a minimum, the Contractor Project Manager; Deputy Project Manager; Installation Manager; Technical Manager, Roadside System; Technical Manager, Roadway Support System; Maintenance Manager; and other support staff. The purpose of the emergency contact list is to ensure the Contractor can be reached outside normal working hours to address urgent matters.
146	The Contractor shall identify, in the PMP, the tools and products used to manage the Project including SDLC and the internal controls instituted by the Contractor to guarantee successful delivery of the Project.

8.3 SECURITY MANAGEMENT PLAN

ID#	REQUIREMENT
147	The Contractor shall provide a comprehensive Security Management Plan detailing the Contractor's approach to providing security for the RTCS. The Security Management Plan shall be submitted to the Authority for review and Approval in accordance with the Baseline Project Implementation Schedule.
148	The Security Management Plan, at a minimum, shall include the following:
	a) roles and responsibilities for Contractor staff related to security management;
	b) approach to implement, manage and comply with all scope of Work security Requirements, including: • general security; • physical security; • Disaster Recovery from security incidents; • RTCS security;

ID#	REQUIREMENT
	• data security; • encryption; • network security; • application security; • cyber security • logging; • customer Information and Privacy; and • vulnerability scans.
	c) risk identification, analysis, and management/mitigation;
	d) malware and intrusion detection and prevention;
	e) incident response and implementation of modified procedure due to lessons learned;
	f) security awareness and training;
	g) security audits;
	h) tools and processes to be used in the management of System security;
	i) Contractor's approach to data privacy, confidentiality, integrity, and availability;
	j) procedures associated with managing security for the System and mitigation of security-related events;
	k) approach to monitoring and implementing modifications to NIST standards; and
	l) approach to monitoring and managing System security for On-premises and hosted environments.
149	The Contractor shall be required to comply with the Security Management Plan, the security-related scope of Work Requirements, and applicable policies for the duration of the Contract.
150	The Contractor shall update and submit the Security Management Plan annually or upon the Authority's request after a security-related event, for the life of the Contract.

8.4 QUALITY ASSURANCE PLAN

ID#	REQUIREMENT
151	The QA Plan that details the Contractor's QA Program shall be submitted to the Authority for review and Approval in accordance with the Baseline Project Implementation Schedule.
152	The QA Plan shall present the Contractor's QA Program through - planning, Documentation, Design, development, production, purchasing, testing, installation, Commissioning, transition, Acceptance, and Operations and Maintenance - of all Hardware, Software, and Services provided under this Contract.
153	The QA Plan shall describe both the proactive and reactive QA procedures and methodology for the Project, including but not limited to:
	a) quality management and organizational structure;
	b) System Design;

ID#	REQUIREMENT
	c) Software development and defect management;
	d) installation including civil installation sign-off;
	e) Equipment purchase, delivery, and validation;
	f) inspection and verification for in-process, final assembly, unit tests and System testing;
	g) Configuration management;
	h) change management and change control process;
	i) training and safety;
	j) Documentation;
	k) Software release testing and deployment during Operations and Maintenance;
	l) various System transitions;
	m) compliance to Contract Requirements;
	n) quality review and verification;
	o) reporting and metrics; and
	p) strategies for implementing continuous improvements in the quality process.

8.5 SOFTWARE DEVELOPMENT PLAN

ID#	REQUIREMENT
154	The Contractor shall develop and submit a Software Development Plan (SDP) to the Authority for review and Approval in accordance with the Baseline Project Implementation Schedule that includes but is not limited to:
	a) Documentation of the Software development approach to the application architecture, application responsiveness and performance measures, business processes, security, and data structures;
	b) approach to System Design and Development;
	c) development resources and responsibilities, such as software developers, system engineers, security engineers, test engineers, QA and QC personnel, Configuration management administrator, Documentation specialists and Project management staff;
	d) security standards;
	e) description of the SDLC and Software Maintenance;
	f) gap analysis of baseline code to Contract Requirements;
	g) development and integration approach for the major functional modules;
	h) Maintenance of source code;

ID#	REQUIREMENT
	i) development problem reporting, defect tracking and remediation;
	j) informal and internal testing methodology;
	k) regression testing and security and vulnerability testing;
	l) Software QC processes, version control, and code quality standards;
	m) Software end-user Documentation review and usability;
	n) Software Configuration and change management approach and standards;
	o) Requirements management: procedures used to collect and document Software Requirements;
	p) Software deployment approach, release management and validation; and
	q) detailed Documentation of the development environment, including enough information that the environment could be completely replicated.

8.6 TRAFFIC MAINTENANCE PLAN

ID#	REQUIREMENT
155	The Contractor shall develop and submit a Traffic Maintenance Plan (TMP) to the Authority for review and Approval in accordance with the Baseline Project Implementation Schedule. The TMP shall conform to the Authority-Approved traffic control plans and lane closure procedures, and shall include:
	a) how the Contractor will comply with traffic management Requirements, including during Installation, Operations and Maintenance;
	b) standard plans for roadway closures including closure charts that the Contractor will use to conduct installations or Operations and Maintenance;
	c) procedures for obtaining Approval for all lane closures;
	d) contingency planning, for example, procedures for handling instances when Approval is not granted for lane closures due to issues such as competing construction activities in the area;
	e) procedures for working with the Authority and other contractors to schedule lane closures;
	f) procedures for incident management, including emergencies;
	g) a plan for reopening closures to public traffic in normal circumstances and when changes in circumstances require an earlier than planned reopening; and
	h) safety measures to be provided including signage, safety training, and personnel safety equipment.

8.7 TESTING DOCUMENTATION

8.7.1 MASTER TEST PLAN

ID#	REQUIREMENT
156	The Contractor shall provide to the Authority, for review, comment, and final Approval, a Master Test Plan (MTP) in accordance with the Baseline Project Implementation Schedule that outlines the scope and testing concepts to be used to implement each test identified in these Requirements.
157	The MTP shall document the methodology used to validate the RTCS compliance to the Requirements and demonstrate the RTCS satisfies the technical, functional and Performance Requirements of the Contract including the use of the RTM.
158	The Approved MTP shall be used as the basis for the detailed test procedures that shall be submitted to the Authority for review and Approval.
159	The MTP shall cover all aspects of the Roadside System and RSS testing from initial development through deployment and Acceptance, including but not limited to:
	a) overall approach to testing including test location and test environment;
	b) approach to each informal and formal testing;
	c) approach to creation of data set for each test;
	d) Software test automation tools utilized for each test;
	e) approach to validating all System Requirements through the testing methodology;
	f) approach to validating all System Business Rules through the testing methodology;
	g) approach to validating System Design through the testing methodology;
	h) the entry and exit criteria for each test;
	i) descriptions of the severity and Priority levels – to include how a defect is assigned to a severity and Priority level - for each test;
	j) a detailed schedule for each test identifying each test activity and resource;
	k) the methodology for testing the Performance Requirements and sample size for each phase of testing;
	l) the methodology for load testing;
	m) the purpose, scope, duration, System resources, and human resources for all tests identified in the Scope of Work and Requirements;
	n) the roles and responsibilities of the members of the testing team;
	o) approach to validation – including Approvals and sign-offs – of all reporting Requirements;
	p) approach to end-to-end testing, validation, and reconciliation;
	q) approach to interface testing and compliance to standards;

ID#	REQUIREMENT
	r) how defects will be triaged, tracked, reported, resolved, and retested, including tools used to document defects;
	s) risk and contingency planning for testing; and
	t) approach to change control: managing change to the test plan, test scenarios/test cases, test environments and Software version control.

8.7.2 TEST PROCEDURES

ID#	REQUIREMENT
160	The Contractor shall provide detailed test procedures for the Authority's review and Approval for each test outlined in the Requirements and Approved MTP in accordance with the Baseline Project Implementation Schedule.
161	The Contractor shall coordinate with the OBOS Contractor on producing test procedures involving the RTCS interface to the OBOS.
162	Each test procedures Document shall include, at a minimum:
	a) test logistics including test vehicles, drivers and test Equipment (including test Transponders);
	b) test scenarios/test cases for the Requirements being tested;
	c) detailed test steps with expected outcomes and form for recording actual test results;
	d) estimated test duration;
	e) description of any necessary traffic control and lane closure procedures;
	f) test entry and exit criteria;
	g) test preparation;
	h) test data creation—including a description of any simulated data and of the tools used to create such simulated data;
	i) periodic status meetings;
	j) all necessary human resources; and
	k) all necessary Hardware and Software.
163	The Contractor shall update the RTM linking every Requirement to a set of test scenarios/ test cases to demonstrate the Requirement has been satisfied and which test satisfied the Requirement.

8.7.3 TEST REPORTS

ID#	REQUIREMENT
164	Upon the completion of each formal test outlined in the Requirements and Approved MTP, the Contractor shall prepare and submit for the Authority's review and Approval a test report that documents the results of the applicable test.
165	Each test report shall include, at a minimum:
	a) the test summary;
	b) the results of each test scenario/test case;
	c) any defects and issues identified and assigned severity and Priority level;
	d) the corrective action/resolution of each item;
	e) the test data;
	f) calculations and back-up data supporting compliance to Requirements;
	g) comments provided by the Authority; and
	h) the results of any re-tests necessary to successfully complete each testing phase.
166	The Contractor shall update the RTM linking every Requirement to a set of test scenarios/test cases to demonstrate the Requirement has been satisfied and which test satisfied the Requirement.

8.8 REQUIREMENTS TRACEABILITY MATRIX

The RTM is a living document which captures all scope Requirements and provides traceability between Requirements, Design Documentation, and test plans. The CSWRD will be used to form the preliminary RTM. The RTM is updated during the Design process and used for tracing validation. The RTM remains a living document which is updated as necessary and agreed by both the Contractor and Authority during the lifetime of the Project.

ID#	REQUIREMENT
167	The Contractor shall submit a preliminary RTM within ten (10) Business Days of NTP for Authority review and Approval. In addition to including all baseline Requirements, this Preliminary RTM shall lay out all fields, columns, and other format necessary to meet the RTM requirements.
168	Upon completion of the Requirements and Business Rules review process (including all relevant workshops), the Contractor shall submit an updated RTM for Authority review and Approval that details all the technical, functional, and relevant non-functional Requirements and Business Rules for the RTCS.
169	The CSWRD shall be the basis for the Contractor to produce the updated RTM.
170	The RTM shall capture all user needs identified during the Requirements and Business Rules review process.
171	Upon Approval of the RTM, this document shall be the basis for functional verification of Design, development, and testing.
172	During the Design and development of the Software, the Contractor shall update the RTM to reflect any changes to the Requirements that have been Approved by the Authority.

ID#	REQUIREMENT
173	During Design and testing, the RTM shall be used to verify the System compliance to the Contract Requirements and test procedures.
174	All changes to the System Requirements during the course of the Project shall be tracked through the RTM.
175	The RTM shall include, but not limited to:
	a) all technical, functional, and relevant non-functional Requirements for the RTCS;
	b) all Business Rules;
	c) identification of the Design section of the SDDD that addresses each Requirement and Business Rule;
	d) categorization by Requirement and Business Rule type (e.g., functional, operational, performance, hardware, etc.);
	e) categorization by Requirement or Business Rule functional area and/or subsystem [e.g., RSS, Roadside System, interfaces, reports, Automatic Vehicle Identification (AVI), Image Capture and Processing System (ICPS), etc.];
	f) identification of the source of all Requirements and Business Rules;
	g) identification of the test phase(s) that addresses each Requirement or Business Rule;
	h) identification of the test procedure and test scenario/test case for each testing phase that addresses each Requirement and Business Rule;
	i) identification of the test method to validate each Requirement and Business Rule (e.g., inspection, demonstration, analysis, test, etc.); and
	j) a method for tracking notes and historical context of discussions with the Authority pertaining to individual Requirements and Business Rules.

8.9 BUSINESS RULES DOCUMENT

As an outcome of the Business Rules workshops and review meetings, the Contractor will provide a Business Rules Document.

ID#	REQUIREMENT
176	Upon completion of the Requirements and Business Rules Development workshops and review process, the Contractor shall submit a Business Rules Document that includes but is not limited to:
	a) detailed Business Rules for all aspects of the RTCS, including policies and processes developed by the Contractor and Approved by the Authority;
	b) detailed description of all System Configurable options, ranges, and thresholds (Configurable within the System or Configurable by Authorized User) for each Business Rule (if applicable);
	c) categorization of all Business Rules, providing indication for the source of the Business Rule; and

ID#	REQUIREMENT
	d) cross-referencing of all Business Rules to the underlying Requirements.

8.10 SYSTEM DETAILED DESIGN DOCUMENT

ID#	REQUIREMENT
177	The Contractor shall develop and submit a SDDD for Authority review and Approval in accordance with the Baseline Project Implementation Schedule - that describes the Design specifications of all Hardware and Software provided as part of the RTCS to meet the Requirements. The SDDD shall demonstrate that the Contractor understands the functional, relevant non-functional, technical and Performance Requirements of the RTCS and has the processes, Hardware, and Software Design in place to provide a high-quality and reliable product that meets the Requirements of the Contract. The SDDD table of contents shall be first submitted for Approval prior to the Submittal of the SDDD volumes and chapters.
178	Based on the RTM and Business Rules Document, the Contractor shall Design the RTCS and submit a preliminary Design Document for the Authority to review and provide comments prior to conducting the System Detailed Design review. Each SDDD section shall begin with a listing of the RTM Requirement numbers covered within the section.
179	The SDDD shall be clear, well-written and organized into logical volumes or chapters to manage the Submittal and review process. The outline of the SDDD shall be discussed and reviewed during the System Design meetings and shall be Approved by the Authority prior to the Contractor Submittal of the SDDD table of contents.
180	The Contractor shall provide detailed drawings of Equipment rack space layout for Authority review/Approval (verification) for consistency with the toll Equipment pad Design.
181	The SDDD shall include the use of diagrams, figures, tables, use cases, and examples, and it shall apply to and describe all environments, including all development, test, pre-production, production, and training environments.
182	The SDDD shall include but not be limited to:
	a) System architecture, including overall System Design concept;
	b) in-lane Equipment layout for each Toll Zone type;
	c) placement of the Equipment on the toll gantry;
	d) lane layout electrical and logic diagrams;
	e) image processing details and image review screens;
	f) the Requirements for all peripheral device interfaces and control;
	g) roadside server Design, including sizing and processing calculations;
	h) storage System Design, including sizing and processing calculations;
	i) data backup Systems Design, including sizing and processing calculations;
	j) network sizing and Design details, including internet protocol (IP) scheme;
	k) toll Equipment cabinet and Equipment rack layout and interconnections;

ID#	REQUIREMENT
	l) toll Equipment mounting Hardware and brackets;
	m) toll Equipment cabinet and Equipment rack space Requirements;
	n) uninterruptible power supply (UPS) sizing Design, details, heating ventilation and air conditioning (HVAC) British Thermal Unit (BTU) calculations, and total power Requirements;
	o) high System availability Design, including cloud systems, servers, storage, network, database, and application;
	p) Disaster Recovery (DR) Design, including servers, storage, network, database, data resiliency, and application;
	q) Business Continuity Solution Design, including cameras, AVI Equipment, and other associated Equipment supporting a Toll Zone in the case of catastrophic damage to the toll gantry at a damaged Toll Zone;
	r) Hardware dependencies and inter-dependencies;
	s) detailed primary and secondary locations rack and server placement Design;
	t) detailed infrastructure Software Design;
	u) detailed operating systems Design;
	v) detailed peripherals Configurations, including Requirements for all peripheral device interfaces and control;
	w) all internal and external System interfaces;
	x) all Back Office System file communications and updates to same;
	y) all custom developed and modified Software;
	z) all Software provided by the Contractor or a third party;
	aa) Software dependencies and inter-dependencies;
	bb) detailed database Design, schema, and data modeling, including sizing and processing calculations;
	cc) entity relationship diagram;
	dd) data dictionary;
	ee) data flow diagrams, state diagrams and data queues;
	ff) module level descriptions and interaction among various modules;
	gg) detailed description to the module and/or process level for all of the functions according to the functional Requirements of the System;
	hh) lane logic and vehicle framing Design and rules with illustrations;

ID#	REQUIREMENT
	ii) degraded mode of Operations and impacts of failures on System Operations;
	jj) transaction audit and pre-processing;
	kk) transaction processing Design, including sizing and processing calculations;
	ll) detailed interface specifications between all Software components;
	mm) Design of all System interfaces (both sides of the interface), including electronic interface to the RSS and OBOS;
	nn) detailed data management Design and processes, including summarization, archiving, and purging;
	oo) all user interfaces (including reports and screen formats);
	pp) Dashboard layouts and Design;
	qq) all report formats and Design details
	rr) application performance monitoring Design;
	ss) access/identity security methodology;
	tt) environmental specifications;
	uu) specification sheets for all Equipment; and
	vv) a logical division and an index of all contents within the SDDD.
183	Upon the completion of the Software development, and prior to the start of the RTCS formal testing, the Contractor shall submit the Final Updated SDDD that includes all changes/clarifications made during the Software development and validation phases.

8.11 BILL OF MATERIALS

ID#	REQUIREMENT
184	The Contractor shall prepare and submit a comprehensive Bill of Materials (BOM) for all Equipment, Hardware, and third-party Software supplied under this Contract in accordance with the Baseline Project Implementation Schedule and with each draft of the SDDD including an indication if any changes took place since the previous Submittal. During the Design process, the BOM shall be finalized, and all changes shall be subject to the Approval of the Authority.
185	The comprehensive BOM shall include as a minimum:
	a) identification of all Hardware to be used within the RTCS, including manufacturers, manufacturers' model/part numbers, version number, license information, Configurations, options, and related service agreements;

ID#	REQUIREMENT
	b) identification of a second manufacturer source, if available, for all Equipment and Hardware, with any exceptions noted and explained. Model/part numbers, version numbers, license information, Configurations, and options shall be noted if differing from the primary source;
	c) identification of all third-party Software to be used within the RTCS, including vendor names, version numbers, license information, and related service agreements;
	d) specification of quantity by location and function. For example, quantities for development, FAT, test environment, spares, and total required quantity;
	e) specification of unit costs for each part/Equipment/Software and totals; and
	f) projected procurement timelines and multiple sources for all identified items.
186	No Equipment shall be purchased by the Contractor prior to Approval of the BOM and the Design, unless otherwise authorized in writing by the Authority.
187	Updates to the BOM shall be provided by the Contractor whenever Equipment and Hardware changes occur and at a minimum on an annual basis over the Contract Term. All Equipment and Hardware changes shall be subject to the Approval of the Authority.

8.12 FIELD INSPECTION REPORT

A Field Inspection Report must be provided by the Contractor for each New Toll Zone. For Existing Toll Zones, the Authority will host a pre-Proposal site visit for site condition evaluation purposes.

ID#	REQUIREMENT
188	For new installations, the Contractor shall identify any non-compliant elements of a Toll Zone to the Authority, should a site not be fully compliant with the GTR.
189	Within five (5) Business Days of completion of a field inspection for a Toll Zone, the Contractor shall submit to the Authority a completed Field Inspection Report for the Toll Zone.
190	The Field Inspection Report shall include, but not be limited to:
	a) an exposition of all existing items that the Contractor proposes to use or will be responsible for maintaining in accordance with Reference Document R_08 - Maintenance Responsibility Matrix;
	b) an exposition of any deficiencies identified by the Contractor which may negatively impact the Contractor's Design or System performance; and
	c) recommended remediations suggested by the Contractor.
191	Upon Approval of the Field Inspection Report, and at the direction of the Authority, the Contractor may commence coordination of installation activities.

8.13 ROADSIDE SYSTEM INSTALLATION DESIGN REQUIREMENTS PACKAGE

The Roadside System Equipment will be installed on existing infrastructure (Existing Toll Zones) or overhead structures/toll gantries that will be designed and constructed by the Constructor (New Toll Zones) in accordance with the GTR.

ID#	REQUIREMENT
192	The Contractor shall prepare and submit the Roadside System Installation Design Requirements and Documentation package to the Authority for review in accordance with the Baseline Project Implementation Schedule.
193	The Contractor shall secure the services of a fully qualified engineering design firm(s) for the purpose of performing any necessary infrastructure-related engineering Design (civil, structural, electrical, mechanical, and architectural) and the preparation of related plans and Documentation under the Contract. Examples include mounting apparatuses and connections, power distribution, and grounding.
194	All Design Work shall be performed under the direct supervision of a Licensed Engineer of the appropriate discipline in the State of Florida. All design professionals shall be licensed and authorized to practice in the State of Florida.
195	If the Engineering Design effort is performed by the Contractor, the Contractor shall submit Documentation showing that the Contractor has met the required qualifications described in this section.
196	The Contractor's Design Submittals that are structural in nature or other structure(s) or appurtenances (e.g., Equipment mounting brackets, Equipment arms, etc.) shall be required to be signed/sealed by a fully-qualified engineering design firm(s) licensed in Florida.
197	The Contractor shall develop a half-size (11'' by 17") set of drawings providing sufficient and accurate detail to install the RTCS components.
198	In addition, the drawings shall contain notes and other details defining specific processes that cannot be graphically depicted. The notes shall also be used to delineate specifications, tolerances, special conditions, or any other factor required to install and integrate a fully functional System.
199	The drawings shall include but not be limited to the following:
	a) lane geometry and dimensions of actual size and placement of all Roadside System Equipment;
	b) for existing Roadways, both plan view and elevation view details on all existing Equipment, conduits, junction boxes and panels that will be re-used clearly identifying any temporary installations;
	c) Equipment bracket mounting details to the mounting arm;
	d) specifications and tolerances, including torque specs as applicable;
	e) conduit and cable schedule showing all conduits, cables and wires used for each Toll Zone;
	f) placement of in-pavement components;
	g) size and depth of loop cuts;
	h) for concrete pavement, any requirements or Design parameters related to dowel or tie bars;
	i) loop tolerances (induction, resistance, impedance, Q factor);
	j) any specific infrastructure limitations (e.g., proximity of rebar);
	k) any specific requirement of how the loop cable is placed into the cuts;

ID#	REQUIREMENT
	l) all homeruns from loops including details of routing and transition from in-road wiring to homerun wiring in splice boxes;
	m) any cable twist requirements for loop homeruns;
	n) placement of overhead sensors;
	o) Equipment weight details in tabular format;
	p) details describing termination process for each termination;
	q) lightning and surge suppression system;
	r) a graphical diagram of the network connectivity and data flow;
	s) detailed interconnection diagrams for all Systems;
	t) detailed electrical schematics;
	u) cable management details and cable labelling scheme;
	v) detailed power calculations, including power load details and circuit/breaker sizing calculations; and
	w) detailed communications layout.

8.14 ROADWAY SUPPORT SYSTEM INSTALLATION DESIGN AND DOCUMENTATION

ID#	REQUIREMENT
200	The Contractor shall prepare and submit the RSS Installation Design and Documentation Package to the Authority for review in accordance with the Baseline Project Implementation Schedule.
201	The Contractor shall develop a half-size set of drawings (11'' by 17") providing sufficient and accurate detail to install the System components.
202	The drawings shall include but not be limited to the following:
	a) detailed interconnection diagrams for all Systems;
	b) detailed electrical schematics;
	c) cable management details and cable labelling scheme;
	d) detailed power calculations, including power load details;
	e) detailed communications layout;
	f) Equipment rack layout, including power panels and connection to the UPS;
	g) detailed heat calculations and HVAC requirements;
	h) other RSS Hardware installation and connections; and

ID#	REQUIREMENT
	i) floor loading calculations, if applicable.
203	The Contractor shall provide the installation Requirements for the Equipment, including all related plans and documents. The Contractor shall certify the installation Requirements provided as accurate and appropriate for its intended purpose, to the satisfaction and Approval of the Authority.
204	The Contractor shall submit server room drawings that show the location of the Equipment racks for all RSS Equipment at each facility. The layout of the server components, storage devices and communication Equipment inside the racks shall be clearly presented with actual measurements shown.
205	The Contractor shall submit UPS sizing information for all RSS facilities, detailing all Equipment on the UPS and their power specifications.
206	The Contractor shall submit detailed network drawings showing all WAN and LAN connections, including all interface connections, virtual local area networks (VLANs), and IP addresses for all Equipment on the network.
207	The Contractor shall submit detailed server Configuration instructions, including the Configuration of storage devices, back-up devices and network connectivity.

8.15 INSTALLATION AND TRANSITION PLAN

ID#	REQUIREMENT
208	The Contractor shall provide an Installation and Transition Plan for Authority review and Approval in accordance with the Baseline Project Implementation Schedule that addresses the installation of the RTCS and transition of the RTCS into revenue collection with minimal impact to Authority Operations, traffic, and toll collection. The Installation and Transition Plan shall be the master document from which the elements of the RTCS shall be installed.
209	The Installation and Transition Plan shall address all critical installation and transition elements and activities associated with the installation of each of the following:
	a) RSS (all installations and environments);
	b) New Toll Zones; and
	c) Existing Toll Zones.
210	The Installation and Transition Plan shall include and define, at a minimum, the following items:
	a) the installation schedule detailing all activities, shifts, and resources for the installation of the RTCS at each location, including third-party and Constructor activities;
	b) the minimum Contractor staff allocation Requirement for any installation and segment, including sequencing of Toll Zone installation, testing, and Go-Live;
	c) how the Contractor manages delivery and staging of the RTCS Equipment to be installed, including any staging, installation, and testing performed by the Contractor or third-party facilities and their subsequent delivery and installation at the production sites;
	d) the coordination between other contractors, including the Constructor, and service providers;

ID#	REQUIREMENT
	e) coordination of any travel lane or shoulder lane closures with the Authority during installation;
	f) coordination activities as applicable to other third-party entities, including the WAN communications network and various interfaces;
	g) testing of the Contractor-provided LAN and WAN communications for connection to the OBOS;
	h) QC, QA inspection, and testing processes, including validation of Contractor installation to the Requirements of the Contract installation drawings;
	i) special or unique installation requirements;
	j) approach to transitioning Toll Zones nearby to Existing Toll Zones, including mitigating AVI Equipment interference;
	k) a record keeping method identifying, at a minimum, the date, location, weather conditions, staff on site and classification, tasks completed, visitors, Maintenance of Traffic (MOT), issues and resolution, and communications to other parties. These reports shall be delivered at the end of each work week to the Authority for review during the upcoming week installation meeting;
	l) Contractor organization chart defining Key Personnel, roles and responsibilities, and contact information, including identification of all Subcontractors;
	m) a general contingency plan for reopening closures to public traffic;
	n) detailed steps and coordination required to transition the RSS and each Toll Zone into revenue collection;
	o) methods and temporary procedures to minimize impacts to ongoing Authority Operations; and
	p) estimated impacts to ongoing Authority Operations and toll collection.
211	The Installation and Transition Plan shall address the integration and interface of the RSS to existing interfaces/Equipment (if applicable) and the OBOS.
212	For Existing Toll Zones, the Installation and Transition Plan shall also include a description of:
	a) all temporary changes and modifications to the tolling Equipment and infrastructure to accommodate the transition from the existing Equipment to the Roadside System;
	b) any temporary processes implemented to support the transition, including eventual replacement process, if applicable;
	c) the Contractor's plan for decommissioning and disposal of the existing Equipment at the Existing Toll Zones; and
	d) The Contractor's plan for removal and certified destruction of all hard drives from the existing Equipment at the Existing Toll Zones.
213	The RTCS transition activities shall be coordinated with the Authority and existing system integrators and Approved by the Authority, in order to not interfere with ongoing and

ID#	REQUIREMENT
	continuing Operations and Maintenance activities.
214	The Contractor shall plan for possible variances in the sequencing of the transition of the different Toll Zones due to SSCP construction and readiness of the OBOS.

8.15.1 INSTALLATION CHECKLISTS

ID#	REQUIREMENT
215	The Installation and Transition Plan shall include installation checklists that track the progress and completion of all Roadside System and RSS installation activities for the RTCS installation and for RSS facilities installation.
216	The installation checklists shall be the document detailing those items required for the installation crew and technical team to complete the installation process for all Equipment and components, including but not limited to, inventory management, cable management and labeling, terminations, connections, and Configurations, for Roadside System and RSS installation.
217	The installation checklist shall identify all non-conformances, discrepancies and exceptions, and the Contractor shall be responsible for all corrections.
218	A copy of the installation checklist signed by the installation manager and approved by the Contractor Project Manager, attesting to the completeness of the installation, shall be provided to the Authority after the completion of the installation activities for each lane at each Toll Zone.

8.16 DISASTER RECOVERY PLAN

The DRP is a comprehensive, documented statement of actions to be taken before, during and after a disaster to protect and recover the information technology data, assets, and facilities of the RTCS.

ID#	REQUIREMENT
219	The Contractor shall develop and submit a DRP and subsequent DR procedures that describe the approach, as well as activities and procedures that take place in the event of a disaster for each element of the RTCS. The DRP shall be submitted to the Authority for review and Approval in accordance with the Baseline Project Implementation Schedule.
220	The DRP shall document the Contractor's approach to recovering from a disaster, including but not limited to:
	a) events that constitute a disaster and party(ies) responsible for declaration of a disaster;
	b) listing of the different failure scenarios (most typical) and the anticipated timeframe for complete recovery;
	c) assessment of disaster risks;
	d) mitigation of disaster risks;
	e) preparations in the event of a disaster;
	f) initial damage assessment, and decision to declare a disaster;
	g) disaster declaration and DR process to invoke;

ID#	REQUIREMENT
	h) organization chart illustrating DR team members, roles, and responsibilities;
	i) notification contact list, including contact information;
	j) notification protocol;
	k) sites and Equipment for DR, presented in a diagram format;
	l) DR process initiation and completion checklist;
	m) approach to Software and System Design to support Disaster Recovery, including System and data backup and replication processes;
	n) detailed logistical processes for activation of RSS DR site and systems;
	o) detailed procedures for failover and failback of the RSS, including a checklist for ensuring that it failed over and failed back properly and, in the case of manual failover, details of manual procedures to recover (resend) from the Roadside System any data missing due to the non-zero Recovery Time Objective (RTO);
	p) detailed procedures for executing the required annual test of the DRP;
	q) detailed Operational functions for activation of RSS DR site; and
	r) detailed technical processes for reactivation of primary site (or moving to a new primary site if the original primary site is destroyed), Operations and Systems.
221	The DRP shall be tested no less than annually with Authority participation. The Contractor shall schedule the test no less than twenty (20) Calendar Days prior to the start of the Disaster Recovery Test and shall plan the test during off-peak hours as Approved by the Authority to minimize the potential for disruption.
222	Conditions that invoke the DRP shall be handled in accordance with the policies and procedures established by the Authority. The following are a few examples of emergency conditions:
	a) weather-related;
	b) vehicle accident;
	c) the primary RSS being unavailable or degraded;
	d) third party (power outage or communication failure);
	e) vandalism that causes parts of the RTCS to be inoperable; and
	f) detection of security breaches, discovered vulnerabilities and activities that pose a security threat to the RTCS.
223	The DRP shall include a section(s) addressing a Business Continuity Plan (BCP) that details the Contractor's approach to accommodating the personnel, Equipment, Systems, network, applications, and data components required to ensure the resumption and continuity of critical RTCS processes and Operations.
	The BCP shall include but not be limited to:

ID#	REQUIREMENT
224	a) Recovery Point Objective (RPO) and how it will be achieved;
	b) RTO and how it will be achieved;
	c) detailed description of how site and System security will be maintained to ensure continued compliance with security Requirements; and
	d) incident response plan in the event of a security breach or cyber-attack at the roadside network, or either RSS sites.

8.17 OPERATIONS AND SYSTEM MAINTENANCE PLANS

The Contractor will submit Operations and Maintenance Plans listed below that describe how the Contractor plans to operate and maintain the RTCS, including any required coordination with the Authority in accordance with the Requirements of the Contract.

8.17.1 OPERATIONS AND SYSTEM MAINTENANCE PLAN

The Operations and System Maintenance Plan defines the approach to Services, staffing, and resources to fulfill the Operations and System Maintenance Requirements.

ID#	REQUIREMENT
225	The Contractor shall submit an Operations and System Maintenance Plan to the Authority for review and Approval in accordance with the Baseline Project Implementation Schedule.
226	The Operations and System Maintenance Plan shall include, at a minimum:
	a) organizational structure, organizational chart, and job descriptions and responsibilities;
	b) detailed matrix of responsibilities (Authority and Contractor);
	c) staffing plan to ensure monitoring and Maintenance response twenty-four (24) hours a day / seven (7) days a week / 365 days a year as well as image review Services;
	d) Contractor image quality review and verification;
	e) Authority audit and validation of performance;
	f) Contractor's approach to compliance with Operations Performance Requirements;
	g) third-party system support agreements overview;
	h) Maintenance procedures, communication protocols and Approval processes for System Upgrades, scheduled (preventive) Maintenance activities, change management and scheduled downtime (downtime associated with preventive Maintenance);
	i) Maintenance procedures and communications protocols for unscheduled downtime (downtime associated with System failure or corrective Maintenance);
	j) communication protocol for coordination with Authority Operations and third-party entities;
	k) communication protocol for coordination with OBOS Contractor;

ID#	REQUIREMENT
	l) trouble reporting processes (System issues, incidents, AARs including RCAs and remediation details);
	m) spare parts levels and reorder thresholds that evolve and remain appropriate based on an increasing number of tolling zones in service; spare parts levels are the minimum spare parts inventory requirement per part;
	n) Equipment and Software Warranty tracking;
	o) return material processes;
	p) monitoring Maintenance performance for compliance to Performance Requirements;
	q) sample Maintenance reports;
	r) Equipment obsolescence/replacement/refresh schedule;
	s) Upgrades to third-party Software and tools; and
	t) processes in place to meet Maintenance Performance Requirements.
227	The System Maintenance Plan shall detail the Contractor preventive Maintenance program in accordance with this SOW and Requirements.
228	The preventive Maintenance program provided as part of the System Maintenance Plan shall detail the preventive Maintenance to be performed on each Equipment item and System. The preventive Maintenance program shall provide a description of the Work to be performed, expected duration, and the frequency.
229	The System Maintenance Plan shall detail the Contractor predictive Maintenance program in accordance with this SOW and Requirements.
230	The System Maintenance Plan shall detail the Contractor pervasive Maintenance program in accordance with this SOW and Requirements.

8.17.2 Software Maintenance and Warranty Plan

ID#	REQUIREMENT
231	The Contractor shall submit a Software Maintenance and Warranty Plan to the Authority for review and Approval in accordance with the Baseline Project Implementation Schedule.
232	The Software Maintenance and Warranty Plan shall define the approach to Services, staffing and resources to fulfill the Software Maintenance and Warranty Requirements, including but not limited to:
	a) organizational structure, organizational chart and job descriptions and responsibilities;
	b) detailed matrix of responsibilities (Authority and Contractor);
	c) approach to receiving, recording, tracking and prioritizing Software defects (bugs);
	d) approach to development, implementation, and administration of a Warranty program for all Hardware, Contractor-developed Software, and third-party Software;

ID#	REQUIREMENT
	e) Approach to the Maintenance of Warranty records and service agreements for all Hardware and third-party Software;
	f) reporting, categorization, prioritization, remediation, and disposition of Software defects;
	g) all Software Maintenance-related communication methods;
	h) communication protocols, release notes, and Approval processes for Software Upgrades, Software releases, testing, scheduled Maintenance activities, change management and scheduled downtime;
	i) communications protocols for unscheduled downtime;
	j) trouble reporting processes;
	k) escalation processes;
	l) sample Software Maintenance reports;
	m) Software release cycle and regression testing;
	n) Software Updates and testing to comply with Interoperability specification changes and third-party interface changes;
	o) Software and security Updates, remediation and testing to be compliant to security standards and Authority audit Requirements;
	p) processes in place to meet Maintenance Performance Requirements and KPIs; and
	q) identification and description of the phases – including the activities and Deliverables for each phase – to be included in the Contractor's SDLC process.

8.18 TRAINING PLAN

ID#	REQUIREMENT
233	The Contractor shall prepare and submit a Training Plan for Authority review and Approval in accordance with the Baseline Project Implementation Schedule.
234	The Training Plan shall describe the plan for training new and existing Contractor and Authority personnel.
235	For each position/user type, the plan shall include a training instructor guide, training manual and other materials to be used in training. The Training Plan also shall include a schedule for follow-up training and continuing education for Contractor and Authority staff.
236	The Training Plan shall address the following areas, including but not limited to:
	a) overall description of the training program;
	b) high level training delivery schedule to place the training in the context of the Baseline Project Implementation Schedule;
	c) names and descriptions of each training class;
	d) purpose of each training class;

ID#	REQUIREMENT
	e) prerequisites for each training class;
	f) who should attend the class;
	g) duration of the class;
	h) training materials, including syllabus, schedule, training goals, manuals, guides, and other support materials;
	i) data preparation, such as users and test transactions;
	j) required Equipment; and
	k) facility requirements.
237	Courses shall be limited to a maximum of six (6) hours of instruction per day.
238	The Contractor shall be responsible for maintaining a training database baseline and supporting data files that can be restored at the beginning of each training session.
239	The Contractor shall video record training for each an instance of each training class type with a copy of the videos provided to the Authority.

8.19 THIRD-PARTY DOCUMENTATION

Third-Party Documentation includes standard commercial Documentation for third-party provided Hardware, Software, Services, and materials.

8.19.1 GENERAL

ID#	REQUIREMENT
240	The Contractor shall catalogue all third-party Documentation and include the catalogue with the third-party document Submittals.
241	Throughout the duration of the Contract, the Contractor shall provide and maintain standard, commercially available, updated Documentation for third-party provided Hardware, Software, Services, and materials provided under this Contract.
242	An electronic copy of all third-party Commercial Off-the-Shelf (COTS) and custom developed (non-COTS) Hardware and Software installation and user manuals, with updates, shall be provided to the Authority. If the third-party documentation is available online, then the Contractor may meet this requirement by providing and maintaining links to such documentation.
243	Documentation shall include sufficient detail to describe the Configuration of the third-party Hardware and Software as it was installed by the Contractor for the RTCS. These should include any customization or modifications made to the third-party Hardware and Software or Configurations specific to the RTCS environments.

8.19.2 THIRD-PARTY SOFTWARE DOCUMENTATION

ID#	REQUIREMENT
	The Contractor shall provide third-party Software Documentation, including but not limited to:

ID#	REQUIREMENT
244	a) all user manuals;
	b) programmer's reference manuals;
	c) license Documentation;
	d) Warranty Documentation;
	e) installation manuals;
	f) interface documents;
	g) Maintenance manuals; and
	h) any other information required to utilize the Software, such as the operating system, utilities, programming languages, application Software and communications Software.
245	The third-party Software Documentation shall be provided by the Contractor in a standard and organized electronic format, with appropriate labels, tabs, and cross references to allow the Authority to easily access and reference information on each Software component on the System.

8.19.3 THIRD-PARTY HARDWARE DOCUMENTATION

ID#	REQUIREMENT
246	The Contractor shall provide third-party Hardware Documentation, including but not limited to:
	a) all technical manuals;
	b) operator's guides;
	c) installation guides;
	d) licensing Documentation;
	e) Warranty Documentation;
	f) Hardware reference manuals;
	g) available options and versions;
	h) catalogs, components; and
	i) illustrated parts lists.
247	The Contractor shall provide all third-party Hardware Documentation in a standard and organized format, with appropriate labels, tabs, and cross references to allow the Authority to easily access and reference Hardware information on each Equipment component.
248	Third-party Hardware Documentation shall include sufficient detail to describe the Configuration of the Hardware as it was installed by the Contractor for the RTCS.

8.20 MANUAL REQUIREMENTS

Various manuals must be provided as described below to allow the Authority to understand the Operations

and Maintenance of the RTCS. New manuals developed under this Contract that are not standard commercial catalogs or manuals must meet the Requirements set forth in this section.

ID#	REQUIREMENT
249	The Contractor shall submit the Project manuals to the Authority for review and Approval in accordance with the Baseline Project Implementation Schedule.
250	Whenever possible, all data shall be formatted to print on 8-1/2" x 11" sheets; foldouts shall be formatted to print 11" x 17".
251	Each manual shall include, but not be limited to:
	a) a title sheet;
	b) revision history;
	c) table of contents;
	d) list of illustrations (if applicable);
	e) list of reference drawings and exhibits (if applicable); and
	f) a parts list (if applicable).
252	All manuals shall have a consistent look and feel and shall be professionally written and presented in a clear and organized fashion.
253	All manuals prepared for the Authority under this Contract shall be produced, or editable, using the latest version of the Microsoft Office Suite, and electronic copies of manuals shall be provided in native Microsoft Office Suite file format and unsecured PDF.
254	Any special Software required to produce scalable typefaces or other graphs shall be provided by the Contractor as part of the Documentation for the manuals.
255	The manuals collectively shall consist of appropriate Documentation such that Operations, Maintenance, and Software support personnel are able to perform their respective duties.

8.20.1 Manual Submittals and Quantities

ID#	REQUIREMENT
256	The Contractor shall submit electronic copies of the manuals in the following subsections to the Authority.
257	All manuals shall be maintained in electronic format in the Contractor's EDMS.

8.20.2 RTCS Maintenance Manual

ID#	REQUIREMENT
258	The Contractor shall submit an RTCS Maintenance Manual prepared for properly-trained technical personnel assigned to the Maintenance of the Hardware and Software installed under this Contract.
259	The RTCS Maintenance Manual shall document information required to support Maintenance and repair activities, including but not limited to:
	a) lane Equipment layout for each Toll Zones type;

ID#	REQUIREMENT
	b) schematics and layouts of the Hardware in the lane cabinets, Equipment racks, and the interconnection diagrams including port mapping to switches;
	c) parts lists required to service each piece of Hardware installed under this Contract;
	d) general and detailed description and concepts of lane Operations and functions;
	e) detailed lane monitoring activities, specialty tools and schedule;
	f) detailed Software monitoring activities and troubleshooting procedures;
	g) Maintenance instructions to repair and replace parts and modules;
	h) mechanical functions and installation of all Hardware;
	i) listing of all event and error logs;
	j) testing and basic troubleshooting procedures; and
	k) preventive, pervasive, and corrective Maintenance procedures.
260	The RTCS Maintenance Manual shall document information required to support RSS monitoring, including but not limited to:
	a) all Dashboards – including MOMS Dashboards, monitoring screens, notifications and data that needs to be checked;
	b) listing of all jobs/process, their dependencies, and their schedule;
	c) listing of all folders and directories that need to be checked;
	d) details related to the activity that needs to be checked;
	e) frequency of the validations;
	f) actions to take when – due to both deficiencies and anomalies – results are not as expected;
	g) notification and escalation process;
	h) basic troubleshooting procedures; and
	i) creation of work orders in MOMS.
261	The RTCS Maintenance Manual shall provide a description of the tools and Software for personnel to record the monitoring activity and instructions to use the tools/Software.
262	The RTCS Maintenance Manual shall document information required to support RSS Maintenance and repair activities, including but not limited to:
	a) detailed Hardware Maintenance activities and schedule;
	b) detailed database Maintenance activities and schedule;
	c) detailed Software monitoring activities and schedule;
	d) detailed monitoring procedures for data and file transfers, and exception handling;

ID#	REQUIREMENT
	e) detailed procedures and processes for all Maintenance activities;
	f) detailed procedures for backup, archiving and purging of data;
	g) detailed schedule for desktop and peripheral preventive Maintenance activities;
	h) detailed schedule for all preventive Maintenance activities;
	i) technical contact lists for all external interfaces;
	j) technical contact lists for Hardware and Software providers; and
	k) details and copies of all third-party System support agreements.
263	Standard service manuals for commercial products used for the Equipment shall be acceptable if they contain sufficient information to properly service the Equipment.
264	Large-size logic diagrams and mechanical assembly diagrams do not have to be reduced or incorporated into the manuals if these drawings are provided with the manuals and presented in a useable and durable form.
265	Photographic Documentation of Equipment with appropriate labels and call-outs are satisfactory if they contain sufficient information to properly identify components, parts and features.

8.20.3 Image Review Manual

ID#	REQUIREMENT
266	The Contractor shall submit the Image Review Manual that details the image review Services provided under this Contract.
267	The Image Review Manual shall provide a description of the detailed, step-by-step procedures for every task that the image review personnel must perform in the Operation of the RTCS. Screenshots shall be included in the detailed description of the tasks.
268	The Image Review Manual shall include the integration of the RSS application with the associated procedures required to complete each task, including but not limited to:
	a) image review clerk activities;
	b) image review supervisor activities;
	c) image review QA management;
	d) audit and reconciliation; and
	e) Operations and performance monitoring and reporting.

8.20.4 Reconciliation and Audit Manual

ID#	REQUIREMENT
269	The Contractor shall submit a Reconciliation and Audit Manual.

ID#	REQUIREMENT
270	The Reconciliation and Audit Manual shall detail all procedures used to reconcile data within the RTCS, verify System Performance Requirements, and audit the toll Operations, including Automatic License Plate Recognition (ALPR) performance and manual image review accuracy. The Reconciliation and Audit procedures detailed shall cover both proactive and reactive situations.
271	The reconciliation of electronic transactions and expected revenue within the System and reconciliation of transactions to the OBOS shall be fully described in the Reconciliation and Audit Manual.
272	Investigation of variances, discrepancies and exceptions processing shall be described in the Reconciliation and Audit Manual.
273	A detailed description of the screens, reports, and functions shall be provided in the Reconciliation and Audit Manual that will allow a qualified auditor to access, understand, and reconcile transactions and expected revenue recorded in the RTCS.
274	A complete description of all audit procedures, definition of all audit types, and a non-technical description of the screens, reports, and functions shall be provided in the Reconciliation and Audit Manual.
275	The Reconciliation and Audit Manual shall contain illustrations and pictorial diagrams to demonstrate the step-by-step Operations required for performing the audit and reconciliation functions.
276	The Reconciliation and Audit Manual shall contain QC and audit procedures to ensure Systems, Maintenance, and Operations meet the Performance Requirements.
277	Samples of all reports shall be included in an attachment to the Reconciliation and Audit Manual with any specific instructions that may be applicable to a given report. Reports included in the Submittal shall have correct and accurate data, and this manual shall be used to train the auditors to validate the System.

8.20.5 Roadway Support System (RSS) Administrators Manual

ID#	REQUIREMENT
278	The Contractor shall provide an RSS Administration Manual that serves as a guide to the overall management and administration of the RSS and shall include, at a minimum:
	a) description of the programs and processes that need to be monitored to ensure that the System is Operational;
	b) procedures for validating tasks, processes and jobs have successfully completed, and errors and exceptions encountered;
	c) procedures for validating the successful transfer and receipt of data and/or files for all interfaces, including RSS and OBOS;
	d) a listing of all the error codes, their meaning, and potential associated problems, with a step-by-step guide to troubleshooting and correcting the problem, including any specialty tools and/or Software currently in use to debug, validate, and correct the problem;
	e) description of all database Design, and database Maintenance activities required to keep the System Operational, including the scheduling of such activities;
	f) detailed procedures for backup, archiving and purging data;

ID#	REQUIREMENT
	g) technical contact lists for Hardware and Software providers;
	h) detailed procedures for monitoring System security;
	i) details and copies of all third-party System support agreements; and
	j) description of ad-hoc reporting tools and use of the tools to generate ad-hoc reports.

8.20.6 RTCS User Manuals

The Contractor shall develop and provide a comprehensive set of System Documentation and user manuals for the RTCS.

ID#	REQUIREMENT
279	The Contractor shall develop and submit RTCS User Manuals to be used by Authority staff to operate the toll collection System and for training purposes.
280	The manuals shall not include any information that could jeopardize the integrity of toll Operations or the toll collection System.
281	Each RTCS User Manual shall include, but not be limited to:
	a) step-by-step actions to take to access the application and complete an Operation;
	b) screen images detailing the step-by-step activities needed to fulfill a specific functionality;
	c) flowcharts to provide Authority staff a clear understanding of the workflow;
	d) all screens, reports, and data fields, clearly explained using sample formats applicable to the RTCS; and
	e) samples of all reports, included in the manual or as an attachment to the manual, with any specific instructions that may apply to a given report.

8.21 KEY PERFORMANCE INDICATORS GUIDEBOOK

ID#	REQUIREMENT
282	As an outcome of the Performance Reporting Workshops, the Contractor shall provide an updated Key Performance Indicators (KPI) Guidebook for Authority review and Approval.

8.22 AS-BUILT DOCUMENTATION

Prior to Authority Acceptance of the RTCS, as-built Documentation must be provided that documents the final RTCS Design and implementation.

8.22.1 As-Built System Detailed Design Document

ID#	REQUIREMENT
283	After the Approval of the RTCS Operational Acceptance Test and prior to Authority Acceptance of the Implementation Phase, the Contractor shall submit the as-built SDDD that includes all Software and Hardware changes made during the System development, implementation, and testing phases.

ID#	REQUIREMENT
284	The Contractor shall provide electronic versions of the as-built SDDD showing both the redline changes from the previously Approved SDDD and a final clean version.

8.22.2 AS-BUILT DRAWINGS

ID#	REQUIREMENT
285	The Contractor shall provide to the Authority a complete set of as-built drawings which shall be delivered in electronic format for all Equipment installed and furnished under this Contract.
286	As-built drawings shall include updates to the Roadside System Installation Design and Documentation drawings and the RSS Installation Design and Documentation Drawings.
287	As material changes are made to the System, the Contractor shall – within sixty (60) Days of implementing the material change - update the as-built drawings to reflect the current status.
288	The as-built drawings set shall include, but not be limited to:
	a) schematics;
	b) logic diagrams;
	c) layouts;
	d) wiring diagrams;
	e) interconnection diagrams;
	f) all attachment Hardware details;
	g) installation diagrams;
	h) cable schedule including cable identification details;
	i) interface details;
	j) facility build-out details, if applicable; and
	k) network diagrams, so as to provide a complete record of the as-built status of the Equipment.
289	All drawing revisions to standard commercial assemblies or components of the Equipment shall be included in the as-built drawing set.
290	All as-built drawings shall contain a table of contents that shall include a listing of all drawings with headings for drawing number, drawing title, revisions number and date, and the type of material list, wiring diagram, wire list, specification control drawing, or similar categories.
291	The redline drawings shall be verified and incorporated into a final as-built drawing package. This final as-built drawing package shall include all updated installation drawings, site drawings and sketches, plans and other drawing types that were used to install the RTCS.
292	All other Documentation used regarding the installation also shall be finalized and submitted as part of the as-built drawing Submittal.

9 TRAINING

The training program will recognize and incorporate the plan for the Authority to oversee the Operations and

Maintenance of the RTCS.

9.1.1 Overview of Training Program

ID#	REQUIREMENT
293	The Contractor shall provide comprehensive training for all aspects of the RTCS, including but not limited to the System administration, System monitoring, reconciliation and audit, manual image review, reporting, screen searches, and Dashboards.
294	The Contractor shall be solely responsible for supplying all items necessary, including but not limited to training Documentation, Software, Hardware, and any other Equipment required to complete the delivery of the training program.
295	Where practical and useful, the Contractor's training shall be hands on and use actual Software in the training environment.
296	The Contractor shall produce all training materials and manuals in electronic copies to be used and printed for future training sessions.
297	The Contractor shall make recordings of all training sessions and provide copies of the recordings and all training program materials the Authority for use in training new employees.
298	The Contractor shall obtain releases from all employees/Subcontractors to allow unlimited, royalty-free use and copies of Personally Identifiable Information (PII) compliant recordings and provide the same to the Authority upon request.

9.1.2 Training Requirements

ID#	REQUIREMENT
299	The Contractor shall provide the training courses listed below for Authority personnel and Authority-Designated Representatives in accordance with the Approved Training Plan, including but not limited to the provision of all training manuals (including Contractor-provided manuals or relevant portions thereof), guides, training aids, as well as student and instructor workbooks accompanying the courses listed in the sections below.
300	The Authority may require additional courses be offered, or additional personnel be provided training, or that remedial training be provided. The Contractor shall accommodate these requests to the extent possible with on-site personnel and Documentation that is readily available.

9.1.2.1 System Operation Overview

ID#	REQUIREMENT
301	The Contractor shall provide a System Operation overview training course for the Authority's management personnel who require a general understanding of all aspects of the Operation, including but not limited to personnel from senior management, procurement, information technology, marketing, and public information.
302	The System Operations training shall include an overview of all aspects of the RTCS, including System architecture, roadside devices, lane Operations, security access and monitoring, RSS Operations, image review audit, MOMS, System Operations, interface to the OBOS network, and any other Operational area of the RTCS.
303	The Contractor shall determine the optimal number of sessions, the appropriate class size and duration for the System Operation Overview training course and shall document these items in the Training Plan.

9.1.2.2 Audit and Reconciliation and Roadway Support System (RSS) Operations

ID#	REQUIREMENT
304	The Contractor shall provide an audit and reconciliation training course for the Authority's Operations and auditing staff to understand all aspects of the Operation, particularly those related to audit and reconciliation.
305	Training shall include step-by-step description of the use of the System application to perform the audit and reconciliation functions as well as the step-by-step procedure required to process any discrepancies.
306	Course shall include training all personnel who require a detailed understanding of the Operations of the RSS and how to access and view information and reports from the System on items such as status, alarms, performance, transactions, and revenue.
307	The Contractor shall determine the optimal number of sessions, the appropriate class size and duration for the Audit and Reconciliation and RSS Operations training course and shall document these items in the Training Plan.

9.1.2.3 System Monitoring and Roadway Support System (RSS) Administration

ID#	REQUIREMENT
308	The Contractor shall provide a System Monitoring and Administration training course for all Authority staff who require a detailed understanding of the System monitoring functions and management and administration of the interfaces, Software, database, applications, Configurations, and architecture of the RSS.
309	The Contractor shall provide various training programs that include but are not limited to:
	a) an in-depth explanation of the System Operations, including all interfaces, file/data transfers and interconnections;
	b) functions of the monitoring and tools used to manage monitoring tasks;
	c) functions of the MOMS;
	d) RSS logs, error logs, and processing of exceptions;
	e) System dataflow and workflow queues;
	f) explanation of the Dashboard data and analysis;
	g) special use and monitoring tools;
	h) performance reporting and validation of compliance to KPIs; and
	i) queries and reports.
310	The Contractor shall determine the optimal number of sessions, the appropriate class size and duration for the System Monitoring and Administration training course and shall document these items in the Training Plan.

9.1.2.4 Image Review Services System and Operations

ID#	REQUIREMENT
311	The Contractor shall provide an image review Services System and Operations training course for all audit personnel who require a detailed understanding of the image review System and its Operation.
312	The image review Services System and Operations training course shall include detailed instruction on the image review System and its Operation to include but not be limited to:
	a) image review System architecture;
	b) image review Operations;
	c) use of Dashboards and reports for monitoring of image review;
	d) management of image review processing via System configurations; and
	e) procedures for the auditing of image review performance.
313	The Contractor shall determine the optimal number of sessions, the appropriate class size and duration for the image review Services System and Operations training course and shall document these items in the Training Plan.

9.1.2.5 Scheduling and Preparation for Training

ID#	REQUIREMENT
314	It shall be the Contractor's responsibility to provide sufficient notice to the Authority on the types of training it will provide and the timing for each training session. The Authority will identify a list of participants for each functional area that the Contractor shall notify to schedule their participation in the training.
315	The Contractor shall perform all scheduling activities and shall make every attempt necessary to accommodate the maximum number of persons for each training session given scheduling conflicts. The Contractor shall provide sufficient notice to allow participants a reasonable lead time.
316	The Contractor shall notify the Authority of the dates or range of dates it would like to hold a training session at the Authority offices and shall coordinate with the Authority Project Manager to arrange the proper classroom setting and computer Hardware and Software are installed, and the space configured for each training session.

9.1.3 Training Materials

ID#	REQUIREMENT
317	Draft copies of all training materials shall be submitted to the Authority for review, comment, and Approval, prior to final printing of quantities required for training. Such draft copies shall be submitted far enough in advance to allow for a minimum of two (2) Authority review cycles as defined in Section 'General Documentation Requirements.'
318	The Authority shall have the right to require additional interim drafts at no additional cost should draft training materials submitted not be of adequate quality or have missing or incorrect information.
319	The Contractor shall review and update the training material periodically to ensure it remains up-to-date with System updates.

ID#	REQUIREMENT
320	For each course described in the section above, the Contractor shall provide the materials listed below.

9.1.3.1 Instructor Guides

ID#	REQUIREMENT
321	The Contractor shall provide an instructor guide for each training course. The guide shall include the following elements:
	a) course agenda;
	b) course objective;
	c) procedures for managing training session;
	d) resource and facilities required, including laptops, power, and communications requirements;
	e) detailed lesson plans;
	f) a description of training aids and items to aid in on the job performance (e.g., where applicable, pocket guides or reference sheets);
	g) test to be administered to assure satisfactory completion;
	h) instructions for using any audio-visual support Equipment or materials; and
	i) student survey to obtain feedback on the training sessions and the training materials.

9.1.3.2 Training Aids/Devices

ID#	REQUIREMENT
322	The Contractor shall provide training aids such as mock-ups, overhead displays, video demonstrations, and simulations as are necessary to successfully complete the course agenda and meet the course objective.
323	The Contractor shall provide users a way to access training documents, aids, and tips in an online, electronic format.

9.1.3.3 Student Workbook

ID#	REQUIREMENT
324	For each course, the Contractor shall provide a student workbook, including but not limited to:
	a) course agenda;
	b) course objectives;
	c) schedule of sessions;
	d) copies of all presentations; and
	e) lesson outlines and summaries.

ID#	REQUIREMENT
325	Materials such as Operations and user manuals may be used to supplement the material provided in the student workbook.
326	To the extent that the user manuals (and training aids) are appropriately detailed and fit for training purposes, they shall be used for training. If the Authority deems they are not sufficiently detailed, then supplementary training material shall be provided.
327	If such supplementary training material is used, appropriate cross-references shall be included in the Student Workbook so as to identify the complete set of training materials provided to the student.

10 RTCS FUNCTIONAL REQUIREMENTS

10.1 GENERAL RTCS FUNCTIONAL REQUIREMENTS

10.1.1 HARDWARE AND SOFTWARE GENERAL REQUIREMENTS

ID#	REQUIREMENT
328	All Hardware (excluding servers), Software, firmware, and other Equipment or components supplied under this Contract shall be new, COTS, field-proven in revenue Operations, and certified to have a seven (7)-year minimum service life and include extended warranties. Servers supplied under this Contract shall be new, COTS, field-proven in revenue Operations, and certified to have a five (5)-year minimum service life and include extended warranties. Materials and products that have been previously used for development work or the Contractor's internal testing, or items that have been salvaged or rebuilt shall not be used in connection with this Contract.
329	All components procured, furnished, and installed by the Contractor shall be available through multiple sources identified by the Contractor, and the names of such sources shall be included in the BOM and readily available to the Authority, unless otherwise Approved by the Authority during Design.
330	The Contractor shall record all components procured, furnished, and installed by the Contractor into the Authority's ArcGIS. The Contractor shall geo locate all assets and enter the required information (e.g., latitude, longitude, equipment type, manufacturer, make, model, serial number, etc.).
331	The Authority shall have the right to purchase third-party Hardware and Software directly from the Hardware or Software vendor.
332	All Hardware and Software procured under this Scope of Work and Requirements shall be confirmed to be the latest model/version at the time of purchase with the required Warranty, security, Maintenance and support Services as specified in this Scope of Work and Requirements.
333	All Hardware and Software provided under this Contract shall be supported by their manufacturers, shall be no more than one (1) version behind the current version, and shall be Upgradeable, maintained, Updated, patched and secured throughout the Contract Term.
334	Proof of purchase in the form of purchase orders, dated invoices and shipping bills shall be retained by the Contractor and furnished to the Authority in accordance with the Requirements of this Scope of Work and Requirements and the Contract.

10.1.2 MAINTAINABILITY

ID#	REQUIREMENT
335	The RTCS Hardware shall be Designed with the following specifications:
	a) modular, replaceable, and repairable components to allow for efficient Maintenance;
	b) Equipment mounting and installation Design shall support the Maintenance of Equipment from below on toll gantries as applicable to each Toll Zone;
	c) all components that perform the same function shall be interchangeable;
	d) the Roadside System at the Mainline East Toll Zones shall be expandable for at least one (1) additional travel lane to accommodate future growth without major Hardware or Software modifications beyond the addition of in-lane sensors and related power supplies and configuration changes to the Software to activate the additional lane. To support this future expansion, cable shall be pulled to the overhead sensor locations and protected as necessary for future use and loops shall be cut, home-run, and tested;
	e) the RTCS electronic Design and installation shall prevent electrical disturbances and noise in the electronics that impact System performance;
	f) the System shall be Designed with sufficient expansion capacity to accommodate additional components as needed, ensuring future scalability and upgradability;
	g) all field wiring shall be terminated on screw lugs or connectors, heat shrink shall be added if appropriate to mitigate water intrusion, and all connectors shall be keyed or polarized to prevent incorrect connections;
	h) all wiring and connectors shall be labeled, and strain relief shall be provided to protect the conductors;
	i) surge suppression shall be provided for all field wiring susceptible to lightning or similar surges;
	j) all lane Equipment shall be fused and protected against over current, over voltage, under voltage and lightning;
	k) redundant power supplies shall be provided for all required internal DC voltages; and
	l) all Equipment shall be properly grounded to ensure the safety of Maintenance personnel and System performance.
336	If inductive loops are used for tolling, all splices between loop wire and lead-in cable must meet Florida Standard Specifications for Road and Bridge Construction, and any alternate splicing methods shall be Approved by the Authority.
337	The RTCS procured, furnished, and installed under this Contract shall allow the Contractor to Maintain and replace toll Equipment parts for the Contract Term.
338	The RTCS shall support monitoring and collection of data on System and Equipment statuses continually twenty-four (24) hours a day, seven (7) days a week.

10.1.3 DIAGNOSTICS

ID#	REQUIREMENT
339	Maintenance personnel shall have easy access to components, and removal, testing, and

ID#	REQUIREMENT
	replacement shall not require extensive effort or tools. All test points necessary to diagnose the Equipment while in Operation shall be easily accessible and light-emitting diode (LED) indicators shall be provided to assist technicians to identify and diagnose problems.
340	Technicians shall have the ability to connect a laptop or other diagnostic Equipment authorized by the Authority in accordance with Authority policies to troubleshoot the components. Technicians shall have secured and remote access to each device to monitor its status and to perform diagnostics when the lane is in Operation.
341	For easy diagnostic and troubleshooting, all error and event log files shall be consolidated such that all events and errors associated to a transaction are available in a single storage location. The consolidated error and event log files shall be retained online for a Configurable period of time as defined in the Data Retention section of these Requirements and shall be easily accessible to the technicians.
342	All diagnostics performed on the RTCS shall be recorded and automatically reported to the MOMS, including the technician ID, the time the Maintenance was performed, and all status and recovery messages.
343	All diagnostic Software and specialty tools required for support of Maintenance activities shall be supplied by the Contractor, and the Authority shall have full rights and access as further defined in the Contract to such diagnostic Software and specialty tools.

10.1.4 ENVIRONMENTAL

ID#	REQUIREMENT
344	The RTCS Equipment will be installed in areas exposed to the range of climatic conditions found in Florida. In addition to the climatic conditions, the Equipment will also be subjected to harsh environmental factors normally found in the Operation of a toll lane, such as, but not limited to, car, truck, and bus emissions; industrial exhausts; industrial cleaners; gasoline and car lubricants; Electromagnetic Interference (EMI) and Radio Frequency Interference (RFI), and vibrations. These conditions shall be taken into account in the Design and selection of Equipment used on this Project, and the Contractor shall ensure that the System works accurately and reliably in such environment.
345	The Contractor shall provide a heat shield to mitigate high temperatures in the cabinets from direct sun exposure. The Design and placement of the heat shields shall be Approved by the Authority.
346	All Hardware provided under this Contract shall be corrosion resistant and remain corrosion resistant for the Contract Term including optional extensions.
347	All Roadside System Equipment shall be Designed to handle strong winds, heavy rain, fog and mist-like conditions and there shall be no degradation in the System performance under such environmental conditions. The display for any Equipment gauges exposed to such environmental conditions shall not get foggy (due to condensation), cloudy (damaged by sunlight), or oxidized.
348	All Roadside System Equipment shall be Designed to handle running water and pooling water on the road surface in the Toll Zone without degradation of System performance.
349	The Roadside System Equipment and devices not installed in environmentally controlled conditions shall operate with no degradation of performance in ambient air temperature of ten (10) to 140 degrees Fahrenheit, with and without direct sunlight, and relative humidity of five to one hundred percent (5% to 100%).

ID#	REQUIREMENT
350	Roadside System Equipment and devices installed in environmentally controlled conditions shall operate with no degradation of performance in relative humidity of five to ninety-five percent (5% to 95%) non-condensing.
351	During the Design process, the Contractor shall provide specification sheets that prove the roadside controller and supporting lane electronics, sensors, devices, and associated communications Equipment, meet the environmental specifications given above. Results of all environmental tests conducted shall be provided to the Authority for Approval.
352	All exposed in-lane Equipment, when in its fully assembled configuration, shall not be damaged by environmental conditions (except for Force Majeure events), nor shall Operational performance or expected lifetime be degraded. During the Design process, the Contractor shall provide specifications for the in-lane Equipment for Approval.

10.1.5 ASSEMBLY

ID#	REQUIREMENT
353	All Hardware shall be assembled and tested in the Contractor's fabrication/assembly facilities before being installed in the lane in accordance with Approved MTP for Hardware. All chassis, attachments, and Hardware shall be fabricated with stainless steel, hot dipped galvanized or other materials resistant to salt exposure and corrosion.
354	Cabinets, Equipment, and gantry attachment materials shall not create corrosion, including galvanic corrosion.
355	The Contractor shall not perform any field drilling or welding of the toll gantry structure.
356	All Hardware shall undergo a twenty-four (24)-hour burn-in test before they are installed in the lanes, in accordance with Approved MTP.
357	Hardware assembly shall facilitate easy replacement of failed components in accordance with Requirements of this Scope of Work and Requirements.

10.1.6 SERVERS AND NETWORK SWITCHES

ID#	REQUIREMENT
358	The Contractor shall provide, manage, and maintain all network Equipment within the RTCS and required to interface outward; including servers, switches, routers, and firewalls, and all network cabling.
359	Servers and network switches shall include physical redundancy at the component level with automatic failover capability, including but not limited to:
	a) power supplies;
	b) network interface controllers;
	c) hard drives/storage elements; and
	d) fans.
360	Network switches shall be provided in redundant physical pairs.
361	Internet Service Provider (ISP) connectivity to remote portions of the RTCS such as DR sites, cloud components, etc. shall be redundant.

ID#	REQUIREMENT
362	Servers shall be rack mountable with hot swappable disks, fans, and power supplies.
363	All controller, server, and network switch architecture shall have sufficient redundancy such that failure of a single controller, server, communication line, or network switch does not result in loss of transaction data (including images) or of functionality. Any failover shall occur seamlessly without the need for subsystem restarts.

10.1.7 RTCS SOFTWARE

ID#	REQUIREMENT
364	The operating systems, databases, other third-party Software, and RTCS Software procured, furnished, and installed by the Contractor shall support real time Operations of the lane and shall be field-proven.
365	The operating systems shall have a clear and documented future Upgrade path and shall be supported for the Contract Term including extensions. The Contractor shall ensure that the risk of obsolescence to the Hardware is minimized through the selection of the operating system Software and the peripheral Hardware.
366	All RTCS Software developed, furnished, and installed under this Contract shall be warranted against Software defects, security vulnerabilities and deficiencies for the life of the Project.

10.1.7.1 TOLL SYSTEM SOFTWARE SECURITY

ID#	REQUIREMENT
367	All default Manufacturer's passwords shall be changed before the devices are deployed.
368	User access security, including sign-on facilities, permission control and access privileges for different levels shall be provided for the files, directories and application Software and shall be fully Configurable by a system administrator.
369	Remote access to the RTCS shall be via a virtual private network (VPN), client-based, and controlled through a central repository with each user having a unique log-in.
370	All remote access to the RTCS shall require multi-factor authentication.
371	User sign-on, access and access failures, both local and remote, to any element of the RTCS shall be recorded and tracked for security audit purposes and reported to the MOMS. The System shall continuously and automatically monitor for unauthorized access; access violations shall be reported to the MOMS as Priority 1 Alert. These reports shall be provided to the Authority within four (4) hours of discovery.
372	The RTCS shall support access levels, user roles and privileges to be defined in a matrix during System Design with Authority input and Approval. The RTCS shall allow for additional changes to the access levels, user roles and the addition of personnel in a secure manner.
373	The Contractor shall not circumvent Authority-Approved System security. All access to the System and Approved changes made shall be recorded, monitored, reviewed and audited. Specific requirements for this shall be developed by the Contractor during System Design.
374	Authorized Users shall have access to the server user access logs to audit the System access, including both Roadside System and RSS servers.

10.1.8 ENVIRONMENTS

ID#	REQUIREMENT
375	The Contractor shall build, provide the Authority (including Authority-Designated Representatives) access, and maintain the following DevOps Pipeline in addition to production as described below during the Contract Term. The DevOps Pipeline with Configured, tested, and available non-production environments will streamline release management, minimize defects, and increase efficiencies to the business and technical Operations. The Contractor shall provide the following environments for the exclusive use of the Authority and solely in support of the Authority's RTCS.
376	**Development Environment:** The Contractor shall establish and maintain a development environment on their own for developers who are responsible for development of Software code, unit testing, automation test code, and merge the changes into the release branch once it is peer-reviewed and approved.
377	**Test Environment:** The Contractor shall establish and maintain this environment on their own for testers who are responsible for functional and regression testing of Software builds deployed to the test environment. This environment will be used to test the Contractor's own Software product including COTS Software. This environment does not need to be integrated with any other environment(s). The Contractor shall utilize both automated and manual testing. The Contractor shall produce, maintain, and record results for the tests conducted and Authority shall have access to test results.
378	**Pre-production Test Environment:** The Contractor shall set up and maintain this pre-production test environment for integration testing of the Software package delivered, including end-to-end test transaction flow (including interactions with OBOS pre-production environment) and all functionalities. The Pre-production Test Environment shall be identical configuration with production. All formal tests shall be conducted in the Pre-production Test Environment.
379	**Training Environment:** The Contractor shall set up and maintain this Training environment to facilitate Training. The Training Environment shall be identical configuration with production. The Training Environment shall be regularly refreshed from backups of the production system so as to always be available to train new employees and Authority staff.

10.1.9 DATA RETENTION

ID#	REQUIREMENT
380	The Roadside System shall retain and purge data according to the following durations:
	a) transaction data (Electronic Toll Collection (ETC) and Image-Based Transaction(IBT)) shall be retained online and accessible to Authorized Users for forty-five (45) Days and then be purged after confirmed transmission to the RSS;
	b) transaction images (ETC and IBT) shall be retained online and accessible to Authorized Users for forty-five (45) Days and then be purged after confirmed transmission to the RSS; and
	c) Alerts, alarms and event messages shall be retained online and accessible to Authorized Users for ninety (90) Days and then be purged.
	The RSS shall retain and purge data according to the following durations:

ID#	REQUIREMENT
381	a) transaction data (ETC and IBT) shall be retained online and accessible to Authorized Users for two (2) years and then purged;
	b) transaction images (IBT) shall be retained online and accessible to Authorized Users for ninety (90) Days after they are acknowledged as received by the OBOS and then purged;
	c) transaction images (ETC) shall be retained and accessible to Authorized Users for ninety (90) Days and then purged;
	d) transaction images (ETC) that are requested by the OBOS (prior to their 90 Day retention) as part of an ETC to IBT conversion shall be retained and accessible to Authorized Users for ninety (90) Days after they are acknowledged as received by the OBOS and then purged;
	e) any summarized data (absent of PII) shall be retained and accessible to Authorized Users for two (2) years;
	f) thirty (30) Days of Positive (POSI) List files shall be retained and accessible to Authorized Users and then purged;
	g) Hotlists, toll rate schedules, lane configuration files, executable programs, and all other data identified during Design shall be retained and accessible to Authorized Users for one hundred eighty (180) Days and then purged; and
	h) Maintenance records, such as corrective and preventive work order details, shall be retained and accessible to Authorized Users indefinitely unless Approved by the Authority.

10.1.10 SECURITY AND ENCRYPTION

ID#	REQUIREMENT
382	The RTCS shall be Designed to protect confidential data from unauthorized access, including but not limited to: PII and databases.
383	The RTCS shall be Designed and operated in compliance with the security requirements in Section 1.3.
384	In any circumstance of conflict between requirements, standards or statutes, the Contractor shall adhere to the most stringent requirement.
385	All confidential data including but not limited to PII and all databases shall be encrypted and utilize encrypted database backup techniques to provide security and prevent unauthorized restoration of databases.
386	The Contractor shall ensure that all encryption methods for data-in-motion and data-at-rest meet or exceed the encryption standards as per FIPS-140/NIST.
387	The RTCS shall employ an auditing strategy that maximizes the possibility of detecting unauthorized access attempts and/or activity. This shall include an automated event notification and logging process.
388	The Contractor shall ensure that encryption key management system is on a separate platform from the data and its application keys are not stored with data.
389	The Contractor shall ensure that the encryption keys are accessible to the Authority.

ID#	REQUIREMENT
390	The Contractor shall implement robust access controls within the encryption management system to ensure secure management and administration of cryptographic keys and encryption Configurations.
391	The Contractor shall provide exclusive ownership of encryption keys to the Authority.

10.1.11 DATA EXCHANGE

ID#	REQUIREMENT
392	The RTCS shall support the POSI List for Authority and any other Interoperable Agency lists and have the capability to support every Interoperable Agency and its assigned Transponder number range as described in the National Interoperability (NIOP) specifications and NIOP Agencies and Tag IDs as shown in "**NIOP ICD – Appendix C,"** https://www.ibtta.org/sites/default/files/documents/Interoperability/NIOP%20ICD%20Appendix%20C%20-%20RELEASED%2020240223.pdf.
393	The RTCS shall accept comprehensive and incremental changes to the POSI List in accordance with the established Business Rules and shall activate the lists upon receipt after validation of the files.
394	The Contractor shall use an effective Design to securely transmit the POSI List files (compress, encode, etc.), store the files and use the files such that the new list is available for use in transaction processing within ten (10) minutes of the RTCS receiving the new POSI List. The format of the file shall be finalized during the Design process.

10.2 GENERAL ROADSIDE SYSTEM FUNCTIONAL REQUIREMENTS

ID#	REQUIREMENT
395	The Roadside System shall meet all Requirements in all weather and lighting conditions.
396	The Roadside System shall accurately capture and identify all vehicles that pass through each Toll Zone.
397	The Roadside System shall accurately identify the Toll Zone and lane of each transaction or buffered Transponder Read and identify if the vehicle straddled an adjacent lane or shoulder.
398	The Roadside System shall assign a timestamp to all transactions or buffered Transponder records. The timestamp shall be associated with a defined event in the transaction formation process, to be determined during the Design process.
399	The Roadside System shall capture at least one (1) front and one (1) rear unique color image of the vehicle and its license plate(s) – if present – for every vehicle that passes through a toll lane or Toll Zone.
400	The transaction images produced by the Roadside System shall comply with the Approved RTCS-OBOS ICD.
401	The Roadside System shall capture properly mounted Transponders and accurately correlate them to their associated vehicle as they pass through the Toll Zone.
402	When multiple Transponders are detected within a vehicle, the System shall elect and assign a single primary Transponder to the transaction as determined by the Business Rules.
403	The Roadside System shall accurately detect the number of vehicle axles and include axle data in each toll transaction.

ID#	REQUIREMENT
404	The Roadside System shall accurately detect, identify, and report any vehicle travelling in the wrong direction.
405	The Roadside System shall accurately measure and report the length of each vehicle associated with a toll transaction.
406	The Roadside System shall accurately measure and report the travel speed for each vehicle associated with a toll transaction.
407	The Roadside System shall report the width and height for each vehicle associated with a toll transaction if the Roadside System measures this information.
408	The Roadside System shall accurately assign fare(s) to each transaction.
409	Roadside System elements and subsystems shall be Designed and installed in a manner that minimizes the need to close toll lanes for routine Maintenance and minimizes the duration of any lane closures for Maintenance.
410	Each Toll Zone shall be capable of operating independently from any other Toll Zone. No Toll Zone shall rely on services or processing at another Toll Zone.
411	The Roadside System Equipment at all Toll Zones shall be capable of processing and creating lane transactions for a minimum of 2,500 vehicles per lane per hour with no loss of data and with all vehicles with front and rear license plates and an AVI Transponder.
412	The RTCS shall receive and process POSI List files as required to meet all Requirements and Business Rules and in accordance with the Approved ICD.
413	The RTCS shall not delete nor modify any information included in the lane transaction during the retention period. Any modification to a lane transaction shall be flagged and Approved by the Authority.
414	The RTCS shall allow toll lanes Operational modes (to be defined during Design) to be changed by Authorized Users.
415	In the event of a power interruption, each toll lanes shall resume operation in the Operational mode it was in before it was powered down.
416	When a lane is operating in a mode other than normal Open mode (to be defined during Design), an Alert shall be generated and sent to MOMS at regular (Configurable) intervals.
417	All messages generated at the Toll Zones shall be securely transmitted to the RSS in near real-time using a transport mechanism that performs error detection and correction to guarantee data transmission. All messages shall be uniquely identified and validated at the RSS to ensure there are no missing or duplicate messages.
418	All messages shall be confirmed as received by the RSS before they are flagged for purging. In the event of communication failures, the messages shall be stored at the Toll Zone until the successful, secure transmission is complete and verified.
419	The Roadside System shall institute checks whereby it detects issues with the data it receives from the RSS, including but not limited to:
	a) incorrect versions of the data received;
	b) corrupted data received; and
	c) missing files when a file was expected, for example POSI List.

10.2.1 Toll Zone Type and Concept

ID#	REQUIREMENT
420	The Contractor shall provide an AET facility where all customers pay the tolls electronically while vehicles travel through Toll Zones on the roadway at highway speeds.
421	The AET concept shall be barrier-based where vehicles pass through one (1) or more Toll Zones and customers pay a flat toll based on the transaction type and vehicle classification at each Toll Zone they use, and other criteria listed in the Fare Determination section.
422	The RTCS shall initially support the lane configurations in Table 7-1: Tampa Hillsborough Expressway Toll Zone Lane Configurations, Reference Document R_04 - ORT Gantry Site Drawings, and dimensions detailed below for each type of Toll Zone.
423	The RTCS shall be expandable to accommodate additional Toll Zones, Toll Sites, and/or Toll Facilities without requiring coding changes.
424	Shoulder lane and travel lane widths may vary slightly by Toll Zones, Toll Sites, Toll Facilities, and lane type and are detailed in **Table 7-1: Tampa Hillsborough Expressway Toll Zone Lane Configurations.** Travel lanes shall be equipped with the required toll collection subsystems to accommodate the variation in widths and road curvature. During the detailed Design period, the Contractor shall make the required adjustments to the System Design to accommodate for variations in the actual lane widths and curvature. Travel lane widths shall be assumed to be twelve (12) feet.

Table 10-1 Tampa Hillsborough Expressway Toll Zone Lane Configurations

Plaza ID	New (SSCP or EMR) or Existing	MP	Toll Zone	Dir	Total # Lanes	# Travel Lanes	# Shoulder Lanes	Inside Shoulder Width (feet)	Travel Lane Width (feet)	Outside Shoulder Width (feet)
10	Existing		Willow Ave On	WB	3	1	2	4’9”	15’1’	6’2”
15	Existing		Willow Ave Off	EB	3	1	2	4’11”	14’3”	6’10”
20	SSCP	X	West Main Plaza	WB	6	4	2	10’	12’ (4x) (*)	10’
25	SSCP	X	West Main Plaza	EB	6	4	2	4’	12’ (4x) (*)	10’
30	SSCP		Plant Ave Off	WB	3	2	1	0’	12’ (2x) (*)	10’
35	Existing		Plant Ave On	EB	3	1	2	3’11.5”	13’9”	8’.5”
01	Existing	X	Mainline Plaza	EB	3	1	2	9’3”	14’2”	8’5.5”
02	Existing	X	Mainline Plaza	WB	4	2	2	6’8”	14’4” and 14’9.5”	10’7.5”
05	Existing		Dale Mabry Off	EB	3	1	2	6’4”	14’1”	8’.5”
40	Existing		22nd Street On	WB	3	1	2	4’9”	14’2”	9’2”
45	Existing		22nd Street Off	EB	3	1	2	7’6.5”	14’7”	3’11”
50	Existing		50th Street On	WB	3	1	2	4’2”	15’2”	7’11”
55	Existing		50th Street Off	EB	4	2	2	8’11”	12’3” and 12’3”	8’7”
60	EMR	X	East Main Plaza	WB	5	3	2	10’	12’ (3x)	10’
65	EMR	X	East Main Plaza	EB	5	3	2	10’	12’ (3x) (*)	10’
70	Existing		Reversible Express	WB	5	3	2	9’1”	12’5” and 12’3” and 12’4”	11’
75	Existing		Reversible Express	EB	5	3	2	11’	12’4” and 12’3” and 12’5”	9’1”
TBD	Existing	X	Test Gantry East Main Plaza (Option)	WB	5	3	2	8’3”	12’ and 11’7” and 14’4”	6’6”
TBD	Existing	X	Test Gantry East Main Plaza	EB	4	2	2	7’2”	12’6” and 12’1”	10’
				Total Lanes	**76**	**39**	**37**			

(*) Indicates that a travel lane will be added to match stated configuration

10.2.2 Reversible Toll Zones

ID#	REQUIREMENT
425	The Roadside System at each reversible Toll Zone shall be Designed to accommodate both directions of travel and capable of operating in either direction of travel.
426	All RTCS functions shall be available regardless of the configured direction of travel.
427	All Performance Requirements shall be met by the RTCS regardless of the configured direction of travel.

ID#	REQUIREMENT
428	The Roadside System at each reversible Toll Zone shall utilize a different plaza ID for each direction of travel and transactions shall only be generated for one (1) direction of travel and the associated plaza ID at a time.
429	The Roadside System shall integrate with the Authority's reversible Toll Zone access control software and shall change direction of operation when commanded.
430	Reversible Toll Zones shall be ready to operate in the new configured direction of travel within ten (10) minutes of being commanded to change the operating direction of travel. Alerts shall be generated when commands are received and when change in direction is completed successfully.
431	When a reversible Toll Zone is commanded to change the operating direction of travel, the reversible Toll Zone shall form and report to the RSS within ten (10) minutes all transactions for vehicles which traversed the Toll Zone while the reversible Toll Zone was still operating in the original direction of travel. For example, if a reversible Toll Zone is operating in the Eastbound direction and a vehicle traverses the Toll Zone one (1) second prior to receiving a command to switch to the Westbound direction, the transaction (and all other outstanding Eastbound transactions) shall still be formed and shall be reported within ten (10) minutes.
432	Each reversible Toll Zone shall provide means of commanding the reversal of the direction of travel locally via a physical interface such as a button, toggle, or switch. This capability shall function in the event of a communications incident that prevents the RSS or the reversible Toll Zone access control system from sending remote commands.
433	The local reversal command capability shall be physically secure such that only Authorized personnel can activate the reversal.
434	The Roadside System at each reversible Toll Zone shall provide periodic direction status and health information to the RSS regarding:
	a) the currently configured operating direction of the Toll Zone;
	b) the status of the direction control system of the Toll Zone; and
	c) any faults or failures regarding the currently configured operating direction or the direction control system.
435	The direction status and health information shall be reported at a Configurable periodic interval initially set to every sixty (60) seconds.
436	The RTCS shall be capable of detecting issues with the direction control of reversible Toll Zones and creating MOMS Alerts and work orders related to such issues. For example, if both directions of a reversible Toll Zone are operating simultaneously, if the directions status is unknown or if specific sensor in the active direction was not activated.

10.2.3 CONFIGURATION FILES

ID#	REQUIREMENT
437	All parameters and settings required to run the Roadside System applications shall be maintained in configuration files. Access to configuration files required to support the Roadside System Operations shall be controlled, and access to these files shall be limited to Authorized Users.

ID#	REQUIREMENT
438	The configuration files shall be maintained at a central location within the RTCS network for configuration and version control. All Roadside System applications shall have default configuration files that shall allow the lane to start-up automatically.
439	Authorized personnel shall be able to make changes to parameters and settings that are defined as Configurable in this SOW and Requirements and in the Approved Design Documents. Authorized personnel shall be able to make changes to the configuration files in the field. Changes to configuration files shall be recorded in the MOMS. All changes made to the configuration files in the field shall be synchronized to the master configuration file that is maintained at the RSS.
440	All Roadside System applications shall automatically encrypt and back up critical configuration files to a back-up server to be used to rebuild the master drive in the event of hard disk failures.

10.3 ROADSIDE SYSTEM SUBSYSTEMS

10.3.1 AUTOMATIC VEHICLE IDENTIFICATION SUBSYSTEM

ID#	REQUIREMENT
441	The Contractor shall provide an AVI subsystem, including multi-protocol AVI readers, antennas, and ancillary Equipment. The AVI Equipment provided by the Contractor shall be compliant with the Authority, Southeast U.S. Interoperability (SEIOP) partners, Central United States Interoperable Hub (CUSIOP) partners, and NIOP requirements and able to read and process the anticipated protocols defined below.
442	The Contractor shall be responsible for the installation, integration with the RTCS, and Maintenance of the AVI subsystem Equipment.
443	The AVI Subsystem shall capture Transponder reads for all Transponder-equipped vehicles traveling through the Toll Zone fully within Travel Lanes, straddling Travel Lanes, or straddling a Travel Lane and a shoulder with the vehicle up to six (6) feet into a shoulder. The ability for the Roadside System to capture Transponder reads for all Transponder equipped vehicles traveling through the Toll Zone fully in the shoulders shall be available to the Authority as an optional feature that can be added to individual Toll Zones on a per-shoulder basis.
444	The AVI subsystem shall support the following anticipated protocols to be supported by the RTCS:
	a) E-ZPass Time-division Multiplexing (TDM) / Interagency Group (IAG).
	b) Super Ego (SeGo); and
	c) ISO 18000-63 “6C”.
445	The AVI subsystem shall be capable of operating in each of the following Configurable operating modes:
	a) reading any one (1) of the three (3) protocols: SeGo, E-ZPass TDM/IAG, and 6C;
	b) reading any two (2) of the three (3) protocols: SeGo and E-ZPass TDM/IAG; SeGo and 6C; or E-ZPass TDM/IAG and 6C; and
	c) reading all three (3) protocols: SeGo, E-ZPass TDM/IAG, and 6C.

ID#	REQUIREMENT
446	The multi-protocol AVI reader shall be E-ZPass certified.
447	The multi-protocol AVI reader shall be OmniAir certified.
448	The AVI reader model shall have been previously deployed in a multi-protocol ORT project utilizing the SeGo protocol.
449	The AVI reader and AVI subsystem shall be capable of supporting the latest IAG Inter-Customer Service Center Interface File and Reporting Specifications.
450	The Contractor shall maximize any inherent redundancy built into the AVI readers whereby the failure of a primary reader will result in the reporting of the Transponder reads via the secondary reader, or the failure of a single reader will not result in failure to read Transponders in adjacent lanes or on straddles.
451	The Contractor shall furnish and install all Hardware, cabling (including RF, communication, and power cables), connectors, and associated mounting fixtures to form a fully functioning AVI subsystem that meets the Requirements of this SOW.
452	The Contractor shall be responsible for the physical tuning of AVI Equipment, and for integrating the AVI subsystem into the Contractor in-lane Design. All AVI Equipment installation, Configuration, and tuning shall be in compliance with the AVI manufacturer requirements. In addition, the Contractor shall have the AVI manufacturer certify that the lanes are tuned to the AVI manufacturer specifications. All AVI installation, Configuration and tuning shall be in compliance with the AVI manufacturer requirements.
453	The Contractor shall be responsible for conducting a radio frequency (RF) survey ahead of planned installations and ensuring the System works accurately and reliably in those location's conditions.
454	The Contractor shall be responsible to identify all sources of RF interference including RF interference caused by devices such as vehicle key fobs and plan mitigation.
455	The Contractor shall evaluate the RF survey and request in writing any desired performance variance from the Authority within 5 Business Days. The Contractor shall be responsible for meeting the Performance Requirements without relief for existing RF interference if no variance is requested and granted by the Authority.
456	The AVI subsystem shall comply with all applicable Federal Communications Commission (FCC) regulations.
457	The Contractor shall prepare and submit the required FCC license applications for all AVI Equipment prior to installation. The FCC licenses shall be obtained in the name of the Authority (including temporary license if required to meet the Baseline Project Implementation Schedule) for all AVI Equipment provided under this Scope of Work.
458	The Contractor is responsible for all necessary synchronization of AVI readers.
459	The RTCS integrated with the AVI subsystem shall process Transponders mounted on vehicles traveling in stop-and-go and closely following traffic and traveling at speeds of up to one hundred (100) miles per hour (mph).
460	The AVI subsystem shall be able to read and report the Transponder only for all Authority Interoperable Transponders and National Interoperable Transponders on vehicles traveling through any area of the Toll Zone with no degradation of performance or interference, including but not limited to:
	a) center of lane;

ID#	REQUIREMENT
	b) traversing lanes;
	c) straddling lanes; and
	d) straddling shoulder.
461	The AVI subsystem shall be Designed and implemented such that Transponders in vehicles traveling in the adjacent lanes, but opposite direction of travel, are not reported by the AVI subsystem.
462	The AVI subsystem shall buffer Transponder reads when it is unable to communicate to the other parts of the System for up to a period of seventy-two (72) hours. When communications are restored, the buffered reads shall be logged and reported in accordance with the Business Rules.
463	The RTCS shall generate records for all buffered Transponder reads and shall handle them as defined in the Business Rules.
464	If more than one (1) Transponder is present in a vehicle (including multi-protocol Transponders), the AVI subsystem shall meet the AVI Performance Requirements for each Transponder. The Transponders shall be reported separately, and transaction association rules shall be in accordance with the Approved Business Rules and Design.
465	The AVI subsystem shall provide security features that support prevention of Transponder fraud, including but not limited to:
	a) prevent cloning;
	b) authentication of Transponder data; and
	c) security key management.
466	The Roadside System shall support all aspects of Transponder security and read accuracy verification provided by each protocol including use of error correction codes, cyclic redundancy checks, and checksums.
467	The Roadside System shall support 6C Coalition's Unique Item Identifier (UII) Validation as a method for detecting possibly cloned Transponders and shall implement the means for flagging suspicious Transponder reads via a method agreed to by both the Contractor and the Authority during the Design workshops.
468	The Contractor shall use the full capability of the selected AVI subsystem to obtain AVI subsystem status in accordance with the manufacturer specifications and report such status to the MOMS. Loss of communication to any element of the AVI subsystem and potential security conditions shall be immediately detected and reported to the MOMS. The Contractor-provided monitoring logic shall specifically detect any AVI failures and generate alarms when failures are detected.
469	To support remote access to the AVI subsystem, a user interface shall be provided so that Software lane tuning, diagnostics, configuration changes, and other remote support shall be available to Authority authorized personnel. Setup and configuration of the AVI subsystem shall be achieved remotely and shall not require lane closure except for major lane tuning, when initially installed, or when a reader or antenna is replaced.

10.3.2 AUTOMATIC VEHICLE DETECTION AND CLASSIFICATION SUBSYSTEM

The Authority requires initial installation of an in-pavement Automatic Vehicle Detection and Classification (AVDC) subsystem solution; however the Authority is interested in an all-overhead AVDC solution if benefits to cost and/or accuracy can be realized. The Contractor may propose to replace the in-pavement AVDC solution with an all-overhead AVDC solution after demonstrating the all-overhead solution's accuracy and ability to meet KPIs using the THEA test toll gantry. This test toll gantry will be installed as part of the SSCP. Following this large-scale demonstration the Contractor may propose to provide the all-overhead AVDC solution for any remaining Toll Zone installations and potentially to replace the installed in-pavement AVDC of previously installed Toll Zones when circumstances allow, e.g. during a mill and resurfacing project at a previously installed Toll Zone or if significant maintenance cost benefits or other benefits can be realized. The choice to permit installation of any all-overhead AVDC will remain the Authority's sole decision.

ID#	REQUIREMENT
470	The Contractor shall install a field-proven in-pavement AVDC subsystem. The Contractor may optionally replace this later with an all-overhead AVDC subsystem after large scale demonstration of its accuracy to the Authority using the THEA test toll gantry with the Authority's permission. The choice to permit installation of any all-overhead AVDC will remain the Authority's sole decision.
471	The Contractor shall analyze the site conditions and Design, procure, furnish and install the required sensors and Hardware on all lanes at the specified Toll Zones as part of the AVDC subsystem that performs in accordance with Performance Requirements set forth in this Scope of Work and Requirements under all weather conditions.
472	The AVDC subsystem shall determine the vehicle axle count as well as vehicle length, height, and width to classify vehicles in accordance with the Authority vehicle classification structure for all travel lanes and shall include the logic to handle the exceptions identified. Classification of vehicles traveling on the shoulder lanes is not required; however, the RTCS shall detect vehicles that travel on the shoulder and trigger the ICPS.
473	The RTCS shall map the detected axle count to the Authority vehicle classification structure for AET Lanes.
474	The AVDC subsystem shall accurately detect and classify vehicles traveling in stop-and-go and closely following traffic, vehicles traveling at speeds up to one hundred (100) mph, and vehicles with separation as close as three (3) feet apart.
475	The AVDC subsystem shall have the ability to detect trailer hitches and ensure that vehicles with a towed unit are reported correctly as one (1) unit by the Roadside System as part of the vehicle transaction data.
476	The Contractor shall ensure that there is full coverage of all areas of the Toll Zone to accurately trigger the ICPS and detect and report vehicles traveling the travel lanes, in the shoulder and vehicles straddling lanes.
477	The AVDC subsystem shall report vehicle event messages and signals, and vehicle classification data to the roadside controllers. Exception conditions processed by the AVDC subsystem shall be included in the transaction data.
478	The Contractor shall Design, procure, furnish and install a secondary sensor and Equipment that are part of the AVDC subsystem as a back-up to support image capture and vehicle framing in the event any element of the primary System fails or is degraded. The RTCS shall determine the conditions (Configurable) that invoke the use of the secondary sensors and Equipment.

ID#	REQUIREMENT
479	The AVDC subsystem shall have adequate redundancy whereby a failure of a single sensor or controller does not completely degrade lane operations or the System's capability to accurately associate Transponders or captured images with the correct vehicle. Under such failure conditions, the Contractor shall still be required to meet the Performance Requirements.
480	The AVDC subsystem shall report its health and shall provide status when polled. Loss of communication to any element of the AVDC subsystem shall be immediately detected and reported. All health and failure status messages shall be transmitted and reported to the MOMS. In the event the primary AVDC subsystem fails or is degraded, then the secondary sensors shall be used to capture and process images in accordance with Business Rules determined during Design.
481	In the event there is a class mismatch between the AVDC subsystem and the Transponder class, the RTCS shall default to the AVDC class and flag the transaction as an unusual occurrence as defined in this SOW and Requirements.

10.3.3 IMAGE CAPTURE AND PROCESSING SUBSYSTEM

ID#	REQUIREMENT
482	The Contractor shall provide an ICPS solution at each Toll Zone that meets the Performance Requirements continuously 24/7 and under all light and climate conditions.
483	The Contractor shall Design, procure, furnish, and install all necessary front and rear ICPS Hardware and Software required to support IBT Requirements and image processing Requirements as set forth in this Scope of Work and Requirements.
484	The Contractor shall Design, procure, furnish, and install cameras in sealed enclosures, lighting, necessary image triggers, back-up triggers and the necessary camera controls, and ancillary Hardware and Software required to support the IBT processing Requirements as set forth in this Scope of Work and Requirements.
485	Camera control Software shall be provided to automatically adjust the cameras to accommodate varying light and weather conditions to maintain adequate brightness and contrast settings, with or without traffic, to ensure optimum license plate information capture under all conditions and time of day.
486	The Contractor shall install high resolution front and rear color cameras to meet the Performance Requirements. The RTCS shall provide a region of interest (ROI) of the license plate and a general overview for the purpose of identifying the vehicle with the transaction/image package provided to the THEA OBOS for IBTs.
487	The ICPS shall capture and process vehicles traveling in stop-and-go and closely following traffic, vehicles traveling at speeds up to one hundred (100) mph, and vehicles with separation as close as three (3) feet apart.
488	The Contractor shall ensure that there is shoulder coverage and vehicles traveling through any area of the Toll Zone/lane, including but not limited to shoulder, center of lane, traversing lanes and straddling lanes, shall be accurately detected and their images captured and processed in accordance with the Business Rules.
489	The System shall associate all images captured for a single vehicle to the vehicle transaction including multiple images captured by all front and all rear cameras, including all captured images for a vehicle straddling the lanes.

ID#	REQUIREMENT
490	Illumination installed by the Contractor in support of the cameras shall not distract motorists traveling in either direction in the lanes and shall not cause light pollution to areas adjacent to the roadway. The Contractor shall make no assumption of ambient light, and the System shall function without any degradation regardless of the ambient light.
491	All illumination units emitting visible light shall have an appearance of steady illumination without flashing or strobing.
492	The ICPS subsystem shall include redundancy at the controller/server level such that failure of a single component other than an individual camera will not affect the ability of the ICPS to function.
493	The ICPS shall have capacity to provide image processing of one hundred percent (100%) of all transactions, including ETC transactions and IBTs with no performance degradation.
494	When the ICPS storage capacity reaches a Configurable utilization percentage [for example, eighty percent (80%)], a message shall be transmitted to the MOMS. Images shall be deleted only after it is confirmed/acknowledged that the images have been successfully transmitted to the RSS. Any deletion of images shall be automatic, without user intervention, and shall generate a message to be transmitted to the MOMS (Configurable).
495	In the event communication to the ICPS is lost or any ICPS Hardware becomes non-Operational, the Design shall ensure that no images and/or data are lost and that all images and associated data are eventually transmitted to the RSS.
496	Images saved during ICPS loss of communication event shall be flagged and subsequently matched with the correct transaction data when communications resume. This matching shall take place in a manner that does not interfere with or degrade real-time Operations.
497	The Design shall guarantee transmission of the images and data from the Roadside System to the RSS and OBOS and shall provide the capability to reconcile images to the transaction data.
498	The Contractor-provided RTCS including network architecture shall support the image throughput Requirements specified in the Scope of Work and Requirements.
499	The RTCS shall provide one hundred percent (100%) reconciliation from end-to-end of all images captured and transferred.
500	The ICPS shall be capable of continuously performing diagnostics and reporting its health to the MOMS. Loss of communication to any element of the ICPS shall be immediately detected. All health, failure and recovery status messages shall be transmitted and reported to the MOMS.
501	The Contractor shall provide Software tools for verifying the image quality in near real-time and adjusting and tuning the images remotely. Degradation in image quality shall be detected, transmitted and reported to the MOMS.

10.3.4 Digital Video Audit System

The Authority will be engaging with a third-party, independent DVAS provider to deliver independent auditing capabilities. The Contractor will work with the third-party DVAS provider to interface the DVAS to the RTCS. The Contractor may provide a DVAS to perform its own lane audits however, the cost of that DVAS will be the responsibility of the Contractor.

ID#	REQUIREMENT
502	The Contractor shall work with the Authority's third-party, independent DVAS provider to define, Design and develop the interface to integrate the third party DVAS to the RTCS.

ID#	REQUIREMENT
503	The RTCS shall transmit all events in near real-time as required by the third-party, independent DVAS.
504	In the event the Contractor provides an additional DVAS at no cost to the Authority, the Authority shall have access to the full functionality of that subsystem.

10.3.5 Critical Environmental Monitoring System

ID#	REQUIREMENT
505	The Contractor shall provide a Critical Environmental Monitoring System (CEMS), which shall consist of an environmental monitoring unit for the HVAC, power systems, and environmental conditions at each Toll Zone as well as Alerting and reporting components. The CEMS at each Toll Zone shall include monitoring of:
	a) toll Equipment cabinet or roadside shelter HVAC status (on/off);
	b) temperature;
	c) humidity or water intrusion;
	d) utility power;
	e) generator status (on/off);
	f) generator fuel level;
	g) Automatic Transfer Switch (ATS) transfer monitor;
	h) UPS power; and
	i) smoke detector.
506	The CEMS shall provide a useful variety of historical reports and trends for the monitored conditions. These historical reports and trends may be provided through the MOMS.
507	The CEMS shall interface with MOMS to generate and transmit alarms, Alerts, recovery messages and Operational status.

10.3.6 Access Control and Security Monitoring System

ID#	REQUIREMENT
508	The Contractor shall furnish and install an Access Control and Security Monitoring System (ACSMS) for access and monitoring all toll Equipment enclosures and toll Equipment cabinets.
509	The ACSMS shall interface with the cabinet smart locks to monitor and record Authorized access.
510	The ACSMS shall interface with the toll equipment building RFID access systems to monitor and record Authorized access.
511	The ACSMS shall include video monitoring from inside each cabinet and toll equipment building sufficient to record the face of any persons opening the cabinet doors. This video monitoring shall cover all doors.
512	The ACSMS shall maintain access information and video logs of access events.

ID#	REQUIREMENT
513	ACSMS video cameras shall be full color and have a minimum resolution of 1920x1080 pixels. Video feeds during hours of darkness may be in black and white.
514	The ACSMS shall interface with MOMS to generate and transmit alarms, Alerts, recovery messages and Operational status.
515	The ACSMS shall be capable of providing escalated Alerts for unusual, monitored events, including door openings after hours or multiple times within a Configurable period.
516	Alerts from ACSMS shall include integration with ACSMS video logs such that an Authorized User may navigate by link to a screen where the video log related to that Alert may be viewed. Such video log links shall be available in MOMS.

10.3.7 ROADSIDE CONTROLLERS

ID#	REQUIREMENT
517	Each transaction shall include an identifier that clearly distinguishes its source, ensuring traceability regardless of the System's redundancy approach.
518	When a failover event happens, Alert messages shall be generated and reported to the MOMS. The Contractor's failover Design shall ensure that there is no loss of revenue or transactions when a primary path fails.
519	The System shall provide Authorized Users the capability to manually and remotely failover between redundant components.
520	Any failover and failback events shall be recorded and transmitted to the MOMS.
521	Authorized Users shall be able to locally connect to the Equipment and remotely access authorized Software to Configure the System's operating mode and perform a graceful shutdown of the System. Each time an operating mode change is requested, an Alert message shall be sent to the MOMS.
522	Transactions shall be processed according to the Approved Business Rules either at the RTCS level or the RSS level based on the mode of Operation and the facility type. The Contractor shall be responsible for ensuring that the ETC Transactions and IBTs are processed according to THEA Toll Operations Business Rules and transmitted correctly to the THEA OBOS.
523	The RTCS shall provide functionality to operate each Toll Zone in the following modes of Operation, aka Operational modes:
	a) Open mode: All transactions shall be processed normally in an Open mode;
	b) Closed mode: Transactions created during Closed mode shall be identified as Closed mode transactions and processed in accordance with the Business Rules to be determined during the Design;
	c) Maintenance mode: Transactions created in Maintenance mode are processed at the Roadside System as normal transactions but are identified as Maintenance mode transactions and transmitted to the RSS. Transactions that occur during Maintenance mode are processed at the RSS in accordance with the Business Rules to be determined during the Design; and
	d) Zero Fare mode: Transactions created during Zero Fare Operation (ZFO) mode shall be identified as ZFO mode transactions and processed in accordance with the Business Rules to be determined during the Design.

10.3.8 DEGRADED OPERATION

ID#	REQUIREMENT
524	Degraded modes of operation shall be supported, and the Roadside System shall continue to operate in the event that some components fail, and degraded mode occurs. The only impact shall be that which is directly consequential of the failure.
525	The Roadside System shall be capable of capturing data and creating transactions from the remaining sensors or sensor subsystems at a Toll Zone if a single sensor or sensor subsystem at a Toll Zone is degraded or failed.
526	Transactions shall be flagged if any Roadside subsystem is operating in a degraded mode.

10.4 TRANSACTION PROCESSING

ID#	REQUIREMENT
527	The RTCS shall support electronic payment using a valid Transponder (such as SunPass or other Interoperable Transponder). The RTCS shall transmit ETC Transactions to the OBOS for this type of payment.
528	The RTCS shall support electronic payment using license plate images. The RTCS shall transmit IBTs to the OBOS for this type of payment.
529	The RTCS shall detect, classify, and frame vehicles, assign the Transponder accurately to the correct vehicle and capture and process the images of the correct vehicle in accordance with the Business Rules and the Performance Requirements specified in this Scope of Work and Requirements.
530	The RTCS shall incorporate logic that will prevent the incorrect assignment of Transponder reads from vehicles driving in the adjacent general traffic lanes and in the opposite direction of travel.
531	The detailed transaction processing rules shall be defined and finalized during the Design process; however, the following basic rules shall apply:
	a) the RTCS shall properly associate multiple Transponder reads reported by the AVI subsystem to the correct vehicle;
	b) any compatible but non-Interoperable Transponder reads shall be reported to the RSS;
	c) the Roadside System shall detect and create a single Complete Transaction for each vehicle that travels through a Toll Zone, including within the shoulder area, and including motorcycles and vehicles towing trailers or another vehicle;
	d) the RTCS shall be able to accurately identify, process, and track multiple vehicles in the Toll Zone;
	e) the RTCS shall ensure that duplicate Transponder transactions (same Transponder ID) are not reported from the same lane or Toll Zone consecutively or within a Configurable period of time; and
	f) buffered Transponder reads (Transponder reads delivered by the AVI reader after a delay rather than in real time, for example due to loss of connectivity to the AVI reader) shall not be assigned to a vehicle but shall be flagged and reported to the RSS for further processing according to the Business Rules.

ID#	REQUIREMENT
532	The transaction message details shall be defined and finalized during the Design process; however, the following basic rules shall apply:
	a) the RSS shall transmit to the THEA OBOS the fully formed ETC Transactions and the initial and fully formed IBTs for processing, reporting, and reconciliation according to the Approved RCTS-OBOS ICD; and
	b) each transaction message shall contain the data required by the THEA OBOS to process the ETC Transactions and IBTs.

10.5 AUTOMATIC LICENSE PLATE RECOGNITION SYSTEM

The Operations Requirements establish the maximum percentage (25%) of IBTs that will be allowed to be invoiced by the Contractor as manually reviewed. However, the Authority expects the Contractor to bring innovation to exceed the 75% automation threshold and has included incentives as further set forth in the Contract Terms and Conditions.

ID#	REQUIREMENT
533	The Contractor shall provide an ALPR solution that supports automation, plate data, and primary image selection per the Approved Business Rules.
534	The Contractor shall provide ALPR Software for determining the license plate data (including plate number, jurisdiction and plate type) for all U.S. states and Canadian provinces. The ALPR Software may reside at the RSS level, and/or the Roadside System level, as long as it meets the performance and functional Requirements specified in this Scope of Work and Requirements. The Contractor can also provide multiple ALPR Software and solutions to meet the Requirements specified in this Scope of Work and Requirements.
535	The System shall correctly identify each portion of the license plate data including the jurisdiction (i.e., state/province), plate type, special characters and stacked characters, and accurately determine the license plate number, and provide the result in in accordance with the Approved ICD.
536	The ALPR System shall provide a confidence value for each portion of the license plate data and for the overall result.
537	The System shall meet the image processing Performance Requirements specified in this Scope of Work and Requirements.
538	The ALPR System shall be sized to meet the transaction delivery Performance Requirements.
539	Any portions of the ALPR System located within the RSS shall meet the redundancy and high-availability Requirements required of the RSS.
540	Any portions of the ALPR System located with the Roadside System (except for single camera onboard ALPR) shall include redundancy whereby Standby servers are available to keep the ALPR System immediately and fully Operational in the event of a failure.
541	Any ALPR Software procured, furnished, and installed under this Contract shall be Upgradable to support new plate types, formats, performance enhancements, and other enhancements for the duration of the Contract.
542	Authorized Users shall have the ability to Configure the Business Rules for auto-processing images whereby images identified for auto-processing may be identified to by-pass manual image review. The Business Rules for auto-processing to be determined during Design shall include the following criteria:

ID#	REQUIREMENT
	a) jurisdiction;
	b) license plate type;
	c) confidence level of the license plate number and jurisdiction;
	d) vehicle class;
	e) matching front and rear license plate data; and
	f) license plate on the Bad Plates List.
543	The ALPR System shall provide the capability of detecting image quality degradation in near real-time and generate alarms that are reported to MOMS when image quality impacts ALPR or manual image processing performance.
544	For audit and Maintenance purposes, Authorized personnel shall have the capability to view all the images in near real-time on any device connected to the RTCS network and verify the ALPR image processing performance.

10.6 TRANSPONDER AND REVENUE CLASS

10.6.1 TRANSPONDER CLASS REQUIREMENTS

ID#	REQUIREMENT
545	The RTCS shall retain the raw Interoperable partner Transponder class and include that in the transaction data along with the mapped class as defined by Interoperable ICDs and documentation for each RTCS facility in accordance with the Business Rules and as defined by the Approved ICD.
546	If an Interoperable partner Transponder has a raw Transponder class that is not mapped to the THEA revenue class, then the RTCS shall apply the class as defined by the Business Rules.

10.6.2 REVENUE CLASS

ID#	REQUIREMENT
547	The System shall implement axle-based classification where the vehicle class is based on the number of axles with tires in contact with the road surface when the vehicle drives through the Toll Zone, and the toll assessed is based on this axle-based classification. This shall be the primary means of classification.
548	The assignment of the revenue vehicle class in normal Operations and in degraded modes of Operations shall be in accordance with the THEA Business Rules. If no classification data is obtained, a Configurable default revenue class shall be assigned to the transaction, and the transaction shall be flagged to identify which class was used as the revenue vehicle class.
549	The revenue vehicle class shall be one of the factors used to determine the toll amount for a transaction as defined by the THEA Toll Operations Business Rules.
550	The RTCS shall cap the maximum and minimum (Configurable and based on THEA Toll Operations Business Rules) detected axles and class.

ID#	REQUIREMENT
551	Transactions shall include the AVDC class, raw Interoperable partner Transponder class (if applicable), mapped Interoperable partner Transponder class (if applicable), and revenue vehicle class. The revenue vehicle class assigned in accordance with THEA Business Rules shall be used to determine the toll amount transmitted to the THEA OBOS.

10.7 HOTLIST NOTIFICATION

ID#	REQUIREMENT
552	The RTCS shall provide a graphical user interface (GUI) for the creation and update of a Hotlist that contains Transponder and/or license plate information on which the Authority requires notification.
553	The RTCS or RSS shall provide the capability to Alert authorized personnel if the System detects a Transponder or license plate passing through the Toll Zone that is identified on the Hotlist. The criteria for notification shall include the status of the Transponder and presence of the Transponder on the Hotlist, or the presence of the license plate on the Hotlist.
554	The System shall Alert personnel within ninety (90) seconds of the vehicle passing through the Toll Zone if a vehicle on the Hotlist is identified. The Transponder ID, license plate information and status (if any), and a picture (Configurable) shall be included in the Alert.
555	Notification methods shall include but not be limited to text message and email.
556	After detection of a Hotlist vehicle, the related transaction shall be flagged denoting the transmission of the enforcement notification.

10.8 FARE DETERMINATION

ID#	REQUIREMENT
557	The RTCS shall provide determination of the toll amount for each transaction prior to transmitting each transaction to the OBOS based on the vehicle revenue class.
558	The toll amount shall be determined in accordance with the Business Rules and may vary by transaction type, time of day, revenue class and lane status including lane open, Maintenance, closed, or ZFO statuses.
559	The RTCS shall have a Configurable default fare class to be used in the event classification data is not available.
560	Tolls shall be assessed using the toll rates, revenue class, and schedules established for each Toll Zone and vehicle class. The RTCS shall support the toll rate, and the Authority vehicle classification structure based on the Toll Zone and facility. The initial toll rates shall be defined during RTCS Design and shall be Configurable to support periodic rate adjustments as Approved by the Authority.
561	The RTCS shall provide toll rates by transaction type (for example, ETC, image-based, and non-revenue), revenue class, lane health, lane mode, Transponder agency code, and Toll Zone, based on the Business Rules and as determined during Design.
562	The RTCS shall process the transaction dispositions from the THEA OBOS, including any adjustment of toll rate as needed and in accordance with the RTCS-OBOS ICD.

ID#	REQUIREMENT
563	The RTCS shall support Business Rules based on Transponder home/away status as determined during the Design. For example, home (SunPass) non-revenue Transponders charged $0.00 (Configurable) fare, but away non-revenue Transponders charged the normal fare based on vehicle class and Toll Zone.
564	The System shall support the assessment of tolls based on the toll rate schedule and toll rate in effect at the time of the vehicle passage through the Toll Zone.
565	The System shall support day of the week, weekend/weekday, special events, and Holiday toll schedules.

10.9 STAND-ALONE MODE OF OPERATIONS

During loss of WAN connectivity, the Roadside System at each Toll Zone is expected to operate in stand-alone mode, meaning that it will still continue to collect transactions and will have the possibility for Approved personnel to manually upload and download data as required in this section.

ID#	REQUIREMENT
566	The Roadside System at each Toll Zone shall operate in a stand-alone mode for a minimum of thirty (30) Calendar Days if communication to the RSS is down. When operating in stand-alone mode, the last files downloaded from the RSS, including POSI List data, shall be used for processing vehicles and one hundred percent (100%) of transactions, images and event data for the Toll Zone shall be retained, as well as all error/system logs and any other material according to the required retention period.
567	The Roadside System shall have a secure method available at each Toll Zone to permit onsite manual uploading of Software, POSI List data, or other pertinent data required for continued Operation until communications with the RSS is re-established. Only THEA Approved and secure devices will be permitted to connect to perform these manual Operations.
568	The System shall provide the capability for Authorized Users to download transactions from the Roadside System at each Toll Zone and transfer such transactions to the RSS for normal processing.
569	Upon re-establishing communications with the RSS, all back-logged messages, including manually transferred messages, shall be transmitted and synchronized to the RSS without affecting the real-time Operations or degrading the lane Operations, or creating duplicate transactions at the RSS.
570	Upon re-establishment of communications and successful transmission of all messages, a recovery message shall be transmitted to the MOMS.

10.10 TIME SYNCHRONIZATION

ID#	REQUIREMENT
571	The RTCS shall be synchronized to a certified source Approved by the Authority using a widely used time synchronization standard at Configurable intervals but at a minimum every five (5) minutes.

ID#	REQUIREMENT
572	The controllers, AVI subsystems, AVDC subsystems, ICPS, image server, DVAS (if provided), ALPR servers, and all servers needed to support the Requirements of this Scope of Work and Requirements shall be synchronized to a Contractor-provided primary Network Time Server within the RSS. Such Network Time Server shall synchronize with the certified source Approved by the Authority. The Contractor shall also supply a secondary time source. Both the primary and secondary time synchronization sources shall be certified and Approved by the Authority.
573	If needed, synchronization messages shall be sent to devices that do not support off-the-shelf time synchronization Software.
574	The time synchronization technique shall ensure that under no circumstance shall the possibility arise for duplicate or incorrect transaction time.
575	Alarm messages shall be generated when there are time synchronization failures and when time drifts are more than a Configurable threshold.
576	The RTCS shall adjust time of day in accordance with the start and end of daylight saving time changes. If the United States or the State of Florida stops the practice of daylight saving time changes, the RTCS shall adapt to this change and cease daylight saving time adjustments.
577	The RTCS shall synchronize all components of the RTCS to within 1/10 of a second.

10.11 ROADSIDE SYSTEM POWER DISTRIBUTION

Utility power will be made available to the Contractor at the toll Equipment cabinet at the Toll Zones.

ID#	REQUIREMENT
578	All Roadside System Equipment shall be protected by a UPS supplied by the Contractor.
579	The Contractor shall provide all electrical Equipment/wiring from the toll Equipment cabinet to the devices.
580	Distribution of power within the Roadside System shall be accomplished via Contractor-supplied smart Power Distribution Units (PDUs) with remote control and monitoring capabilities.
581	The Authority will provide an ATS at each toll Equipment cabinet. The Contractor shall interface with the ATS and the Contractor-provided smart PDUs to manage and monitor the Roadside System power distribution. Maintenance technicians shall have remote access to manage power to critical devices.
582	The Contractor's Design shall include redundancy elements such as integral ATS functionality within the smart PDUs or other means such that failure of the UPS is not a single point of failure and will not interrupt Operation of the Equipment supported by the UPS.
583	The Contractor shall furnish and install an electronic interface to the UPS to monitor its status and performance for all Toll Facilities.
584	The MOMS shall detect the status of the UPS and generate an Alert for the technicians when the System is:
	a) on battery;
	b) reaches critical battery;
	c) upon resumption of utility power; or

ID#	REQUIREMENT
	d) Experiences a fault or other error.
585	Software drivers shall be developed, furnished, and installed to acquire, display, store and report all parameters provided as outputs from the UPS.
586	The UPS shall support all Roadside System Equipment at each Toll Zone for a minimum of two (2) hours on battery.
587	The supplied UPS shall provide all critical status updates to the MOMS including on battery, low battery and critical low battery.
588	When utility power is restored, and Hardware/Equipment is no longer powered by the UPS batteries, the MOMS shall create an Alert.

10.12 ROADWAY PAVEMENT, TOLL GANTRY, TOLL EQUIPMENT CABINETS, AND TOLL EQUIPMENT BUILDINGS

10.12.1 EXISTING TOLL GANTRY DESIGN

ID#	REQUIREMENT
589	The Contractor's Equipment mounting and installation Design for the toll collection Equipment shall take into consideration its Maintenance and lane closure constraints.
590	The Contractor shall adapt to the existing structures the in-lane Equipment Design, installation specifications, structural Requirements and drawings for mounting the Equipment to the overhead toll gantry at each Toll Zone, including but not limited to Equipment mounting locations and installation instructions for conduit, junction box, electrical Design, wind load, Equipment load and power calculations, deflection and vibration limits for the various tolling Equipment, as well as Contractor Design related to special electrical grounding, and isolated circuit integrity by Equipment.
591	The Contractor shall be responsible for all necessary mounting Hardware required to install the toll Equipment on each Existing Toll Zone toll gantry at each lane as specified in this Scope of Work and Requirements.
592	The Contractor shall be responsible for all Equipment installations, terminations, and connections of Equipment located on the overhead toll gantry and for connecting such Equipment to the electronics in the toll Equipment cabinets at the Existing Toll Zones.

10.12.2 TOLL EQUIPMENT CABINETS

At both the Existing Toll Zones, and the new SSCP Toll Zones the Contractor will provide and install the required toll Equipment cabinets, with the exception of the East Mainline and West Mainline sites where THEA will provide Toll Equipment Buildings. The Authority will provide external generators, ATS, utility power, and WAN demarcation at each Toll Zone.

ID#	REQUIREMENT
593	For all Toll Zones other than the East Mainline and West Mainline, the Contractor shall provide, furnish, and install the required toll Equipment cabinets and any enclosures located on the toll Equipment pad.

ID#	REQUIREMENT
594	The Contractor shall provide toll Equipment cabinets with HVAC Equipment of suitable capacity and performance to provide an operational environment to allow for optimal equipment performance. The Contractor shall be responsible for the Maintenance of the toll Equipment cabinet HVAC Equipment.
595	All toll Equipment cabinets shall be installed on raised concrete toll Equipment cabinet bases to ensure the toll Equipment cabinet is above the surface level of the toll Equipment pad. For toll Equipment pads without raised concrete toll Equipment cabinet bases, the Contractor shall furnish and install a riser (also known as a pedestal or collar) or other means of raising the toll Equipment cabinet base a minimum of six (6) inches to prevent water intrusion through the base of the cabinet.
596	All toll Equipment cabinets and enclosures accessible from ground or roadway level shall be secured by keyed locks with smart key functionality which records each access and identifies the key used.
597	All cabinets and enclosures shall be configured to “fail secure” in the event of power outages. The Contractor shall maintain a set of all keys to be used in the event of a “fail secure” incident and access to Equipment is necessary.
598	A key for all cabinets and enclosures shall be provided to the Authority.
599	The Contractor is responsible for the security of all Hardware and shall control access to the cabinets and enclosures.
600	The Contractor shall supply all locks, establish the keying index system for all toll collection Equipment cabinets and enclosures and install these locks before cabinet/enclosure installation. A key set shall be provided to the Authority upon the completion of the installation check-off.
601	Contractor personnel shall use only assigned, individual keys and shall not share keys with any other individuals or make copies of any assigned keys. Contractor personnel shall immediately return all assigned keys to the Authority upon request.
602	Access to all Equipment cabinets and enclosures shall be recorded automatically and reported to the MOMS. The data reported shall include, but not be limited to cabinet status, date, time of door open, time of door close, and any applicable alarm conditions.

10.12.3 ROADWAY PAVEMENT

ID#	REQUIREMENT
603	During the Design process, the Contractor shall provide the in-pavement sensor Requirements to the Authority, if such sensors are to be used. Any in-pavement solution shall work in both asphalt and concrete pavements.
604	The Contractor shall be responsible for the Design and installation of all elements of the RTCS that are applied on or embedded into the pavement to achieve the required System performance.
605	The location and Design of the pull boxes shall minimize the impact of Maintenance activities on the affected lane.
606	The Contractor shall be responsible for any roadway pavement failure directly caused by the installation, maintenance, or removal of in-pavement sensors for the Contract Term.
607	The Contractor shall be responsible for repair, rehabilitation, or replacement of the pavement due to any Work performed in the lane by the Contractor.

10.12.4 COMMUNICATIONS

The Authority will provide the fiber optic backbone that the toll Equipment cabinets and the RSS can connect to for WAN communications. The demarcation point is the Contractor-provided fiber patch panel at each Toll Zone. The Contractor is responsible for splicing the fiber optic onto the fiber patch panel. The Authority is responsible for WAN connections between any On-premises RSS installations and to the THEA OBOS.

ID#	REQUIREMENT
608	The Contractor shall procure, furnish, and install all required network Equipment at the toll Equipment cabinet, including but not limited to network Equipment to support the RTCS WAN and LAN.
609	The Contractor shall purchase, furnish, and install redundant leased-lines or other ISP services as needed to provide connectivity between the Roadside System and the RSS, between RSS primary and secondary instances, and between the RSS and OBOS.
610	The Contractor shall be responsible for all elements of the LAN within each Toll Zone, RSS installation, or other location.
611	The Contractor shall Design and allocate an IP scheme for the RTCS which shall be coordinated with and Approved by the Authority, including coordination of VLANs.
612	The Contractor-provided LAN and WAN Equipment shall be capable of supporting IPv6 addresses.
613	Network monitoring Software shall be procured, furnished, and installed on the RSS servers to monitor the System network status, network security and communications, including the connection to the THEA OBOS. All network alarms shall be reported to the MOMS. The Software tool shall utilize the Simple Network Management Protocol (SNMP) to poll devices for real time for status where possible.
614	SNMP shall be disabled by default on all Equipment within the RTCS network environment, except as needed for monitoring and management tasks.
615	When SNMP is required, it shall only be enabled with secure settings and configurations, including the use of SNMPv3 or higher versions with strong authentication and encryption mechanisms.
616	Access Control Lists (ACLs) shall be implemented to restrict SNMP access to authorized management systems or entities within the segregated network, based on IP address, subnet, MAC address, or other criteria as specified by network administrators.
617	Default SNMP community strings or passwords shall be replaced with unique and strong values (a random string of at least twelve (12) characters, including uppercase and lowercase letters, numbers, and special characters) to prevent unauthorized access to SNMP-enabled devices within the RTCS network.
618	If communications to any element of the RTCS is down, an alarm shall be generated and reported to MOMS.
619	The Contractor shall provide network security at the RSS locations and shall comply with NIST standards.
620	The LAN within a toll Equipment building shall be connected by CAT6 (or higher) or fiber-optic cabling. The LAN connections from the toll Equipment cabinet to the roadside Equipment may either be CAT6 or fiber-optic cable according to the Contractor's Design. The WAN physical connectivity (fiber plant) between the toll Equipment cabinets within the Toll Facility will be provided by the Authority. The Authority will also provide WAN physical connectivity (fiber plant) between the Authority Headquarters building and the Roadside Toll Facility.

ID#	REQUIREMENT
621	Equipment procured, furnished, and installed under this Contract shall be able to communicate with the Authority communications Equipment.
622	The Contractor shall work with the Authority in Designing the network communication interfaces between the Roadside System, the RSS and the THEA OBOS.
623	The Roadside System components at each Toll Zone shall be able to operate in stand-alone/local mode when WAN communications are disrupted.

10.12.5 GENERATORS

ID#	REQUIREMENT
624	Authority-provided generators shall be used to provide backup power for all Roadside System Equipment, and the Contractor shall install all necessary electronics that allow the RTCSs to communicate with the generator. A list of existing generators with which the Contractor must interface is included in Reference Document *R*_06 – Generators Information.
625	Software drivers shall be developed, furnished, and installed as needed by the Contractor to acquire, display, store and report all parameters provided as outputs from the generator.
626	The System shall detect the switch to generator power and report the Alert to the MOMS.

10.13 ROADWAY SUPPORT SYSTEM FUNCTIONAL REQUIREMENTS

10.13.1 ROADWAY SUPPORT SYSTEM GENERAL REQUIREMENTS

ID#	REQUIREMENT
627	The Contractor's central processing System architecture shall include a highly available RSS that meets the functional and Performance Requirements of the Scope of Work and Requirements and is accessible to Authorized Users of the Authority's network.
628	The RSS shall be accessible to the Authority via a VPN Approved by the Authority, and all functions available to Authorized Users shall work on Authority-provided and secured workstations.
629	The RSS shall administer and control the toll collection process.
630	The Contractor shall procure, furnish, and install all servers, cloud systems, storage and communications Hardware needed to support the Software that meets the Authority RTCS Requirements related to the RSS.
631	The Contractor shall use proven server and/or cloud service configurations that support future Upgrades to processors, memory, storage, operating system, database, and other System components.
632	The RTCS shall have capability to support a ten (10)-year growth in traffic volumes in its installed Hardware which includes support of ETC Transactions and IBT transactions at the Toll Zones, as forecast in Reference Document R_05 Selmon Expressway Traffic Forecast.
633	The System architecture shall support future expansion to accommodate future roadway changes such as capacity expansions, lane configuration changes, and new Toll Zones.
634	The RSS configuration shall meet the Performance and Disaster Recovery Requirements of the Contract guaranteeing availability.

ID#	REQUIREMENT
635	All computers, servers, cloud systems, and Hardware procured, furnished, and installed under this Contract shall maintain the most current and up-to-date anti-virus, firewall, spam protection and other security Software that protects from virus attacks, unauthorized intrusions, and unauthorized access.
636	Per NIST standards, all computers, servers and Hardware shall automatically detect anti-virus protection and security Updates according to a recommended (Configurable) Maintenance schedule. Errors in that process shall generate an Alert that is reported to MOMS.
637	The RSS shall provide the following general functions:
	a) communicate with all the Roadside System in receiving transactions, alarms and other messages and transmitting POSI Lists, toll rate schedules, and Configuration files as defined during System Detail Design process;
	b) provide real-time roadway Operations monitoring screens and Dashboards to assist Maintenance and supervisory staff in observing transaction and event data in real-time through these screens;
	c) provide secure, remote operational control of toll lanes, including real-time monitoring and management;
	d) support secure Software and security Updates, remote configuration of toll-related data including POSI Lists and toll rate schedules, and remote diagnostics and recovery actions to ensure continuous Operations;
	e) perform transaction processing and toll rate determination based on the transaction type (for example, ETC, image-based, and non-revenue), revenue class, lane health, lane mode, Transponder agency code, and Toll Zone, based on the Business Rules and as determined during Design;
	f) interface with the THEA OBOS per the Approved ICD to transmit images, transaction messages, and reconciliation files and receive POSI List files requests, and transaction processing dispositions;
	g) receive and process requests from the OBOS per the Approved ICD, including but not limited to requests to re-transmit transactions, convert transactions, and re-verify IBT;
	h) perform Maintenance management functions of the System, including alarm notification and tracking, Equipment inventory, Maintenance history and other Maintenance-related functions, incorporated into the MOMS;
	i) provide an automatic independent audit and verification of successful receipt of all transactions from the Roadside System to the RSS;
	j) provide various management reports that assess the Operational performance of the System and transaction reconciliation reports as determined by the Authority during Design;
	k) track and manage transaction status and image file status;
	l) provide the capability to create and manage toll rates and schedules and transmit the toll rates and schedules to the Roadside System if necessary; and

ID#	REQUIREMENT
	m) provide the capability to enter or obtain employee information defined in the Design process such as employee ID, role and access privileges.
638	The RSS shall be Designed to allow for all functionality to occur simultaneously and without degradation, including but not limited to transaction processing, image review processing, reporting processing, as well as System monitoring and auditing processing.
639	The Contractor shall provide, manage, and maintain all RTCS network Equipment within the RSS including switches, routers, and firewalls, and all network cabling required to connect to the associated Roadside System.
640	The RTCS shall monitor and collect data on System and Equipment statuses continually twenty-four (24) hours every day, seven (7) days a week.
641	The RSS shall provide fare override functions so that Authorized Users can override toll rates to discount them from zero to one hundred percent (0% to 100%), or to a pre-determined rate manually.
642	The Contractor shall provide an RSS that provides the required associated data to create toll transactions that are compliant with the Approved RTCS-OBOS ICD as outlined in Reference Document R_03 – RTCS-OBOS ICD Overview and finalized during the Design period**.**
643	All transactions shall be uniquely identified and validated within the RSS to ensure there are no missing or duplicate transactions prior to sending to the THEA OBOS.
644	Valid Transponder reads buffered during lane degradation, where no other information or images are captured, shall be sent to the THEA OBOS for processing according to the Business Rules as determined in co-operation with the Authority (for example, as a transaction at the lowest toll class and flagged as “buffered” or “spurious” in the transaction record).
645	The RSS shall provide functionality to review the transaction accuracy, including but not limited to:
	a) audits conducted by the Contractor or the Authority and its Agents;
	b) Provide an application or filtering capabilities that allow the Contractor or the Authority and its Agents to select problem plates to be added to queue that requires manual image review. The plates shall be added by the image review System or manually by an Authorized User in the System; and
	c) Support existing Authority review and auditing processes to measure the System against the Performance Requirements.
646	The Authorized Users shall be able to filter transactions (ETC and IBT), including but not limited to:
	a) ALPR confidence levels;
	b) ALPR results based on Toll Zone and jurisdiction;
	c) manual image review results based on Toll Zone and jurisdiction;
	d) Contractor-rejected images;
	e) IBT by vehicle class as defined in the Business Rules;
	f) filtered criteria based random sampling for QA/QC (e.g. every Configurable number of transactions);

ID#	REQUIREMENT
	g) System exceptions as defined in this SOW and Requirements;
	h) unusual occurrences as defined in this SOW and Requirements;
	i) transaction Toll Zone (plaza/lane); and
	j) date and time.
647	The RSS shall code transactions that are not subjected to audit for accuracy, defined as System exceptions, including but not limited to:
	a) auto flushes (tags read at the lane that did not correlate to a vehicle or lacks AVC data);
	b) images that were not correlated to a transaction (flushed images);
	c) lane unavailable (transactions captured during a period of time when the System (lane or RSS) is deemed "unavailable"); and
	d) transactions captured when in lane mode: Maintenance.
648	The RSS shall identify – using an unusual occurrence (UO) code – transactions to be used as indicators to identify potential Hardware issues, Software issues or other System anomalies, including but not limited to:
	a) class mismatch of Transponder versus lane AVC;
	b) transaction without images;
	c) transaction with unusual number of axles (7+);
	d) wrong way vehicle (WWV);
	e) speed over one hundred (100) mph;
	f) same license plate number assigned to two (2) different transactions based on either same lane or adjacent lanes within one (1) minute of each other; and
	g) speed of zero (0) mph (not including auto flush transactions).
649	The RSS shall support manual audit of lane transactions including their disposition received from the OBOS.
650	Interfaces shall allow Authorized Users to quickly search by various query criteria, including but not limited to:
	a) lane transaction number;
	b) specific time and time range;
	c) Toll Facility;
	d) lane/Toll Zone;
	e) UO category;
	f) class mismatch; and
	g) any combination of these parameters.

ID#	REQUIREMENT
651	The RSS shall support the remote monitoring of Toll Zones by Authorized Users. Remote monitoring shall at a minimum include:
	a) observing lane transactions as they are created;
	b) being able to look at past lane transactions;
	c) reviewing ICPS images;
	d) security and environment conditions;
	e) observing Equipment status; and
	f) observing System status.
652	Error logs shall be transmitted to the MOMS and available to Authorized User in viewable form. Search and filter capability shall be provided to display and review up to 180 Calendar Days of data.
653	All Work and diagnostics performed by Contractor staff on the RTCS shall be recorded and automatically reported to the MOMS, including the technician identification, the time the Maintenance was performed (work order start and end times), and all status and recovery messages.
654	The RSS shall provide access to:
	a) ACSMS, including live and historical recordings;
	b) live and historical transaction records, including but not limited to video and images captured;
	c) audit application for transaction reconciliation and transaction accuracy verification;
	d) Operations reports, analytics and Dashboards;
	e) MOMS;
	f) CEMS; and
	g) all required LAN and WAN.

10.13.1.1 ROADWAY SUPPORT SYSTEM GENERAL ARCHITECTURAL REQUIREMENTS

ID#	REQUIREMENT
655	All RSS infrastructure and data shall be located within the contiguous United States.
656	The RSS shall include Disaster Recovery Design with either redundant RSSs or enterprise grade commercial cloud hosting with high availability and geographically separated redundancy.
657	RSS failover, either from one RSS to the other or between high availability zones or similar, may be manual or automatic. The failover RTO will depend on the failover mode: manual failover shall be achievable within four (4) hours; automatic failover shall occur within fifteen (15) minutes.
658	If the Design includes redundant RSSs, all data, including transactions, images, and Maintenance data as applicable to the Contractor's architecture, shall be replicated (or copied)

ID#	REQUIREMENT
	from the current Active data center to the Standby data center with maximum latency of fifteen (15) minutes. In the case of a failover this replication shall support a RPO of a maximum of fifteen (15) minutes with additional procedures to manually recover (resend) the missing data from the Roadside System.
659	If the Design includes a single cloud-based RSS with high-availability and geographically separated redundancy the RPO shall be fifteen (15) minutes for all data.
660	All web Services hosted by the RSS shall use a transparent method such as virtual IP, dynamic Domain Name System (DNS), or other method such that clients may access the Active service without reconfiguration after any failover event.
661	Only one (1) RSS shall communicate with the OBOS at a time.

10.13.1.2 Roadway Support System On-Premises Architectural Requirements

The Contractor may propose designs including RSS architectures which are On-premises, Contractor hosted, cloud based, or which are hybrid, including cloud hybrid architecture. If this architecture is proposed, the Authority can provide one (1) and one-half (1/2) standard 42U racks for location of primary RSS Equipment in the Authority Headquarters Building in Tampa, Florida, along with power and HVAC for this Equipment. Additionally, the same rack space can be provided in the Roadside Shelter building at the East Mainline Plaza. Finally, the Contractor may propose other locations which meet the RSS On-Premises Architectural Requirements.

ID#	REQUIREMENT
662	If the Design includes On-premises RSS, the Contractor shall install any On-premises primary RSS at the Authority Headquarters Building in Tampa, Florida or at an Authority-Approved site of the Contractor's choosing.
663	If the Design includes an On-premises or Contractor hosted DR RSS, the Contractor shall install any On-premises or Contractor hosted DR RSS at a location chosen by the Contractor and Approved by the Authority. The DR site shall be located at least 100 miles away from the primary site to ensure adequate separation from regional natural disasters such as earthquakes, hurricanes, floods, and wildfires.
664	If the Design includes On-premises RSS, any secondary or DR RSS shall be configured to meet the RPO requirements in the event of a failure of the primary RSS.
665	If the Design includes On-premises RSS, any On-premises DR RSS environment shall mirror the primary System in all Hardware and Software configurations, be kept up to date with all changes made to the RSS and be capable of performing all functions of the primary RSS as described in this Scope of Work and Requirements.

10.13.1.3 Roadway Support System Cloud Architectural Requirements

ID#	REQUIREMENT
666	If the Design includes cloud-based RSS(s), the Design shall utilize one of the following to ensure that all functions of the production environment will remain Operational if a disaster disables a single cloud data center or zone: • multiple instances hosted across separate datacenters, cloud availability zones, and/or regions; or • a single instance with automatic failover, snapshots, Standby instances, images, or similar methods between multiple cloud availability zones and/or regions.

ID#	REQUIREMENT
667	If the Design includes a cloud-based RSS using a single instance with failover between multiple cloud zones, or a similar concept, Requirements related to failover shall apply to failover of that single instance between cloud zones or other failover methods employed.
668	If the Design includes cloud-based RSS(s), they must be accessible only via site-to-site VPN, virtual private cloud connection, or similar connection accessible from Authority networks only. Public internet access to the servers shall be disabled.

10.13.1.4 ROADWAY SUPPORT SYSTEM BACKUP REQUIREMENTS

ID#	REQUIREMENT
669	The Contractor shall provide the means to back up the RSS(s).
670	The Contractor shall provide a solution for offline backup storage in two (2) physically diverse locations.
671	The Contractor shall provide data backup Software (and Hardware for non-cloud backup solutions) that allows remote full and incremental offline backup of RSS data and applications/configuration without manual intervention. In this context, "local" refers to backups stored at the same site as the servers being backed up, and "off-site" refers to backups stored at a remote location from the servers being backed up. The Contractor shall provide for the following server and database backups (full backups may be substituted for Incremental backups):
	a) incremental (daily);
	b) full (weekly);
	c) two (2) most recent full local backups retained at all times; and
	d) two (2) most recent full off-site backups retained at all times.
672	To facilitate failover in accordance with these Requirements, the Contractor shall provide for image backups by replicating/copying images between all RSSs.
673	RSS backups shall include both data and applications/configuration such that the backed-up servers and/or Services can be fully restored without the need to reinstall application Software or perform configuration. Full server "System image" backups are preferred.
674	The backups shall be Designed such that any RSS can be fully rebuilt from bare metal servers or newly provisioned cloud assets within forty-eight (48) hours.
675	If the Design includes a physical On-premises RSSs, the backup capability shall be supported with either data center shut down.
676	Notification of the status of the backup process including success and failure shall be transmitted to the MOMS.

10.13.1.5 VERSION TRACKING REQUIREMENTS

ID#	REQUIREMENT
677	The RSS shall maintain records of versions, time of receipt, and processing status of all files received from the THEA OBOS, Hotlists, toll rate schedules, lane configuration files, and lane executable programs that it received and/or created and that were successfully downloaded to the lanes. This history shall be maintained according to the retention period of each data type according to the data retention Requirements.

ID#	REQUIREMENT
678	Reports and screens shall be made available to verify the versions and the file download status for the above mentioned data.
679	The System shall provide the capability to track the versions of lane executable programs installed at each Toll Zone.

10.13.1.6 DIAGNOSTICS

ID#	REQUIREMENT
680	The RSS shall provide self-diagnosis functions to detect and report on the status and functioning of the RSS Hardware devices, third-party Software, communications, processes, tasks, and Software applications, as defined in the Approved Design Document.
681	All RSS Hardware and Software failures detected shall be reported to the MOMS.

10.13.1.7 DATA SECURITY

ID#	REQUIREMENT
682	The Contractor shall ensure that any data records, once entered into the System, cannot be deleted or changed until purged according to the retention policy.
683	Data records and files shall only be appended to and not edited or deleted.
684	If a manual transaction write-off is required (marking the transaction down to zero fare or otherwise flagging it as uncollectible), only Authorized Users shall be permitted to perform the write-off, and the RSS shall maintain a complete audit trail.

10.13.1.8 TRANSACTION AUDIT AND VERIFICATION

It is critical that all transactions created at the Toll Zone are transmitted to the RSS and a verification of this data transmission must be performed by the System.

ID#	REQUIREMENT
685	The audit process shall be an end-to-end independent validation of the end of day summary counts from the roadside controller or other device(s) as determined during Design to the detailed transaction data at the RSS.
686	If the validation process fails for any reason, failure messages shall be created and reported to the MOMS. If the audit process determines that transactions are missing, the missing information shall be identified and reported to the MOMS.
687	If the audit process is successful, then the audit for the Toll Zone for the Revenue Day shall be deemed “complete,” and the System shall track this status of the audit on reports.
688	Once the Revenue Day is “complete,” the data reported for that day should not change. Any condition, for example toll waiving, that results in changes to the data shall be identified and an Alert generated.

10.13.1.9 RSS UNINTERRUPTIBLE POWER SUPPLY

If the Contractor is proposing an On-premises RSS, the following Requirements related to UPSs will apply.

ID#	REQUIREMENT
689	All On-premises Hardware and Equipment required to operate the RSS shall be protected by a Contractor-supplied UPS.

ID#	REQUIREMENT
690	For all On-premises RSS, the Contractor shall provide smart PDUs with remote control and monitoring capabilities to manage the RSS power distribution.
691	Authorized Users shall have remote access to the smart PDUs to manage power to critical devices.
692	The RTCS shall monitor the smart PDUs and any changes to status, switching of state for outputs, or other critical actions and status changes as determined during Design shall generate Alerts.
693	The UPS shall be sized to support the RSS for a minimum of two (2) hours on battery.
694	All UPS critical status updates shall be reported to the MOMS including on battery, low battery and critical low battery and shall generate Alerts as determined during Design.
695	When utility power is restored and Hardware/Equipment is no longer being powered from the UPS batteries, this shall be reported to the MOMS.

10.13.1.10 DATA SUMMARIZATION

ID#	REQUIREMENT
696	In order to support Authority reporting functions, the Contractor shall provide a data dictionary and entity relationship diagram complete with defined tables, views, primary keys, foreign keys, indexes, and relationships. The Contractor shall provide the data dictionary and views listed below.
697	**Transaction Detail Data View:** Listing of transaction identification and all corresponding datapoints as listed in the data dictionary. Parameters shall include start date/time, end date/time, UO category, facility, and Toll Zone. This view shall be used by the Authority to create transaction summary reports, conduct detailed audits of transactions to assess System performance and functionality.
698	**Finance Traffic Details Data View:** Summary of total transactions that occurred in the lane grouped by vehicle class, transaction type and Toll Zone with search parameters of start date/time, end date/time, facility, and Toll Zone. This view should also include a summary of assigned fares and revenue class associated with the transactions in the counts. This view shall be used by the Authority to report on roadway usage.
699	**Transactions Sent to OBOS Data View:** Summary of total transactions sent to the OBOS grouped by vehicle class, transaction type and Toll Zone with search parameters of start date/time, end date/time, facility, Toll Zone and timestamp reference (transaction time, time initially sent to OBOS, time of updates sent to OBOS (such as plate data)). This view should also include a summary of assigned fares associated with the transactions in the counts and any dispositions received from the OBOS. This view should be filterable by transaction status including pending plate data and final status. This view shall be used by the Authority to track transactions sent to OBOS from a financial perspective. This Dashboard also provides a transaction reconciliation for the Contractor-provided System including data sent or received from the Contractor-provided System with external interfaces.
700	**Image Review Services Data View:** Total number of pending review images and reviewed images grouped by date and by number of image reviews pending, image reviews complete (confirmed value sent to OBOS), number of images escalated to a supervisor, number of images rejected and number of images skipped with search parameters for start date/time, end date/time, facility, reviewer, and timestamp reference (transaction date or review date). This view shall be used by the Authority to monitor image review trends, backlogs, and Contract compliance.

ID#	REQUIREMENT
701	**Rejected Image Data View:** Total number of rejected images grouped by reject reason, with search parameters of start date/time, end date/time, facility, Toll Zone and timestamp reference (transaction time or review time). This view shall be used by the Authority to track trends of reject reasons and ensure Contractor compliance with image quality Requirements. This view shall be used by the Authority to monitor image rejection trends and Contract compliance.
702	**Image Transaction Trend Data View:** Summary of IBTs, image video clips, System logs, and image files, showing counts and percentages of images processed using ALPR or MIR, grouped by jurisdiction with search parameters of start date and end date. This view shall be used by the Authority to monitor image processing performance based on license plate jurisdiction.
703	**Maintenance Ticket Detail Data View:** List of Maintenance ticket identification and all corresponding datapoints listed in the data dictionary. This view shall be used by the Authority to create Maintenance activity summary reports to analyze trends and Contract compliance.
704	**Maintenance Ticket Summary Data View:** Summary of all Maintenance tickets grouped by Priority and repair times with search parameters for facility, Toll Zone, lane, device type, start date/time, and end date/time. This view shall be used by the Authority to analyze Maintenance trends and Contract compliance.
705	**Equipment Tracking Detail Data View:** List of Equipment serial numbers and all associated datapoints listed in the data dictionary. Search parameters for Equipment location, Equipment name, Equipment status and Equipment Warranty end date. This view shall be used by the Authority to track and monitor the Contractor's Equipment inventory and Equipment performance.
706	Detailed Documentation of all data elements listed in this section shall be provided to the Authority by the Contractor as part of the SDDD.
707	In the event additional data is received that changes the summary counts previously generated, then an alarm message shall be generated, and the System shall automatically re-summarize the data until a Configurable period has lapsed after which the re-summarization shall be performed manually.

10.13.1.11 TRANSACTION PRE-PROCESSING

ID#	REQUIREMENT
708	The RSS shall ensure all transactions are transmitted to the THEA OBOS. Transactions will be pursuable or further processed and dispositioned in accordance with the Approved Business Rules and in compliance with the Approved ICD.
709	The RSS shall pre-process all transactions in accordance with the Approved Business Rules in order to filter incorrect transactions that may result from Equipment failures and lane logic issues or same Transponder read within Configurable conditions.
710	In scenarios where multiple Transponders with valid status are reported, the System shall select one (1) Transponder with valid status to be included in the transaction (per the Approved Business Rules) as the primary Transponder and transmitted to the THEA OBOS.
711	In cases where an ETC transaction and an IBT are created for a vehicle (in case of buffered reads or lane logic issues), then the RSS shall determine which transaction to process and which transaction to identify as a duplicate based upon Configurable parameters Approved during the Design process. In case of buffered read transactions, the Transponder-read time shall be used as the transaction time.
712	Alerts shall be created and reported to the MOMS in the event such exceptions identified in this section exceed a Configurable threshold.

10.13.1.12 RETROACTIVE OVERRIDES AND FARE ADJUSTMENTS

ID#	REQUIREMENT
713	The RSS shall include the capability for transactions to be held for a Configurable period before transmission to the OBOS. The initial hold period shall be set to zero (0) hours.
714	The RSS shall provide retroactive fare override functions so that Authorized Users can select transactions to retroactively override the assigned 'indicated fare' per the Approved ICD, so long as the transaction has not yet been sent to the OBOS. The retroactive rate override shall be fully logged to capture the identity of the Authorized User making the change as well as the date and time of the override.
715	The RSS shall apply the retroactive rate overrides to transactions in place of the scheduled rates at the time the transaction occurred.
716	The RSS shall not allow a user to increase toll rates through a retroactive rate override.
717	When a retroactive rate override is created, the RTCS shall ensure that transactions which occurred during the retroactive override window but have not yet been transmitted to the OBOS are adjusted to receive the toll rates defined in the override prior to being transmitted.
718	The System shall provide a transaction search and adjustment screen(s) where Authorized Users can enter the selection criteria, retrieve the transactions, and make bulk adjustments or waivers. This capability shall allow the user to select a group of transactions to which the adjustment will apply and enter a comment. The Authorized User shall be allowed to select/deselect specific transactions within the group. For example, the Authority may want all transactions at two (2) Toll Zones between 7:00 AM and 8:30 AM to be waived due to an incident in the expressway.
719	The System shall provide Authorized Users the capability to adjust transactions while preserving the original transaction, including the original transaction date and amount. Any adjustments shall be tied to, but not change, the original transaction. The System shall provide the capability to perform adjustments before or after the transaction is transmitted to the OBOS. Adjustments for transactions already transmitted to the OBOS will be retroactive corrections performed manually to keep the RSS up to date with corrections made within the OBOS. The System shall fully log –including the adjustment reason - all such adjustments made by Authorized Users.
720	Authorized Users shall have the ability to enter/select details related to the adjustment and waiver as follows:
	a) type of incident (e.g., accident);
	b) Toll Zone and lane; and
	c) incident start and end time.

10.13.2 ROADWAY SUPPORT SYSTEM (RSS) APPLICATION SOFTWARE

ID#	REQUIREMENT
721	The Contractor shall develop, furnish, and install a single browser-based RSS GUI application Software for the RSS that supports all user functions, including:
	a) reporting, MOMS, and image processing;
	b) System architecture to provide the necessary databases to support the synchronization and transfer of the necessary data to support the single GUI Requirement; and

ID#	REQUIREMENT
	c) Single Sign-On (SSO) capability. All rules for password security such as characters and rotation are enforced and passed between network and application. Any SSO exclusions shall be identified by the Contractor during the Design process and Approved by the Authority.
722	Any browser client connected to the Authority System network and presenting correct user credentials shall be granted permission to access and run the RSS GUI application.
723	The RSS GUI shall be a browser-based application compatible with the Authority-Approved current version, or immediate prior Authority-Approved version, of all of the following web browsers:
	a) Microsoft Edge;
	b) Mozilla Firefox; and
	c) Google Chrome.
724	The RSS GUI shall be updated as needed to maintain compatibility with future versions of these Authority-Approved browsers throughout the life of the Contract and shall be updated within six (6) months of release of a compatibility breaking update.
725	The System shall utilize Role-Based Access Control (RBAC) such that a user's access privileges to the appropriate menus, screens, tabs, reports, and other System functionality shall be made available via the user's assigned role, and all others shall not be accessible by the user.
726	Changes to the System data and System parameters shall be through screens, and only Authorized Users shall have access to these screens.
727	All access to the application and changes to the data shall be recorded and tracked, and the System shall provide an audit trail for all data modifications and parameter changes.
728	Authorized Users shall have access to the data modifications and parameter changes initiated by users.

10.13.2.1 GRAPHICAL USER INTERFACE (GUI) REQUIREMENTS

The GUI Design must include accepted industry design standards for ease of readability, understanding and appropriate use of menu-driven Operations, user customization and intuitive operation.

ID#	REQUIREMENT
729	The GUI Design and development shall incorporate human factors and usability engineering and be optimized for speed, as well as provide the following controls, including but not limited to:
	a) menus (such as pull down, popup, cascading, leveling, etc.);
	b) windows (allowing for multiple windows within the application, such as to navigate back without having to re-enter information);
	c) informational messages;
	d) positive feedback (such as visual cues, auditory signals and or messages) to provide clear, immediate, and encouraging responses to user actions;
	e) provide warning and/or confirmation messages when appropriate as defined during the detailed Design process;

ID#	REQUIREMENT
	f) exception handling and error dialogs, including logging the error;
	g) control icons, links and action buttons;
	h) data entry fields, combo boxes, check boxes;
	i) searching and filtering inputs;
	j) provide the capability for the user to print screens;
	k) display (read-only) fields; and
	l) general and context-specific help menus.
730	Data entry screens shall have Configurable mandatory fields that require data entry prior to continuing through the process.
731	Provide field-level validation (server-side enforced) and format verification upon exiting data fields applicable to pre-defined formats or standards, including but not limited to:
	a) alpha-numeric;
	b) date;
	c) time;
	d) special characters;
	e) length;
	f) Toll Zone and Lane ID; and
	g) Transponder numbers.
732	Provide field-level “tooltips” or other interactive help, Configurable by the System administrator, that provide specific guidance on any field presented, including but not limited to:
	a) alpha-numeric fields;
	b) date fields;
	c) time fields;
	d) special characters;
	e) username and password;
	f) length restrictions;
	g) Toll Zone and lane ID; and
	h) Transponder fields.
733	Online help shall be provided for each screen, each editable field, and each selectable option within each screen.

10.13.2.2 ACCESS CONTROL

ID#	REQUIREMENT
734	Capability shall be provided to assign application screens and reports access privileges to users based on RBAC, as defined in a matrix during System Design with Authority input and Approval.
735	For some screens, certain access levels/roles may only be allowed to view the contents and not allowed to enter any data.
736	Access privileges shall be set up to allow Authority-authorized personnel to make changes to the access privileges at any time and shall be based upon RBAC.

10.13.2.3 SCREENS AND REPORTS REQUIREMENTS

ID#	REQUIREMENT
737	All data entered or generated in the System shall be retrievable through reports and screens.
738	The RSS GUI shall include a reports menu which shall be organized by category of reports and shall be intuitive to users and easily accessible based on RBAC.
739	Data shall be summarized as needed to improve report generation performance.
740	Reports and screens shall be made available through the System on demand and on an ad-hoc basis, shall have various selection and sort criteria, and shall be intuitively Configurable with user-selected criteria from drop-down data elements as defined during detailed Design process.
741	The location selection criteria shall include Toll Facility, Toll Site, Toll Zone, lane, and direction of travel.
742	The date selection criteria shall include but are not limited to the ability to generate the same report by hour, day, date range, weekly, monthly, yearly, and year-to-date.
743	Data shall be presented as an accumulation or individually for the selected criteria. This capability shall be Configurable and applicable to individual Tolling Site and different transaction types whereby the user can choose the data to be presented as an accumulation of Toll Zones and/or transaction types or as individual Toll Zones and/or transaction types.
744	Reports developed shall allow the Authority to audit and reconcile the transaction data from end to end, from the Toll Zone through to the RSS and the THEA OBOS in accordance with this Scope of Work and Requirements. All reports and dashboards derived from the same underlying data source(s) shall be mutually consistent and the data presented shall reconcile.
745	The System shall provide users with the capability to filter, sort, and aggregate report data to support comparative analysis and statistical calculations.
746	All reports shall show the status of the validation/audit process, as defined by the Authority and other relevant statuses that indicate items, including but not limited to whether:
	a) all data has been obtained from the lanes;
	b) the data has been re-summarized;
	c) the transactions have been transmitted to the THEA OBOS; and
	d) the report is complete.
747	The date and time of the last transaction processed shall be included in all applicable reports.
748	The System shall generate an Alert when transaction reporting is delayed.

ID#	REQUIREMENT
749	All reports shall include individual totals, subtotals, and grand totals as appropriate, and such totals shall be maintained when data is exported to other formats.
750	Reports shall have the capability to select the date type as defined during the Design, including but not limited to:
	a) revenue date;
	b) transmission to the THEA OBOS date;
	c) process date;
	d) transaction date; and
	e) a combination thereof, as designated by the Authority.
751	Reports shall use conditional formatting to identify exceptions and data that are outside the normal trend, as defined during the detailed Design process.
752	All reports and screens shall have the capability to be printed or saved in various formats (both compressed and uncompressed), such formats to be Approved during the Design process, including but not limited to:
	a) PDF;
	b) plain text format (TXT);
	c) Microsoft Excel (2021 version and later);
	d) delimiter-separated values;
	e) hypertext markup language (HTML); and
	f) extensible markup language (XML).
753	A report generation feature shall be available for Configuration and shall permit an individual with permission to request selected reports for auto delivery by email or to a designated server according to a routine or custom-specific interval.
754	Selected reports shall be automatically generated and made available to authorized personnel at the start of the Business Day or at other appropriate time as designated or requested by the Authority.
755	Data from summary reports (daily, weekly, monthly, yearly) scheduled to run daily, weekly, or monthly shall be automatically exported as scheduled to a specified file format and made available on the Authority-designated server.
756	The System shall have the ability to drill down all high-level reports/screens to the next level of detail and to details as determined during the Design process.
757	Authorized Users shall have the ability to display and review the images and event details associated with the selected transaction from the drilled-down details.
758	Authorized Users shall also have the ability to view the contents of files that are received by the RSS and transmitted by the RSS in a readable format. If files are compressed or encrypted, the necessary Software tools shall be provided to view their contents. If the user selects a specific file, the contents of the file shall be displayed, and the user shall have the ability to save the contents as a .csv file and in a useable Excel format.

ID#	REQUIREMENT
759	Where applicable, data shall also be presented in graph forms and chart types, and the user shall be able to select presentation form from a variety of graphic styles. Report Designs shall be presented and finalized during the Design process.
760	Data shall be organized and summarized in a manner to allow for fast report generation.
761	The Contractor shall provide queries, data fetching algorithm, and reports that are optimized for performance including rendering results onto screens and reports. The Contractor shall optimize reports to support report generation in a reasonable time, as determined by the Authority. Reports performance shall be tested and Approved by the Authority.
762	Additionally, after the deployment and implementation of the System, the need may arise to create additional reports and modify implemented reports, and the Contractor shall support such additions and/or modifications up to five (5) additional reports at no cost to the Authority.

10.13.2.4 ROADWAY SUPPORT SYSTEM REPORTS

ID#	REQUIREMENT
763	The Contractor shall provide reports within the RSS GUI to audit and reconcile the System and validate System performance. The Authority shall have access – based on RBAC – to all reports provided.
764	Report Designs and templates shall be presented by the Contractor and reviewed by the Authority during the Design process and Approved.
765	Transaction Audit Report: This report shows the status of the transaction transmission from the Toll Zone to the RSS, the audit status, the failed transactions, all exceptions, and missing transaction sequence numbers at each of the Toll Zones. The communication status between all subsystems and any roadside controllers or servers shall be displayed. The report shall also include the date the transactions were received at the RSS and the days lagging. It also shows the transmission status of the transactions to the THEA OBOS.
766	System Audit Trail Reports: Weekly and monthly reports shall be made available that show the modifications made by the users to System parameters and ability shall be provided to obtain the details of the modifications.
767	System Exceptions Report: The System Exceptions report shall display transactions that are considered exceptions, including but not limited to duplicate transactions, dual Transponders, RSS filtered transactions and non-Interoperable Transponder reads. Exception handling errors and the disposition of these exceptions shall also be displayed along with the transaction.
768	Image Reconciliation Report: The Image Reconciliation report shall provide the ability to match transactions to images and to help identify missing images. These reports shall not only reconcile the actual images saved to what was expected but also verify that the images were successfully transmitted to the RSS.
769	Transaction Reconciliation Summary and Detail Reports: Yearly, quarterly, monthly, weekly, and daily reports that show ETC and IBT transmission reconciliation for all of the Toll Zones. These reports shall validate that all of the ETC Transactions and IBTs received from the lanes were transmitted to the RSS and transmitted to the THEA OBOS. Reports shall be available by transaction day and transmit day. Transmit day reports shall show the files transmitted and acknowledged by the receiving System. Transaction Reconciliation reports shall be available summarized and detailed.

ID#	REQUIREMENT
770	Toll Rate Schedule Report: This report shall provide user-selectable criteria to include at a minimum, toll rate schedule and transaction types. The toll rate for each vehicle class will be displayed by Toll Zone for the effective date selected. The report shall be used by Operations and management staff to verify future, current and past versions of released and unreleased toll rate schedules based on the effective date selected.
771	Hardware Status Report: This report shows the Hardware status codes and descriptions based on the selected date range, Toll Zone, lane and type of Hardware failure. This report allows Maintenance staff to audit the state of all Hardware components in the lanes.
772	Transaction Number Gap Report: This report shall provide information on gaps in transaction numbers based on Toll Zone and lane for the specified date range.
773	Unusual Occurrence Report: This report shall be used to provide Operations and Maintenance staff with information regarding unusual occurrences with lane data to identify potential Hardware issues, Software issues or other System anomalies. The report shall include the Toll Facility and Toll Zone and may be filtered by UO code. This report includes lane number, transactions date and time, lane status, transaction number, and a description of the UO.
774	Lane Operations Report: This Operational report lists and summarizes vehicle transactions and Equipment messages that are generated in the lanes. This report is an audit tool that presents all lane activity for a specified Toll Zone and desired transaction date and time period. Numerous selection and filter criteria shall be provided to help identify problems. Detailed information regarding the transaction and event shall be included.
775	Transaction Reports: Daily, weekly, monthly, quarterly, and yearly transactions and reports showing traffic, average speed, and vehicle class by transaction type. Class mismatch transactions shall also be identified. Transaction reports shall be summarized and detailed.
776	Transaction Summary Reports: These reports show daily, weekly, monthly, quarterly, yearly, and comparative transaction and revenue, average speed, by vehicle class and transaction type. The summary data shall drill down to the Transaction Detail Report.
777	Transaction Detail Report: The transaction details shall be provided in this report including lane status, Equipment status, transaction status and various lane flags. Users shall be able to access the bit descriptions in all cases where information is coded. The report shall be used to investigate discrepancies and issues.
778	Transaction Adjustment Report: Original and adjusted transaction details shall be provided in this report. This report shall be searchable by facility, direction, Toll Zone, and by date and time. This report shall be used to investigate use of retroactive manual overrides, manual adjustments, and transaction write-offs.
779	POSI List Transmission Report: The POSI List Transmission report shows the status of the POSI List transmissions to the RSS and all further RTCS internal transmissions and processing. Summary information related to the number of Transponders, time acknowledged by the RSS, time put into production use, status of processing, and other data shall be provided to verify results and Performance Requirements. Failures to process POSI Lists in accordance with the Requirements shall be identified.
780	Image Transmission Detail Report: This Operational report lists information on images from the lanes for a user-defined lane created date. Capability shall be included to show image records where it took longer than a user-defined number of hours for the image to arrive at the image server(s).

ID#	REQUIREMENT
781	Image Processing Performance Report: The Image Processing Performance Report shall display ALPR performance statistics by state jurisdiction. Problematic lanes, Toll Site, Toll Zone and state jurisdictions shall be identified. The report shall also include a breakdown of the ALPR performance by confidence levels, if ALPR is used. The report selection criteria shall include at a minimum state jurisdiction, Toll Sites, Toll Zone, and lane and be sortable by each selected criterion. The selected criteria shall be defined during the detail Design process.
782	File Transfer Performance Report: This Operational report lists files that have been created and sent from the RSS by component for either the created date range or sent date range selected by the user. Information displayed include, file information, created date and time, sent date and time and process time. This report verifies System compliance to Performance Requirements. File/data transmissions to the lanes shall include confirmation of successful delivery at each lane.
783	Image Quality Report: This report provides comprehensive insights into the image quality of license plate captures, analyzing key metrics such as resolution, clarity, contrast, and the presence of artifacts or distortions. Leveraging automated quality metrics, periodic manual sampling, consistency checks, user feedback, and continuous monitoring, the report highlights any deviations from predefined thresholds, ensuring the effective Operation of the ICPS**.**
784	Image Review Production Report: This report provides a detailed overview of image review production for a specific timeframe, including manual-reviewed images and ALPR processed images. It includes metrics such as the number of images manually reviewed, the number of images processed through ALPR, and the number of pending transactions awaiting review.
785	Image Review Accuracy Report: This report offers insights into the accuracy of image review, presenting metrics on the accuracy of manually reviewed images and those processed through ALPR. It includes data on the percentage of images accurately reviewed manually, as well as the ALPR accuracy rate.
786	Rejected Trx Report: This report offers detailed insights into rejected transactions within a specified time frame, categorizing reasons such as obscured plates, missing license plates, poor image quality, and other identified issues. It provides both percentages and counts of rejected transactions for each category.
787	Audit Summary: The audit summary report provides an overview of recent audits conducted, including the auditor's name, audit type, description, and the number of transactions audited. It summarizes the key findings, results, and any actions taken to correct deficiencies of each audit.
788	Audit Detail: The audit detail report provides a comprehensive breakdown of each audit conducted, displaying all aspects including the auditor's name, audit type, description, number of transactions audited, and detailed results.
789	Exempt: The exempt report provides a detailed list of license plates that have been added to the exempt list via queue review and manual processes. Users can specify a date range for the report, allowing them to review exempted plates within a specific timeframe.
790	Misread Trx: The misread transaction report offers detailed information on transactions that were audited and found to have errors. It provides a comprehensive breakdown of audited transactions flagged for misreads or inaccuracies. It includes fields like plate number and confidence levels (before and after the audit).

ID#	REQUIREMENT
791	Traffic Count: The Traffic Count report allows users to analyze traffic data based on date/time and Toll Zone parameters. It provides comprehensive metrics including total transaction count, ETC and IBT counts, exempt transactions, framing rules/vehicle correlation issues, speed, and other relevant columns. Users can specify date/time ranges and Toll Zones to generate customized reports, enabling detailed analysis of traffic patterns and performance across different Toll Zones and time periods.
792	Speed and Congestion: This report presents the average speed of vehicles passing through each Toll Zone. Users can customize the report by selecting date/time parameters and specifying Toll Zones of interest. The report allows users to view data in flexible increments, ranging from fifteen (15) minutes to larger intervals.
793	Maintenance Report: The Maintenance Report for the RTCS provides detailed information on the System's components, including cameras, AVI readers, servers, lane controllers, switches, routers, and other relevant Equipment. Users can access Maintenance data such as repair history, Maintenance schedules, current status, mean time to repair, mean time between failures (MTBFs), repair response times, and any reported issues for each component. The report criteria can include repair of the device at a location (i.e., the center camera in lane 2 at plaza 50) from the Go-Live of the RTCS, as well as repair of the device at a location from time the device was placed in service (i.e., tracking when a new camera was put in and how many repairs this new camera has had). The report enables efficient tracking of Maintenance activities and helps ensure the optimal performance and reliability of the tolling System's infrastructure.
794	ACSMS Report: The ACSMS Report provides details on all physical system access including but not limited to date and timestamp, location details, details of the accessor or indication of unauthorized access, and links to the ACSMS video for the access event.

10.13.2.5 MONTHLY PERFORMANCE REPORTS

ID#	REQUIREMENT
795	The RSS shall provide reports to measure compliance to the stated Performance Requirements.
796	Availability – AET Lanes: This report will show each travel lane by Toll Zone along with uptime, downtime, exception time, availability percentage calculated to 0.001 percent for the reporting period, and points assessed per travel lane. The report shall contain a summary, the information from which the Contractor's Monthly Performance Scorecard is generated.
797	Availability – RSS: This report shall display a list of functional areas (to be determined during System Design) within the RSS along with a drill down to each of the components therein that contribute to the availability of the RSS along with uptime, downtime, exception time, and availability percentage calculated to 0.001 percent for the reporting period, and points assessed per line item. The report shall contain a summary, the information from which the Contractor's Monthly Performance Scorecard is generated.
798	Operations – ETC Transaction Transmission Timeliness: This report shall show for each day in the reporting period total ETC transactions sent to the OBOS, total number of transactions not sent to the OBOS within a period meeting this KPI, and the percentage of transactions not sent to the OBOS within a period meeting this KPI. This report will also contain a summary showing the monthly totals for the counted items and the average for the calculated percentages. The summary information will be used on the Contractor's Monthly Performance Scorecard. This report shall use timestamps logged by the RTCS to determine the time interval between the transaction date/time, and the date/time that the transaction was acknowledged by the OBOS.

ID#	REQUIREMENT
799	Operations – IBT Transmission Timeliness: This report shall show for each day in the reporting period total image transactions sent to OBOS, total number of image transactions not sent to the OBOS within a period meeting this KPI, and the percentage of transactions not sent to the OBOS within a period meeting this KPI. This report will also contain a summary showing the monthly totals for the counted items and the average for the calculated percentages. The summary information will be used on the Contractor's Monthly Performance Scorecard. This report shall use timestamps logged by the RTCS to determine the time interval between the transaction date/time, and the date/time that the transaction was acknowledged by the OBOS.
800	Operations – ETC Transaction Accuracy: This report will display the number of ETC Transactions reviewed by the QA person(s), the number of ETC Transactions that failed the QA accuracy check, and the System calculated accuracy calculated to 0.001 percent, as well as the number of assessed points for the month. The data for the report will be provided by the Authority (or designee) reviewer, and a screen for this information to be entered into the System will be required. This information, once collected and calculated by the System will be used on the Contractor's Monthly Performance Scorecard.
801	Operations – Image Transaction Accuracy: This report will display the number of IBTs reviewed by the QA person(s), the number of IBTs that failed the QA accuracy check, and the System calculated accuracy calculated to 0.001 percent, as well as the number of assessed points for the month. The data for the report will be provided by the THEA (or designee) reviewer, and a screen for this information to be entered into the System will be required. This information, once collected and calculated by the System will be used on the Contractor's Monthly Performance Scorecard.
802	Operations – Image Quality: This report will display for each day in the reporting period, the total number of image transactions processed, total number of image transactions rejected (from THEA OBOS feedback per the Approved ICD), total number of images rejected for reasons under control of the Contractor (to be determined during System Design process), and the percentage calculated to 0.001 percent. The report shall also have a summary showing the monthly totals of each plus the assessed points for the month. The summary information will be used on the Contractor's Monthly Performance Scorecard.
803	POSI List File Communications: This report will show for each day in the reporting period any endpoints (RSS Software applications, roadside controllers, etc.) that require the POSI List file along with a total number of times within the reporting period that the POSI List was not received and applied within fifteen (15) minutes. Each of these lines will also show the number of updates not received and applied within fifteen (15) minutes along with the value equal to the number of updates received from the OBOS minus the number of updates received and applied. Last column in the body of the report is the number of points assessed for each day, the formula to be finalized during System Design.
804	Performance Reporting –Contractor's Monthly Performance Scorecard: This report is intended to be a single page quick look at the performance of the Contractor and System for the reporting period. The aforementioned reports will provide the data that will be used to populate this report, a sample of which is shown in Table 11-2.
805	Performance Reporting – Historical Performance: This report will show the Contractor's performance on each of the Performance Standards for the last twelve (12) months.

10.13.2.6 DASHBOARDS/REAL-TIME MONITORING

ID#	REQUIREMENT
806	The Contractor shall provide a real-time Dashboards application developed during the Design process to monitor the RTCS in real-time. The Dashboards shall include but not be limited to real-time monitoring of Toll Zone traffic, transactions, Maintenance data, Operational modes for Toll Zones, incident modes/status, metrics, and System performance (includes KPIs) monitoring. There should be at least one (1) screen that includes monitoring data/Dashboard for all Toll Zones.
807	Authorized Users shall have the capability to Configure and customize their Dashboards to display the relevant data/graphs and video. The capability for Dashboard displays that are layer Configurable by the user is highly encouraged.
808	Authorized Users shall have the capability to drill down to each lane to review and monitor detailed events as they occur for each transaction (including exception or unusual occurrence transactions).
809	The Dashboard application shall provide full Toll Zone and lane monitoring which has continuous, current monitoring information for each lane including Equipment status.
810	Users shall have access to the detailed data and trending graphs directly from the pictorial and Dashboard view.
811	Users shall be able to easily maneuver through Dashboard screens and view data, and different colors and pictures shall be used to bring critical events to the user's attention. Tooltips shall be used to provide additional information, guidance, or context without cluttering the interface.
812	Summary data by transaction type for all Authority Toll Facilities and by Toll Site and Toll Zone shall be displayed, and users shall have the ability to drill down to the details. If a specific Toll Zone is selected, real-time transaction and event level data by lane shall be made available, and users shall have the ability to view the transaction images through this screen.
813	Dashboards shall display various comparative transaction and revenue trends, and forecasts.
814	All Priority 1 alarms shall be displayed in color (to be defined during Design) and shall be audible to direct attention to the failure. Operational Alerts shall also be displayed on the Dashboard.
815	Users shall be able to easily identify problems (traffic or Equipment) on the lanes and initiate a MOMS work order from the Dashboard. Problems shall be displayed on a pictorial map of the roadway to identify any Toll Zone with an issue.
816	In addition, the real-time monitoring shall provide detailed real-time information about the AVI subsystem performance, the AVDC subsystem performance, ICPS subsystem performance, transaction workflow status with Alerts, image review status (backlog, pending, reviewed, speed), System errors (missing image, duplicate, etc.), average speed, and volume monitoring to assist in diagnosing and investigating problems. Data pertinent to traffic monitoring and Maintenance shall be displayed in real-time.
817	The following Dashboards shall be provided:
	Image Review Backlog Dashboard - The Dashboard provides real-time insights into the image review process, including backlog, pending, and reviewed images.
	Image Review System Errors Dashboard - The Dashboard offers visibility into image review System errors such as missing images, duplicates, and other potential problems occurring within the image review application.
	ALPR Dashboard – The Dashboard offers visibility into ALPR statistics such as average confidence level, auto-pass rate, and other relevant statistics. It should identify individual

ID#	REQUIREMENT
	cameras with degraded images via low ALPR confidence and other ALPR issues.
	Vehicle to Transaction Real Time Monitoring - The Dashboard will display transaction counts for each day of the week including the current day, with a refresh interval of every thirty (30) seconds. It will include data on various transaction types such as ETC, IBT, exempt, and transactions related to framing rules and vehicle correlation issues. Users will have the option to view transaction counts based on different Toll Zones or all.
	Vehicle Speed - This Dashboard provides real-time or near-real-time visibility into the average speed of vehicles passing through each Toll Zone. Users can customize the Dashboard by specifying Toll Zones of interest. The Dashboard allows users to view data in flexible increments, ranging from fifteen (15) minutes to larger intervals.
	Asset Monitoring - The Dashboard provides an overview of all assets in the Roadside Collection System, color-coded to indicate their state: green for good, yellow for issues, and red for not working. While not all assets need to be shown simultaneously due to their large number, the main Dashboard includes a visual indicator to highlight any assets not functioning optimally, allowing users to quickly identify areas requiring attention.
	RTCS Waterfall - The Waterfall Dashboard provides users with a comprehensive overview of the workflow within the System, offering insights into the state of transactions at any given time. It presents data on total transaction volumes, categorizing them by Transponder and video transactions and allows the user to drill down to any subsection of these transactions. An example for IBT would be information on ALPR and manually reviewed images. An example for Transponder transactions would be the agency group they belong to. It follows these transactions all the way to their final disposition (i.e., transaction fully sent to the OBOS). Also, the System should be smart enough to send out Alerts when the numbers are far from the normal value. For example: If the RTCS averages about 100,000 transactions a day, and one day the System only generates twenty (20) transactions, then an Alert should be sent.
	Data/File Transmissions – This Dashboard tracks the progress of data and/or file transmissions through each stage and their acknowledgements by the receiving entity.

10.13.2.7 PERIODIC STATUS EMAILS

ID#	REQUIREMENT
818	The RSS shall create and send periodic status emails that communicate System status for all major System components, including but not limited to the Roadside System at each Toll Zone, the MOMS, the image review Services, and the RSS in general.
819	These periodic status emails shall be mainly comprised of rich text, graphics, and other visual elements which communicate System status at a glance.
820	These periodic status emails shall be Designed and formatted natively for the email format and not consist solely of screenshots of existing Dashboards.
821	The RSS shall allow Configuration of the times or intervals at which the periodic status emails are sent.
822	The RSS shall allow Configuration of the list of email addresses to which the periodic status emails are sent.
823	The specific systems and subsystems, whose status are included in the periodic status emails, shall be agreed during Design.

10.13.2.8 USER MANAGEMENT

User setup and management is a critical task since the user access levels/roles created through the System

determines what privileges and access rights each user is granted.

ID#	REQUIREMENT
824	Access to any RTCS subsystem shall be controlled through the user access privileges set up through the System.
825	All changes to the System related to user management and user access privileges shall be Approved and documented through the change management process. Such changes include employee on-boarding and off-boarding, and access changes.
826	Authorized Users shall have the capability to add new users into the System, to update/modify existing users, and to disable users. When a user is terminated, or their account disabled, their access to all systems shall be immediately deactivated.
827	The user identification data shall include the username, job designation and identification number. Each user record shall also include a Configurable user expiration date in the System that is defaulted to three (3) years for permanent employees. The default expiration date is one (1) year for temporary employees. The System shall monitor for user expiration dates and shall send Alerts to a supervisory role a Configurable number of Days in advance of the expiration date.
828	The System shall monitor for user inactivity and send Alerts to a supervisory role a Configurable number of Days the account has been inactive.
829	All users shall be assigned a user ID and a default password which they are required to change when first accessing the application. All RSS applications shall provide a SSO capability. All rules for password security are enforced and passed between network and application. Any SSO exclusions shall be identified by the Contractor in the System Detail Design process.
830	Users shall have the ability to reset/change their password, and all security controls shall be instituted to be compliant with NIST, including but not limited to strength of the password, the reuse of old password, and changing password at Configurable intervals.
831	Access to all information on the Authority's toll collection network shall be limited to Authorized Users and shall be password controlled.
832	All user lane and application privileges shall be maintained at the RSS and transmitted to other systems for user validation.
833	The Contractor shall develop the matrix of access levels/user roles and allowed privileges during System Design with Authority input and Approval. The System shall allow for addition and changes to the access levels/user roles and addition of personnel in a secure manner. Authorized Users shall have the ability to activate, deactivate, and terminate user's access to the System in accordance with Approved Business Rules.

10.13.2.9 TOLL RATES AND SCHEDULE

ID#	REQUIREMENT
834	Only Authorized Users having the appropriate role, shall have the capability to view, create, or manage toll rates and schedules.
835	The GUI for viewing, creating, or managing toll rate schedules shall incorporate user-friendly design principles, including clear error handling, informative dialogs, and context-sensitive help. The interface shall provide fast response times, with key actions (e.g., loading schedules, saving changes) completing in under a baselined number of seconds under normal operating conditions.
836	At a minimum, capability shall be provided to establish toll rates based on facility, Toll Zone, vehicle class, and transaction type and shall support time of day and Holiday toll rates as defined during the Design process.

ID#	REQUIREMENT
837	Authorized Users shall have the capability to pre-establish the effective date/time the toll rates will be enabled. The System shall permit the Authority to schedule toll rates and changes in toll schedules in advance of the new rates becoming effective.
838	The System shall have the capability to perform an automated validation to confirm that scheduled toll rates and changes in toll schedules are successfully deployed and in effect. A message shall be transmitted to the MOMS in the event of any failure detected by the automated validation.
839	Authorized Users shall have the capability to establish a default toll rate to be used in the event of data unavailability or other conditions as determined by the Authority that would warrant the use of the default toll rate.
840	The System shall record and track the toll rate ID and toll schedule ID and their transmission status for audit purposes.

10.13.2.10 CONFIGURABLE PARAMETERS

ID#	REQUIREMENT
841	The System shall provide the ability for Authorized Users to modify the Configurable System parameters.
842	The System shall allow changes to Configurable parameters to be scheduled to take effect immediately or at a scheduled time as input by the user.
843	The System shall record and track all changes to Configurable parameters for audit purposes, including the date and time, the user making the changes, and other details as determined during Design.
844	When a new parameter takes effect, a notification shall be generated and reported to the MOMS.

10.13.2.11 RSS REVERSIBLE TOLL ZONE FUNCTIONS

ID#	REQUIREMENT
845	The RSS shall include functionality which allows Authorized Users to operate the reversible Toll Zones via an interface with the THEA Access Control Central System (ACCS) or directly via the RSS GUI.
846	The RSS GUI shall display via graphical representation the status (including but not limited to current operating direction, including if unknown, and any faults) of each reversible Toll Zone and the RSS shall communicate this status to the THEA ACCS via the ACCS interface.
847	The RSS GUI shall allow an operator to manually set the direction of individual reversible Toll Zones, as well as apply a single command to change the direction of all reversible Toll Zones simultaneously. Such commands shall be in effect in near real-time.
848	The RSS GUI shall display all direction related faults for each reversible Toll Zone, including but not limited to:
	a) if the reported operating direction does not match the expected operating direction;
	b) any reported direction control system faults or health issues; and
	c) failure to receive periodic direction status and health information for a Configurable period.

10.13.2.12 MAINTENANCE ONLINE MANAGEMENT SYSTEM (MOMS)

There will be a single MOMS that supports the RTCS Maintenance activities and Maintenance Operations, even if comprised of multiple underlying systems.

ID#	REQUIREMENT
849	The Contractor shall provide the single MOMS that supports Maintenance Operations for all Software and Hardware provided under this Contract. Any third party Software used as part of the MOMS solutions shall be tightly integrated with MOMS.
850	The MOMS shall automatically generate and track work orders for preventive Maintenance, corrective Maintenance, and emergency Maintenance.
851	The MOMS shall support the assignment of Maintenance Priority levels based on the System Configurable combination of severity level, facility, day and time.
852	Provide a MOMS that monitors, Alerts, and generates work orders in real-time for all processes, including but not limited to:
	a) network issues;
	b) file transmission issues;
	c) data exceptions;
	d) Hardware issues;
	e) Software issues or failures;
	f) database issues;
	g) reversing of the reversible express lanes;
	h) issues with jobs, processes, or data flows;
	i) low storage space for each subsystem (Configurable thresholds);
	j) Central Processing Unit (CPU) utilization (Configurable thresholds);
	k) CPU load (Configurable thresholds);
	l) file system mounts (if applicable); and
	m) disk IO (Input/Output)(Configurable thresholds).
853	Provide the MOMS that monitors, Alerts and tracks in real-time unusual activity triggered by users and systems, including but not limited to:
	a) IBTs above threshold;
	b) class mismatch and flushed transactions above threshold; and
	c) other activities that are not normal in daily toll Operations to be determined during the Design process.
854	Provide the MOMS that includes but is not limited to the following:
	a) receiving and monitoring status messages of all System Hardware and Software;
	b) is capable of work order manual entry by Authorized Users;

ID#	REQUIREMENT
	c) storing MOMS data in a database to allow for data recovery and flexibility in reporting the raw data (including via Ad-hoc reporting);
	d) tracking device failures and service requests;
	e) tracking Maintenance history of all assets for future replacement considerations;
	f) assigning priorities and actions to events;
	g) notifying (automatically) Maintenance personnel via Dashboards, SMS/MMS, and email;
	h) assigning work orders to Maintenance personnel;
	i) reassigning (manually) work orders to other Maintenance personnel;
	j) escalating (automatically) work orders to other Maintenance personnel;
	k) recording time of acknowledgement by Maintenance personnel;
	l) recording time of acknowledgement by all subsequently assigned Maintenance personnel;
	m) recording time of repair;
	n) recording time of Equipment and process recovery;
	o) recording completion of service calls;
	p) providing automatic Alerts for work orders not closed out in specified time;
	q) maintaining and tracking Repair Maintenance Activity;
	r) is capable of accepting and updating work orders via mobile device entries via secure communications;
	s) tracking all System application Software components and Hardware via an asset management module;
	t) is user Configurable to allow new equipment/devices to be added so that they may be selected from the application menus;
	u) is integrated with the RSS SSO;
	v) is capable of role-based security;
	w) containing an automatic System exception reporting for all processes that are not running;
	x) containing an automatic System workflow exception reporting for all items that are not processing correctly or are hung in the System;
	y) providing a time stamp of every activity performed to a ticket throughout its life cycle; and

ID#	REQUIREMENT
	z) providing reports on device failures and trouble resolution status detail which shall include all entries generated by technician or System since the ticket's initial creation, including but not limited to notifications, time recordings and attached documents. The time recordings shall not be changeable by the Contractor without Approval and any changed information shall be tracked and auditable within MOMS.
855	Provide the MOMS that supports Maintenance functions, including but not limited to:
	a) automatic System job/workflow/queue exception reporting and Alerts for all elements that are not processing correctly or are hung in the System;
	b) issuing electronic notifications via email or text to Maintenance staff when problems are detected;
	c) prioritization of failures and Alerts that is Configurable and generating Alerts when configurations are changed;
	d) for the calculation of repair times, and down time from the data entered by the Maintenance staff and automatically generated by the System; and
	e) scheduling of preventive Maintenance through the MOMS that generates automatic work orders at the scheduled times.
856	Provide a MOMS that supports asset management, including but not limited to:
	a) tracking of all System Hardware and Software items;
	b) tracking of all System Hardware and Software locations;
	c) tracking of all System Hardware and Software versions;
	d) tracking of all Maintenance and service agreements;
	e) maintains a list of vendors from where products were procured;
	f) associates the original purchase order number to the individual item;
	g) associates the original vendor number to the individual item;
	h) associates all Warranty information to the individual item;
	i) tracks spares and inventory levels including serial numbers, parent/child relationships (if any), costs or asset value, and associated Warranty information for installed Equipment and inventoried Equipment;
	j) provides a Configurable Alert prior to Warranty expiration; and
	k) provides a Configurable threshold quantity Alert for spare parts levels.
857	The System will record all configuration data, and will be versioned after each System component change, including application of System patches.
858	Make all MOMS screens available to all Authorized Users from the Authority.
859	The Authority shall have the ability to Configure the Priority level of each alarm and assign and change the escalation attributes.

ID#	REQUIREMENT
860	The MOMS shall support the generation of ad-hoc work orders by Authorized Users.
861	The MOMS shall automatically send an Alert to Maintenance staff once a work order has been generated.
862	Addition of alarms shall not require any changes to the MOMS and the Authority shall have the ability to indicate if an alarm should result in the generation of a work order and if an alarm should be considered in performance reporting.
863	Generating (automatically) daily, weekly and monthly Performance Reports as determined by the Authority during Design.
864	Provide the capability for Authorized Users to select MOMS Operational, management and performance report configurations based on drop-down entries based on the following but not limited to closed tickets, open tickets, tickets worked on by specific technicians, device type or other fields as defined during detail Design process.
865	Provide Authorized Users with Operational, management and Performance Reports from the MOMS that include but are not limited to:
	a) summarized and detailed alarm history;
	b) Maintenance paging and response history;
	c) work order status and tracking;
	d) Equipment inventory and tracking;
	e) Equipment availability;
	f) preventive Maintenance;
	g) pervasive Maintenance;
	h) corrective Maintenance;
	i) repair times for each of the priorities;
	j) Equipment use history;
	k) Equipment repair history (by device at a location (originally installed device and replacements since Go-Live of the site) and by an individual device since it was installed at the location);
	l) total System availability;
	m) subsystem availability for the Roadside System and RSS;
	n) Equipment versions, Software versions, firmware versions and serial numbers for all Equipment installed under this Scope of Work and Requirements;
	o) incident logs and lost revenue estimates based on guidelines to be determined during Design;
	p) MTBF calculation for any item that failed during the preceding and current Maintenance periods;
	q) Performance Reports detailing compliance to the Performance Requirements;

ID#	REQUIREMENT
	r) detailed list of parts replaced as a result of Maintenance actions, with an identification of Warranty versus non-Warranty replacement;
	s) status of removed parts and Equipment with an aging status for parts under repair or replacement (serial numbers, being repaired in Maintenance shop, purchase replacement part);
	t) an exceptions report summarizing all unusual or significant occurrences during the period;
	u) trend analysis for repetitive failure;
	v) status of spare parts inventory; and
	w) staffing report detailing positions, staff hours worked and performance.
866	Provide a MOMS that has the ability to receive status (success or failure), including but not limited to:
	a) backup;
	b) time synchronization;
	c) synchronization of primary and secondary systems;
	d) Software Updates; and
	e) file downloads.
867	In order to ensure that all Toll Zones are functional, all systems are Operational, all the processes are working, and file transfers are successful, Authorized Users shall have access to MOMS screens that can verify the status of Toll Zones, the System and various file transfers, including the files transmitted and received from the THEA OBOS.
868	Toll Zone and System status shall be shown in a pictorial view with the capability to drill down to the device causing the Alert and its associated error logs.
869	The MOMS screen shall show if required files were transmitted to all the lanes and what version is in use.
870	Users shall have the ability to re-initiate file transmissions in the event transmissions were not successful.
871	Screens shall be available that show all the alarms generated by the various systems and subsystems, including the operating system and the database.
872	Failure of all devices, processes, programs, and scheduled tasks shall be forwarded to a MOMS screen that is accessible to authorized staff.
873	Various events and error logs shall be provided for each program that shall assist the system administrator to investigate problems.
874	Data from the Alerts, logs, Hardware and Software status, work orders, tickets and any items in the MOMS shall not be deleted or modified for the duration of the Contract.

10.13.3 INTERFACES AND DATA REQUIREMENTS

ID#	REQUIREMENT
875	The Contractor shall provide data through its interfaces, in open, commercially-available formats, as necessary to meet the RTCS Requirements.
876	The Contractor shall provide access to the following data, at a minimum, as described below:
	a) data delivered via microservices, web services, or Batch files: including ETC Transaction or IBT data required to meet the Performance Requirements;
	b) streaming data that may include Closed-Circuit Television Camera (CCTV), System monitoring devices used in MOMS or another related diagnostics tool;
	c) structured data that includes transaction data, service records or pricing data;
	d) unstructured data that includes log files, data or other low-level information or unstructured data that can be used for audit purposes or diagnostics of System issues; and
	e) any additional data types as determined during Design.
877	The Contractor shall provide read only user access to all databases and/or data integration Services for its provided RTCS required data dictionary for structured and unstructured data. For structured data that is typically in a Relational Database Management System (RDBMS) or data warehouse, the Contractor shall include roadside lane transaction data, image review, service management ticket data, Expressway pricing and other toll rate data. For unstructured data, the Authority shall also have access to real time log files for its independent audit and review of such data using data integration Services native to the selected cloud platform.

10.13.3.1 General Requirements for Interfaces

The Contractor is responsible for working with the Authority and the existing contractors in Designing, developing, documenting, testing, and implementing all required interfaces. Electronic interfaces are required to provide connectivity between the Authority Systems (THEA OBOS), the RSS and Roadside System. The Contractor will cooperate in refining the RTCS-OBOS ICD, It is expected that the latest version of the Approved ICDs will be implemented at Go-Live and that the Contractor will continue to update the Approved ICDs as appropriate for the life of the Contract.

ID#	REQUIREMENT
878	The RSS shall provide electronic automated interfaces to internal and external systems in accordance with these Requirements.
879	The Contractor shall continue to Update all external interfaces as needed due to Upgrades of external systems for the life of the Contract and shall coordinate with other contractors as necessary for developing and testing such Updates.
880	Guaranteed transmission protocols shall be used for all messages exchanged between systems, including but not limited to:
	a) roadside controller;
	b) ICPS;
	c) AVI subsystem;
	d) AVDC subsystem;
	e) RSS;

ID#	REQUIREMENT
	f) MOMS; and
	g) the THEA OBOS.
881	The RSS shall provide for 100 percent reconciliation of the transmitted data and files.
882	All messages shall be confirmed as received by the OBOS before they are purged in accordance with the data retention requirements. In the event of communication failures, the messages shall be stored at the RSS until the successful, secure transmission is complete and verified.
883	Provide the capability for real-time Alerts to the MOMS of interface and data transmission failures, including but not limited to:
	a) MOMS Dashboard for managing and monitoring interfaces;
	b) workflow user interface for managing and monitoring steps within each interface;
	c) status and history of executions;
	d) comprehensive scheduling of data/file transmissions;
	e) comprehensive reporting for inbound and outbound transmissions;
	f) tight integration with the MOMS and notification of failed transmissions;
	g) notification of data/file transmission and receipt status; and
	h) capability to manually execute a failed transmission.
884	The Contractor shall utilize secure network protocols Approved by the Authority for the transfer of data and/or files via interfaces defined during the Design process.
885	Applicable industry standards and best practices for network and data communications shall be met.
886	Provide the capability to transmit and receive multiple files during each scheduled batch.
887	Provide the capability to transmit and receive multiple files in a day.
888	Utilize file naming conventions that prevent the overwrite of data and/or files. For example, include the date and time of transmission and provide for unique identifiers.
889	Utilize file handling and processing methods that provide a complete log of the data and/or file transfer process. For example, data/files that are successfully processed are moved to a processed folder.
890	Validate records and identify errors in the received data and/or files, including but not limited to:
	a) mandatory fields;
	b) data formats;
	c) data validity (such as Toll Zone and lane numbers);
	d) duplicate records;
	e) unexpected response;

ID#	REQUIREMENT
	f) thresholds for expected file size (such as POSI List size);
	g) checksum/record count verification; and
	h) incorrect status.
891	Provide the capability to correct and re-transmit data and/or files.
892	Provide the capability to process re-transmitted data and/or files automatically or manually by Authorized Users as determined during the Design process.
893	Provide the capability to transmit the error details to the transmitting entity, as well as record it in the MOMS.
894	Provide the ability to identify missing records, transactions, and images and request the transmission of such missing records, transactions, and images.
895	Reconcile the transmitted records to the records received and accepted by the receiving entity.
896	Provide the means to identify interface issues by validating the data/file transmission process, including but not limited to:
	a) creation and transmission of data and/or a file at the scheduled time, even if there are no records to transmit;
	b) determination if the data and/or a file was transmitted or received at the scheduled time;
	c) creation of Alerts to the MOMS if data and/or a file was not created or received at the scheduled time;
	d) creation of Alerts to the MOMS if received data and/or a file was not acknowledged;
	e) creation of Alerts to the MOMS if records in the received data and/or file had errors when processed;
	f) provide details in real-time to the MOMS of each failed record; and
	g) creation of Alerts to the MOMS when a response has not been received for individual records within the expected duration.
897	Provide data and/or file transmission and reconciliation reports as described in these Requirements.
898	Provide a Dashboard that tracks the progress of data and/or file transmissions through each stage and their acknowledgements by the receiving entity, including but not limited to:
	a) transactions eligible for transmission;
	b) file and/or data created with file name;
	c) file and/or data transmitted;
	d) file and/or data received;
	e) file and/or data accepted;
	f) file and /or data rejected;

ID#	REQUIREMENT
	g) file and/or data re-transmitted;
	h) number of records in the file and/or data set; and
	i) number of failed records.
899	Provide the capability for Authorized Users to Configure the relevant parameters related to file and/or data transmission for each interface.
900	Monitor the disk capacity where files and/or data are deposited and send an Alert to the MOMS and interfaces entities (if applicable) if folders are near capacity (Configurable) or full.
901	Provide the capability to automatically archive successfully processed data and/or files after a Configurable number of Days.
902	Conform to any existing ICDs, including any updates required at the time of Design and refine all new ICDs that have been identified as "to be developed." It is the Contractor's responsibility to ensure all ICDs (including existing) are accurate, updated and meet the Requirements of the Scope of Work and Requirements before developing the interfaces.

10.13.3.2 ROADWAY SUPPORT SYSTEM INTERFACE TO THE THEA OBOS

ID#	REQUIREMENT
903	R_03 – RTCS/OBOS ICD Overview provides an overview of the data sent from the RTCS to the OBOS (Transactions and images), data and requests sent from the OBOS to the RTCS details of the communication between the RTCS and OBOS and expected behavior of each respective system related to these communications. During the Desing Phase the Contractor and the OBOS Contractor shall cooperate to develop the Approved ICD through refinement of the R_03 – RTCS/OBOS ICD Overview. The Approved ICD will include details on communication protocols, transport mechanisms, data types, data fields, uniform resource locators (URLs), endpoints, error response and processing, VPN, and security as well as other applicable details identified in the development of this document.
904	The RSS shall communicate with the THEA OBOS per the Approved ICD in near real time and in batch mode for the transmission and receipt of toll collection data, including but not limited to:
	a) transaction data for both ETC and IBT in near real-time;
	b) plate data for IBTs, including image ALPR and/or image review results as appropriate that include license plate number; state jurisdiction and plate type (if applicable) and confidence levels for each of these data elements;
	c) processing of requests to convert ETC Transactions to IBTs after initial delivery to the OBOS and provide plate data;
	d) processing of transaction dispositions;
	e) comprehensive POSI List once a day and incremental POSI List updates not more often than every sixty (60) minutes (Configurable);
	f) toll rates and schedules from the THEA OBOS;
	g) transaction reconciliation status; and

ID#	REQUIREMENT
	h) other data files needed for THEA OBOS transaction processing.
905	The RSS shall send images to the OBOS with a maximum size of 300 kilobytes. The RSS shall down-sample and/or transcode images as necessary to comply with this Requirement. If images are down-sampled and/or transcoded, the original image shall be retained in the RSS for the normal retention period.
906	The Contractor shall provide the capability to acknowledge message receipt, reject a message, Alert when an expected message was not received, and reconcile all data transmissions to/from the RSS.
907	The Contractor shall provide the capability to reconcile the successful transmission and receipt of all images and IBTs at the THEA OBOS.

10.13.3.3 IMAGE SERVER TO ROADWAY SUPPORT SYSTEM (RSS) INTERFACE

Reconciliation of images to the IBTs and the status of the transfer of images and IBTs must be maintained and reported at the RSS.

ID#	REQUIREMENT
908	The Contractor shall Design and develop an interface from the image server(s) to the RSS to transmit and track the status of the capture of images by the Roadside System for each IBT and the subsequent transfer of images and IBTs to the THEA OBOS.
909	The Contractor shall provide the capability to reconcile the successful transmission and receipt of all images and IBTs at the RSS.

10.13.3.4 IMAGE REVIEW SYSTEM TO ROADWAY SUPPORT SYSTEM (RSS) INTERFACE

An interface to the image review System, reconciliation and tracking of images and data, and status of transfers to and from the image review System must be maintained and reported at the RSS.

ID#	REQUIREMENT
910	The Contractor shall Design and develop an interface from the image review System to the RSS to transmit and track the status of images sets in the image review System for each IBT undergoing manual image review and the subsequent transfer of plate data to the RSS.
911	The Contractor shall provide the capability to reconcile the successful transmission and receipt of all images and plate data.

10.13.3.5 REVERSIBLE TOLL ZONE ACCESS CONTROL SYSTEM TO ROADWAY SUPPORT SYSTEM (RSS) INTERFACE

The Authority is implementing Software (Chameleon ITS) that controls the gates for the reversible Toll Zones. The RSS will interface with the reversible Toll Zone access control system for the exchange of data and commands.

ID#	REQUIREMENT
912	The Contractor shall Design and develop an interface between the Authority's reversible Toll Zone access control system and the RSS for the exchange of data and commands to be defined during the Design phase.

10.13.4 IMAGE REVIEW SYSTEM AND IMAGE REVIEW SERVICES

ID#	REQUIREMENT
913	The Contractor shall deliver a fully integrated image review System and perform image review Services in order to provide fully formed transactions, which are ready for processing by the OBOS, and which meets the Performance Requirements.
914	The Contractor shall provide all resources and training needed for review and processing of images throughout the term of the Contract.
915	All image review Services shall be provided by personnel located within the contiguous United States of America.
916	The image review Service shall be capable of expanding or reducing capacity in reaction to trends in transaction volume, changes to Business Rules, and image review needs.
917	If image enhancement tools are part of the Contractor's solution, any enhanced images shall be saved for use in the subsequent processes, in addition to the saving of the original unaltered image.
918	Image disposition reasons shall be Configurable and shall cover all possible conditions upon which a disposition could be based. These dispositions shall be Approved by the Authority during System Design.
919	The image review System shall automatically queue and present images for manual image review based on the Approved Business Rules established during the Design phase, for example images that are identified as requiring manual review are queued for review first in, first out (FIFO) based on the transaction time.
920	The image review System shall provide the capability to make available all relevant images for the vehicle in the review screen, according to the Approved Business Rules. This will permit image reviewers to review all images associated with a vehicle and enter the license plate information more efficiently and accurately.
921	The image review System shall provide Authorized Users the capability to search for transactions/images and review them.
922	The image review System shall provide consistency in the image review user interface and presentation of images and data at all stages of the image review process, for example, all images associated to a transaction shall be made available at all image review stages.
923	The image review System shall require that rejected images have a reject reason and the reject reason can be entered either during the first review or supervisory review. These reject reasons shall be Approved by the Authority during System Design.
924	The image review System shall provide the Configurable capability to queue all rejected images for supervisory review.
925	The image review System shall provide the capability to track the rejected images and generate Maintenance Alerts if rejected images are above a Configurable threshold for each lane for a Configurable period of time.
926	The image review System shall provide the capability to track the rejected images and generate Operational Alerts if rejected images are above a Configurable threshold for an image reviewer for a Configurable period.
927	The image review System shall provide the capability to enter the license plate information including license plate number, jurisdiction, and type, including temporary plates as part of the manual review process.

ID#	REQUIREMENT
928	The image review System shall provide the capability for an Authorized User to manage a QC process for image review, per the Approved Business Rules, including but not limited to: review, correct and approve image processing results using interactive screens and reports.
929	License plate data changes performed during the QC process shall be transmitted to the OBOS for further processing in accordance with the ICD.
930	ETC Transaction images shall be routed to manual image review based on OBOS requests for ETC to IBT conversion. Image review results shall be transmitted to the OBOS in accordance with the ICD.
931	The image review System shall provide reports that track the transmission of transactions and their associated images.
932	The image review System shall provide reports that track the errors in the transmission of the transactions and their associated images and their re-transmission.
933	The image review System shall provide a report that allows the Authority to review and audit Contractor-rejected images. The report shall include relevant information about each rejected IBT, including Toll Zone, date/time, image reviewer, reject reason, if the image/transaction was marked lane degraded mode, and any available ALPR information.
934	The image review System shall provide reports that allows the Authority to access the results of the review, including but not limited to:
	a) Contractor/vendor;
	b) number of transactions transmitted;
	c) number of images accepted;
	d) images rejected,
	e) quantity by reject reasons;
	f) accuracy; and
	g) image reviewer.
935	The image review System shall provide image review performance reports that show how many images were reviewed for the selected criteria and the number of images reviewed by each image reviewer by review status/sub-status. Images that by-passed manual review and those flagged as rejects shall be reported, including but not limited to:
	a) for what reasons;
	b) at what stage;
	c) the errors; and
	d) the stage the error was identified.
936	The image review System shall provide via Dashboard for Authority use, an image review management tool that displays relevant information, including but not limited to:
	a) individual image reviewer performance (speed and accuracy of reviews);
	b) ALPR performance (if ALPR is provided);

ID#	REQUIREMENT
	c) image review performance by entity providing the service, for example, third-party image review service provider #1, third-party image review service provider #2, internal image review;
	d) overall image review performance;
	e) image review performance broken down by the entity providing image review service; and
	f) as compared against KPIs for each entity providing the service.
937	The image review System shall provide reports that allow the Authority to monitor the image review vendor performance against agreed to KPI, including but not limited to:
	a) number of images that did not meet review KPI;
	b) established accuracy KPI;
	c) variance from accuracy KPI;
	d) image reject rates; and
	e) exceptions to the KPI by license plate state.
938	The image review System shall provide reports that display image review trends.

10.13.4.1 IMAGE REVIEW AUDIT AND QUALITY

ID#	REQUIREMENT
939	The image review System shall provide the capability for presenting images/transactions for audit based on specified selection criteria to be defined during Design. The images/transactions selected for audit and all available license plate results and images (including those that were previously enhanced and saved) shall be presented to the Authorized User for manual image review (for example, all ALPR results and manual review results) through a GUI. The following methods for images/transaction selection shall be supported:
	1) automated random selection;
	2) manual selection using a GUI; and
	3) import of a file containing specific license plates for auditing.
940	The image review System's audit GUI shall provide the Authority with access to the same image Enhancement tools that image reviewers would use.
941	Authorized Users shall be provided the capability to enter the results of the assessment and corrections as needed for each image/transaction. Based on the audit performed, the System shall automatically compute the error rates for license plate data and reject rates by image reviewer (human and ALPR) and location (Toll Zone and lane).
942	Results from the Image Review System audit GUI shall populate reports as needed.

10.13.5 BAD PLATE LIST

The Bad Plate List is a list of license plates which are repeatedly mishandled by ALPR, and which should be forced to manual image review.

ID#	REQUIREMENT
943	The RSS shall provide a user interface which enables Authorized Users to create a Bad Plate List (BPL) and add, edit, or remove license plates from the BPL.
944	The RSS shall enable BPL creation and/or addition directly within the user interface or via import from a .csv file.
945	The Contractor shall provide templates and sample import files during the Design process.
946	Transactions which include an ALPR derived license plate value that matches a license plate which is on the active BPL shall be automatically routed for manual image review and incorporate updated license plate results from the completed image review before being transmitted to the OBOS.
947	Upon completion of the manual image review, transactions which include a manually reviewed license plate value that matches a license plate that is active on the BPL shall be automatically routed for supervisor manual image review.
948	The BPL shall automatically incorporate feedback from the OBOS via the License Plate Correction interface.
949	The mechanism for incorporating License Plate Correction feedback shall be identified during the Design in coordination with the Authority and shall be Configurable, including the ability to set a threshold for adding a license plate to the BPL (e.g., if the same license plate is sent from the OBOS via the License Plate Correction interface two (2) times or more).

10.13.6 EXEMPT LIST

The Exempt list is a list of Transponders and/or license plates, which are exempt from tolls.

ID#	REQUIREMENT
950	The RSS shall provide a user interface which enables Authorized Users to create an Exempt List and add, edit, or remove Transponders and/or license plates from the Exempt List.
951	The RSS shall enable Exempt List creation and/or addition directly within the user interface or via import from a .csv file.
952	The Contractor shall provide templates and sample import files during the Design process.
953	The RSS shall provide the capability of detecting plate patterns, for example, emergency vehicle plates. License plate images matching those plate patterns shall be sent to a queue for review where the reviewer could add it to the Exempt List.
954	Transactions which include a license plate value that matches a license plate which is on the active Exempt List shall be assigned a fare of $0.00.
955	Transactions which include a Transponder number that matches a Transponder number which is on the active Exempt List shall be assigned a fare of $0.00.

10.13.7 INTEROPERABILITY

ID#	REQUIREMENT
956	The RTCS shall support the following Interoperable standards:
	a) SEIOP Standards and Specifications;
	b) E-ZPass Interagency Group Standards and Specifications; and

ID#	REQUIREMENT
	c) NIOP Standards and Specifications.

11 RTCS INSTALLATION AND TRANSITION

The new RTCS will be installed at the New Toll Zones and Existing Toll Zones. For all Existing Toll Zones the Authority desires for the Contractor to install as much infrastructure in parallel with continued operation of the legacy tolling system as possible before beginning transition to the Contractor's Roadside System.

11.1 RTCS IMPLEMENTATION OVERVIEW

ID#	REQUIREMENT
957	The Contractor shall procure, furnish, install, Configure, test, set to work, Operate, and Maintain all Hardware, Software, interfaces, communications, and third-party components and/or Software, Equipment mounting brackets, Equipment racks, junction boxes, cables, wiring, and all other materials required to provide an RTCS for all Toll Zones, including Roadside System and RSS, that meets all Requirements.
958	At the Toll Zones, the Contractor shall install the RTCS on the infrastructure provided by the Authority as identified further in Reference Document R_07 - Implementation Responsibility Matrix.
959	Upon the successful completion of the FAT, the Contractor will be authorized to install the new RTCS at the select Toll Zone where the On-Site Installation Test (OSIT) will be conducted. The primary and secondary RSS shall be installed at the Approved locations.
960	Upon Approval of the OSIT, the Contractor may be authorized to start installation on the remaining Toll Zones in accordance with the Approved installation schedule. The Contractor shall seek Authority Approval to gain access to New Toll Zones, and the existing zones at Willow Ave Off ramp and Plant Ave On ramp since they are within the construction zone, for installation work. Notwithstanding the Approved installation schedule, the Authority may have other contractors completing work, or other reasons not to allow access to the New Toll Zones and Willow Ave Off ramp and Plant Ave On ramp for the Contractor to commence installation.
961	The installation, Commissioning, and subsequent transition of each Toll Zone to be available for revenue collection shall be in accordance with the Approved Installation and Transition Plan.
962	After each Toll Zone is opened to revenue collection, the Contractor shall monitor the System Operations. All toll Equipment shall be configured and tuned to their optimal performance prior to the start of the Operational Acceptance Test.
963	It shall also be the Contractor's responsibility to procure all Documentation required to install and adhere to the proper installation standards, GTR, laws, ordinances, or codes.
964	If the Contractor plans to use Subcontractors for the installation, then the Contractor shall procure Services of Subcontractors qualified to work in this industry. If an RTCS component requires a manufacturer-approved installer, the Contractor shall use an Approved component installer, including qualified installer staff.
965	The Authority reserves the right to witness the Contractor installation and conduct an independent inspection. The Contractor shall coordinate and support such inspections at each Toll Zone. The Authority reserves the right to obtain the services of a certified engineer to witness the Contractor inspection and conduct an independent inspection. The Contractor shall coordinate and support such inspections at each Toll Zone.

ID#	REQUIREMENT
966	The Contractor shall maintain all non-conformance reports submitted by the inspectors and document the correction and resolution of all issues identified.

11.2 WORK STANDARDS AND REQUIREMENTS

ID#	REQUIREMENT
967	The System Equipment installation shall be performed in accordance with the Approved set of Installation Drawings.
968	The Contractor shall provide Project management and oversight of all Work performed. At all times when installation Work is taking place, the Contractor shall have an individual designated in the organization chart as site manager on-site to supervise the installation.
969	Prior to the start of any installation activities at any Toll Zone within a construction zone, the Contractor, including any Subcontractors, shall complete the safety orientation provided by the Constructor. Daily safety checklists shall be retained and provided to the Authority upon request.
970	The Contractor shall install the Equipment using experienced and knowledgeable personnel and the installation teams shall, collectively, include at least one (1) state of Florida registered electrical contractor.
971	All tools such as crimpers, fiber optic termination tools, and test Equipment shall have been properly calibrated prior to being used.
972	The Contractor shall provide a safe environment for the installation process in accordance with all applicable local, State, and federal requirements, as well as any Authority policies. Examples include but are not limited to the following:
	a) safety harnesses shall be included and employed on all lifts, and the personnel trained on their use;
	b) hard hats and safety vest shall be worn in all construction areas;
	c) safety toe shoes shall be worn in construction areas and around active roadways while performing installation processes;
	d) Contractor-issued identification badges shall be worn at all times; and
	e) regular safety meetings shall be scheduled to review safety procedures.

11.3 INSTALLATION COORDINATION AND MEETINGS

The Contractor will coordinate all installation activities with the Authority, the Constructor (as applicable), and any Subcontractors to ensure all RTCS Equipment specifications are addressed in the Design and installation of all roadway infrastructure. During installation meetings, the Authority must be represented, and the Contractor will clearly define and develop the installation requirements, methodology, timetables, test plans, roles, and contingency plans. The Contractor is responsible for coordinating with the Authority any meetings necessary with the Constructor or other Authority contractors to meet the Requirements of this Contract.

Once the baseline RTCS installation schedule is Approved by the Authority, the Constructor will provide updates during the Contractor installation periods for the Existing Toll Zones and New Toll Zones, identifying all schedule changes.

ID#	REQUIREMENT
973	The Contractor shall coordinate all installation activities with the Authority and the Constructor, as applicable.
974	The Contractor shall schedule, manage, and attend weekly installation meetings during the active installation of the Project and report on the progress of the installation. The Contractor shall identify and communicate any issues regarding RTCS installation immediately upon discovery to the Authority and the Constructor.
975	The Contractor Project Manager shall attend the weekly installation meetings on-site and in person. The Contractor shall ensure that the appropriate additional personnel are present at these meetings who can represent the Contractor's interest and provide the information necessary in a meaningful manner.
976	Prior to the meeting, the Contractor shall update the installation schedule based on the construction schedule, and all changes shall be identified.
977	In coordination and cooperation with the Authority, the Contractor shall prepare and distribute a meeting agenda at least forty-eight (48) hours prior to the scheduled meeting. The meeting agenda shall consist of those items pertaining to the installation and schedule for the previous and current week's installation efforts and for an agreed to "look ahead" period. The meeting agenda should include any potential risk items identified and corresponding mitigation efforts.
978	The Contractor shall ensure all issues that arose during the installation activity for the week are addressed and resolved or are scheduled for resolution.
979	At these meetings, the Contractor shall also be prepared to address any issues or questions raised by the Constructor, other contractors, and the Authority or Authority-Designated Representatives.
980	The Contractor shall document the meeting discussions and prepare and distribute the meeting minutes within three (3) Business Days to everyone from the team invited to the meeting. The Contractor shall also record and maintain an action items list that tracks all installation-related issues.

11.4 FIELD INSPECTION

Prior to commencing installation activities, the Contractor will conduct a field inspection of each Toll Zone before the site is transitioned to the Contractor to begin installation.

ID#	REQUIREMENT
981	For each Toll Zone, the Contractor shall conduct a field inspection prior to commencing installation activities at least eight (8) months prior to first site installation.
982	When conducting field inspections, the Contractor shall cooperate with the Authority, any applicable civil contractor, or any existing integrator, who may participate in the field inspection.
983	For Existing Toll Zone replacement installations, the Contractor shall perform an inspection to identify which infrastructure items (such as pull boxes, raceways, conduits, brackets, etc.) will be removed and which will remain. All cables shall be new and not reused.
984	For each Existing Toll Zone replacement installation, the Contractor shall evaluate all site conditions (pavement or other) and provide the Authority a report (with pictures) on any recommended remediation.

ID#	REQUIREMENT
985	For Existing Toll Zone replacement installations, if necessary to maintain the functioning of both the existing and new Roadside System the Contractor shall provide temporary cooling and power as required while both Roadside System are operating concurrently, ensuring that toll Equipment cabinets are secured.

11.5 ROADWAY SUPPORT SYSTEM (RSS) INSTALLATION REQUIREMENTS

ID#	REQUIREMENT
986	The Contractor shall install the RSS in accordance with the Approved Installation and Transition Plan and the Approved RSS Installation Design and Documentation Package.
987	The Contractor shall coordinate all RSS installations and testing of the LAN/WAN to the Toll Zones as well as interfaces to the OBOS with the Authority and the OBOS Contractor.
988	The Contractor shall provide a copy of the completed RSS Installation Checklist, signed by the Contractor, attesting to the completeness of the installation, to the Authority after the completion of the RSS installation. Authority representatives will be responsible for validating and approving the RSS Installation Checklist.
989	The RSS Installation Checklist shall identify all non-conformances, discrepancies, and exceptions, and the Contractor shall be responsible for all corrections.
990	The RSS Installation Checklist shall document all changes identified during the installation process, and all such changes shall be Approved by the Authority or an Authority-Designated Representative.

11.6 ROADSIDE SYSTEM INSTALLATION REQUIREMENTS

ID#	REQUIREMENT
991	The Contractor shall install the Roadside System at each Toll Zone in accordance with the Approved Installation and Transition Plan and the Approved RTCS Installation Design and Documentation Package.
992	For Toll Zones other than those in the SSCP, the Contractor shall remove, decommission, and properly dispose all existing equipment, wiring, cabling, and other Equipment other than that identified for re-use and with the Authority's Approval.
993	The Contractor shall maintain an inventory of removed Hardware and coordinate the disposition and handling of removed Hardware with the Authority.
994	The Contractor shall ensure that, for removed Hardware, all server hard drives are removed and properly destroyed with Certification.
995	The Contractor shall furnish, for use in the Contractor's installation activities, all Authority-Approved materials, Equipment, and supplies required for saw-cutting, wiring and sealing of wires in the roadway, as applicable.
996	The Contractor shall furnish and install the cables necessary for terminating and connecting the RTCS Equipment on the toll gantry to the electronics in the Equipment cabinets. Cable lengths shall include sufficient service loops to facilitate Maintenance.

ID#	REQUIREMENT
997	The Contractor shall utilize the Authority-provided toll Equipment pads to support the Roadside System Equipment cabinets and enclosures provided by the Contractor, as applicable. All Roadside System electronics, devices, servers, and associated communications Equipment shall be installed in the Equipment cabinets, racks, and enclosures or within the Authority-provided shelters, as applicable.
998	As necessary at all Toll Zones, the Contractor shall provide and install the toll Equipment cabinets at each Toll Zone unless Authority-provided shelters are available.
999	The Contractor shall install wiring, cabling, racks, enclosures, UPS, and other Equipment within the toll Equipment cabinets or Authority-provided shelters in accordance with applicable Florida state building codes.
1000	Utility power, ATS, and external generators will be provided by the Authority. The Contractor shall use this infrastructure to power and support all RTCS Equipment on the overhead structures/toll gantries and in the toll Equipment cabinets or Authority-provided shelter as applicable.
1001	The Contractor shall furnish and install all connecting conduit from wire ways and conduits provided and installed by others and/or stub conduits to the Equipment within the cabinets or Authority-provided shelters, and at the overhead gantries. The Contractor may re-use existing conduits from the toll Equipment cabinets to the demarcation point or at the overhead toll gantries. The Contractor shall furnish and install any additional conduit needed between the toll Equipment cabinets and the demarcation point or at the overhead toll gantries.
1002	The Contractor shall furnish and install the cables necessary for terminating and connecting the RTCS Equipment on the toll gantry to the electronics in the Equipment cabinets or Authority-provided shelter as applicable. Cable lengths shall include sufficient service loops to facilitate Maintenance.
1003	The Contractor shall furnish and install all Equipment racks required for the Roadside System and toll network communications in the toll Equipment cabinets or Authority-provided shelter as applicable.
1004	The Contractor shall provide a copy of the completed Roadside System Installation Checklist, signed by the Contractor, attesting to the completeness of the installation, to the Authority after the completion of each Toll Zone installation. Authority representatives will be responsible for validating and approving the Roadside System Installation Checklist.
1005	The Roadside System Installation Checklist shall identify all non-conformances, discrepancies, and exceptions, and the Contractor shall be responsible for all corrections.
1006	The Roadside System Installation Checklist shall document all changes identified during the installation process, and all such changes shall be Approved by the Authority or an Authority-Designated Representative.
1007	The Contractor shall update the latest drawings with red lines as changes are incorporated during the installation and check-out process. At the completion of the installation of the RTCS, the Contractor shall gather all red line drawings into a single package.

11.7 ELECTRICAL WORK

The RTCS will be installed in the Tampa area which has environmental conditions that include a high volume of lightning during parts of the year. The Contractor's solution must provide a comprehensive approach that mitigates these impacts including surge protection and proper grounding for sensitive Equipment.

ID#	REQUIREMENT
1008	The Contractor shall furnish and install separate ground wires for the RTCS, surge protection devices, junction boxes, pull boxes, conduits, and other such items as required by the installation standards and Requirements.
1009	The Contractor shall provide and install surge protection devices as required to protect all Equipment and electronics.
1010	The Contractor shall perform all electrical Work in accordance with the applicable regulations and Approved by the Authority. Appropriate NEC compliance shall be adhered to with all electrical articles for installation pertaining to wiring, enclosures, and other electrical Equipment in hazardous locations. UL labels shall be provided for all electrical panel boards, enclosures, and accessories.
1011	The Contractor shall inspect all electrical Equipment prior to installation for defects that could damage the Equipment or harm personnel. Any Equipment found to have defects shall not be installed but shall instead be replaced with a fully functioning replacement.
1012	The Contractor shall properly ground all electrical Equipment for safety and reducing impacts to Equipment. Equipment shall be furnished with grounding pads or grounding lugs. All ground connections shall be cleaned immediately prior to connection.
1013	The Contractor shall provide all grounding material required for installation of the Contractor Equipment and all installations shall be in compliance with the applicable standards.
1014	The Contractor shall furnish and install all wiring for all in-lane Equipment and connections to the Equipment racks in the toll Equipment cabinets following best practices for cable management, including but not limited to:
	a) all cabling shall be properly labeled on both ends;
	b) data cabling and power cabling shall be in a separate raceways or conduits (not combined in the same raceway);
	c) cabling shall not obstruct any personnel pathways around installed Equipment or create a trip hazard of any kind;
	d) all cabling shall be installed in a neat and orderly fashion with service loops provided; and
	e) all cabling shall be properly, securely terminated and all cable connectors shall be of a type that will withstand the vibration levels generated by vehicle traffic passing through the Toll Zone.
1015	The Contractor shall properly terminate all power, communication, and RF cables and/or wiring (copper or fiber-optic) required to connect the individual components as specified by the manufacturer.
1016	The Contractor shall validate all cable and wire terminations via a test process to ensure that the cable is connected to the correct location on each end and that the cable/wire is properly terminated.
1017	The Contractor shall provide any cables required to support time synchronization of all Roadside System elements in accordance with the time synchronization Requirements.

11.8 TRANSITION TO REVENUE COLLECTION

At a minimum, the System will be transitioned into revenue service when the RSS and at least one (1) Toll Zone has passed the necessary tests, and the Authority provides Go-Live Approval.

ID#	REQUIREMENT
1018	At the direction of the Authority, the Contractor shall transition the RSS and each Toll Zone into revenue collection in accordance with the Installation and Transition Plan.
1019	In order to ensure a seamless transition, the following activities shall take place prior to opening any Toll Zone in revenue collection:
	a) The RSS installed and Commissioned and its interface to the OBOS validated;
	b) The Authority has confirmed the OBOS is ready for the RTCS transition;
	c) The MOMS has been configured for Go-Live; inventory recorded; technicians scheduled, and notifications set up;
	d) The OSIT has been completed and Approved at the OSIT Toll Zone(s);
	e) The ICT has been completed and Approved at applicable Toll Zones; and
	f) Written Approval to Go-Live has been obtained.

11.9 MAINTENANCE OF TRAFFIC REQUIREMENTS

ID#	REQUIREMENT
1020	The Contractor shall perform and pay for all MOT activities associated with completing Contractor Work during the Implementation Phase in accordance with the Approved Traffic Maintenance Plan (TMP).
1021	All lane closures shall be coordinated with the Authority and lane closure schedules shall be submitted to the Authority in advance for Approval. The Contractor shall utilize the transportation management system used by the Authority, (currently One Network) to report all MOTs.
1022	The Contractor shall cooperate with the Authority and the Constructor, as applicable, to minimize the required number of lane closures and to maximize the use of other scheduled lane closures during New Toll Zone installation.
1023	The Contractor shall work with the Authority and agree to a reasonable plan for scheduling and Approving lane closures, including a procedure for advance notice of cancellations of lane closures and allowable conditions for such cancellations as described in this SOW and Requirements.
1024	Roadside System installation shall be scheduled to minimize traffic delay during the installation process. The Contractor is required to request weekday off-peak hour work and hours, a minimum of forty-eight (48) hours in advance.
1025	For lane closures involving the REL, the Contractor shall provide MOT for all points of REL ingress or egress that are managed and monitored by the ACCS.
1026	For all lane closures, the Contractor shall conform to the latest versions of the FDOT Standard Specifications for Road and Bridge Construction and the FDOT Roadway Standard Drawings for regulations for MOT activities during the Maintenance period.
1027	By 12:00 p.m. Tuesday, the Contractor shall submit to the Authority a written closure schedule that details the schedule of planned closures and estimated loss revenue for the following week period, defined as Sunday 12:00 p.m. through the following Sunday 12:00 p.m.

ID#	REQUIREMENT
1028	The closure schedule request shall show the Toll Zones and times of the proposed closures. The closure schedule shall be submitted in the format requested by the Authority and must be made in accordance with the Authority lane closure requirements and in observation of the lane closure restriction for designated legal Holidays. Closure charts for single and multilane requirements and the lane closure restriction for designated legal Holidays may be obtained upon request from the Authority.
1029	Closure schedules requests submitted to the Authority with incomplete or inaccurate information shall be rejected and returned for correction and resubmittal. The Contractor shall be notified by the Authority of disapproved closures or closures that require coordination with other parties as a condition of Approval.
1030	Closure schedule request amendments, including adding additional closures, shall be submitted by 12:00 p.m. to the Authority in writing, at least three (3) Business Days in advance of a planned closure. Approval of closure schedule amendments shall be at the discretion of the Authority. The Contractor will be notified of canceled closures two (2) Business Days before the date of the closure. Closures that are canceled due to unsuitable weather or other unforeseen circumstances may be rescheduled at the discretion of the Authority.
1031	Any Work involving removal/relocation of Equipment (both existing equipment and the Contractor's Equipment), loosening or removal of nuts/screws, cables, connectors, etc., shall be done with appropriate lane closures during a nighttime period or off-peak hours and in accordance with Authority-Approved lane closures.
1032	If extended lane closures (lane closure exceeding two (2) hours) are required, the lane closures shall be completed between the hours of 9:00 p.m. ET and 5:00 a.m. ET, excluding Holiday periods as set forth in the lane closure requirements.
1033	Lane closures scheduled for less than two (2) hours shall be Approved by the Authority in accordance with the Traffic Maintenance Plan, shall not occur during peak traffic times, and shall be solely at the Authority's discretion.
1034	The Contractor shall complete transition of each Existing Toll Zone replacement within the timeline in the Baseline Project Implementation Schedule. Downtime during transition shall not exceed six (6) consecutive Days per Toll Zone with a configuration of one (1) travel lane plus shoulders or eight (8) consecutive Days per Toll Zone with a configuration of two (2) travel lanes plus shoulders or ten (10) consecutive Days per Toll Zone with a configuration of three (3) travel lanes plus shoulders. Downtime shall be accounted for any time that the Toll Zone is unable to collect revenue, or is in a state that negatively impacts traffic, except for situations outside of the Contractor's control, such as rain, as Approved by the Authority. The Contractor will be assessed Liquidated Damages in accordance with the Contract Terms and Conditions for any time the Existing Toll Zone is not fully functional and able to generate Complete Transactions past the duration in the Baseline Project Implementation Schedule. These limitations on downtime of Existing Toll Zones during transition supersede any transition timelines in Reference Document R_01 – Tampa Hillsborough County Expressway Authority (THEA) General Tolling Requirements (GTR).
1035	The Contractor shall complete installation and bring each New Toll Zone into revenue service within 21 consecutive Business Days from the site being transitioned from the Constructor to the Contractor to begin installation, except for situations outside of the Contractor's control, such as rain, as Approved by the Authority. The Contractor will be assessed Liquidated Damages in accordance with the Contract Terms and Conditions for any time the New Toll Zone is not fully functional and able to generate Complete Transactions past the specified duration.

12 RTCS TESTING REQUIREMENTS

12.1 RTCS TESTING CONCEPT

The Authority is planning a phased testing approach to implement the RTCS.

ID#	REQUIREMENT
1036	Various tests (outlined for reference immediately below and with detailed Requirements in subsequent sections) shall be prepared and conducted by the Contractor for the implementation of the RTCS:
	a) FAT including RTCS-OBOS Interface Test (ROIT);
	b) OSIT;
	c) Installation and Commissioning Test (ICT);
	d) Operational Acceptance Test (OAT); and
	e) Annual System Certification.
1037	The Authority's Approval of any aspect of testing shall not relieve the Contractor of its responsibility to meet the full Requirements of the Contract.

12.1.1 GENERAL

The Requirements described in this section detail the labor, materials, facility, and support Services necessary to test the RTCS including the Roadside System and RSS and its interface to the THEA OBOS. The Contractor will prepare and conduct tests that validate adherence to the Requirements that guided its Design and development, compliance to Approved Design and Business Rules, and demonstrate the RTCS functionality.

ID#	REQUIREMENT
1038	All testing shall be performed in accordance with the Approved MTP.
1039	The Contractor shall be responsible for all aspects of testing performed as part of the Contract and to provide all necessary resources and facilities to conduct all tests, including but not limited to:
	a) test support personnel;
	b) vehicles and drivers;
	c) test Transponders;
	d) test facilities;
	e) test Equipment, tools and safety devices;
	f) test plans and procedures, test schedule, and test sequence;
	g) coordination with the Authority and existing system integrators;
	h) coordination of lane closures and MOT; and
	i) conducting the test.

ID#	REQUIREMENT
1040	The Contractor shall to the extent possible, develop and use specialized automated testing Software, including but not limited to:
	a) create test scripts;
	b) control the automated testing;
	c) exercise all conditions, configurations, and scenarios;
	d) conduct performance testing;
	e) conduct security testing;
	f) conduct regression testing;
	g) compare actual test outcomes to expected outcomes;
	h) test reporting;
	i) conduct load testing;
	j) conduct user interface testing;
	k) conduct stress testing;
	l) WAN and LAN traffic testing;
	m) conduct sustained Operational testing; and
	n) conduct sustained burn-in testing.
1041	The Contractor shall provide a defect tracking system, accessible by the Authority, to document and track all defects identified as part of RTCS testing and any subsequent actions taken to correct and retest those defects.
1042	The defect tracking system shall be capable of the following, including but not limited to:
	a) rating (severity) defects;
	b) categorizing defects;
	c) prioritizing defects;
	d) logging the date/time the defect was reported;
	e) subsystems and test scenarios/test cases impacted by the defect;
	f) the user who reported the defect;
	g) the erroneous behavior;
	h) the details on how to reproduce the defect;
	i) the developers who worked on the defect and corrective action taken;
	j) date the defect was corrected and formally re-tested;

ID#	REQUIREMENT
	k) life cycle tracking; and
	l) reporting.

12.1.2 TESTING SEQUENCE AND LOGISTICS

ID#	REQUIREMENT
1043	The Contractor shall obtain Approval from the Authority and shall have met the entry conditions prior to start of each test, including but not limited to:
	a) Approval of all predecessor tests;
	b) Approved test procedures for each individual test;
	c) Approved test schedule;
	d) successful closeout of all outstanding pre-test issues;
	e) successful dry run testing with results provided to the Authority;
	f) Submittal of the latest Approved version of the Requirements Traceability Matrix showing test validation against the Requirements and any applicable Business Rules; and
	g) confirmation that both the site(s) and System are ready for testing.
1044	The Authority and Authority-Designated Representatives shall participate in the testing and witness each test. The Authority shall have full access to the test data and results of the test.
1045	Testing shall not be considered complete by the Authority until all severity 1 and 2 anomalies and "punch-list" items associated with testing are closed-out, and the final test report is Approved by the Authority. The Authority reserves the right to retest all or part of a testing script if deemed necessary to address a punch-list item. Severities are defined as shown below and the Authority shall have the final decision on the severity level assigned to a defect or anomaly. • Severity 1 – Critical Severity: a defect that compromises key functionality, without workarounds, or impacts revenue collection. • Severity 2 – High Severity: a defect that breaks key functionality, but there may be a workaround and does not impact revenue collection. • Severity 3 – Medium Severity: a defect that has an impact on usability or functionality. • Severity 4 – Low Severity: minor issues that do not disrupt key functionality.
1046	Testing shall occur in the following order, subject to the Authority's Approval of the final MTP and shall include, at a minimum, the following tests for each facility:
	a) FAT including ROIT;
	b) OSIT;
	c) Installation and Commissioning Test (ICT);
	d) OAT; and

ID#	REQUIREMENT
	e) Annual System Certification, as further defined under the Operations and Maintenance section.

12.2 FACTORY ACCEPTANCE TEST (FAT)

FAT will be a rigorous test with extensive vehicle passes and varying Toll Zone configurations to match production scenarios and prevent issues during OSIT and Commissioning tests causing extended Toll Zone down time. The Contractor will conduct comprehensive tests during FAT, including those intended to gauge compliance to Performance Requirements and other non-functional Requirements.

ID#	REQUIREMENT
1047	The FAT shall be conducted by the Contractor at the Contractor's facility in representative real-life lanes in accordance with the Approved MTP described in these Requirements, detailed testing procedures and Baseline Project Implementation Schedule.
1048	The Contractor's test facility lane configuration shall be capable of supporting three (3) vehicles driving side-by-side. At a minimum, the Contractor's facility shall support two (2) travel lanes, one (1) full shoulder, and one (1) small shoulder. The full shoulder shall be configured such that it could function as a full shoulder or travel lane depending on the test being conducted.
1049	The FAT shall be conducted by the Contractor to verify that all functional elements of the RTCS are in conformance with the Contract Requirements and the Approved Design.
1050	Upon the successful completion of the FAT and ROIT exit criteria and Approval of the FAT and ROIT by the Authority, the Contractor shall be given the authorization to move forward to the OSIT at the selected Toll Zone.
1051	The FAT shall validate that the RTCS Hardware meets the Requirements of the Contract, including but not limited to Certification of Hardware compliance to environmental Requirements.
1052	The FAT shall validate that the Roadside System meets the Requirements of the Contract, including but not limited to:
	a) accurate assignment and proper framing of each vehicle through various traffic conditions and test scenarios;
	b) accurate capture of images and association of Transponders and images to the correct vehicles;
	c) accurate classification of vehicles, assignment of toll rates and processing of the transaction;
	d) compliance to Performance Requirements shall be verified using a sample size Approved by the Authority;
	e) all exception processing Requirements;
	f) correct application of Business Rules;
	g) degraded mode scenarios;
	h) all device failure conditions;
	i) rush-hour traffic scenarios (stop and go, closely following);

ID#	REQUIREMENT
	j) redundancy, including failover;
	k) throughput and load testing using simulated data;
	l) interface to the RSS and CEMS; and
	m) transaction and image reconciliation.
1053	The FAT shall validate that the RSS meets the Requirements of the Contract, including but not limited to:
	a) user interface and compliance to user interface standards;
	b) all Dashboards and data views;
	c) Roadway Dashboards;
	d) RSS functions;
	e) reversible express lanes functionality including interface to the ACCS;
	f) MOMS;
	g) transaction audit;
	h) correct application of Business Rules;
	i) System performance;
	j) reporting;
	k) redundancy;
	l) System load/stress testing;
	m) compliance of RSS interface to Approved ICDs;
	n) ALPR;
	o) manual image review;
	p) data security for both data at rest and data in motion;
	q) interface with the OBOS; and
	r) end-to-end processing of transactions through to the OBOS.
1054	The results of the RTCS testing shall be validated end to end using the RSS and OBOS.

12.2.1 RTCS-OBOS Interface Test (ROIT)

The Requirements described in this section detail the labor, materials, facility, and support Services necessary to test the System and RSS and its interface to the THEA OBOS.

ID#	REQUIREMENT
1055	The Contractor shall conduct ROIT, in coordination with the OBOS Contractor, for all external interfaces that connect the RTCS to the THEA OBOS in accordance with the Approved MTP described in these Requirements, detailed testing procedures and Baseline Project Implementation Schedule.
1056	The Contractor shall validate the data transferred from its RTCS through all external interfaces during ROIT.

12.3 ON-SITE INSTALLATION TEST (OSIT)

ID#	REQUIREMENT
1057	The OSIT shall be conducted by the Contractor on a three (3) lane, two (2) shoulder Toll Zone configuration at a location identified by the Authority and in accordance with the Approved MTP, detailed testing procedures and Baseline Project Implementation Schedule.
1058	The OSIT shall verify the full functionality of the RTCS and its compliance with the Contract Requirements and the Approved Design in a controlled, on-site environment using transactions created during both live Operations and when lanes are closed to traffic.
1059	The OSIT shall not negatively impact revenue collection with the other existing Authority Toll Zones.
1060	Before the commencement of OSIT, all Equipment and Software that are required under the Contract shall be in place, in a production environment and configured for revenue Operations. The RTCS interfaces to the THEA OBOS shall be connected to the respective test environments as Approved by the Authority.
1061	In order to test the full functionality of the MOMS and System Monitoring during OSIT, all Equipment shall be entered into the System prior to the start of OSIT and the MOMS shall be configured for full Operations.
1062	The Contractor shall test the vehicle throughput and speed Requirements and generate sufficient transactions (subject to Authority Approval) to prove the System can process transactions accurately and meet the Performance Requirements. Simulation Software may be accepted as a method of compliance with the vehicle throughput Requirement.
1063	Performance Requirements shall be verified using a sample size Approved by the Authority.
1064	The OSIT shall validate that the RTCS meets the Requirements of the Contract, including but not limited to:
	a) Operations of in-lane Equipment and their ability to report failures to the MOMS including the UPS, generators, and HVAC;
	b) normal and exception processing using multi-vehicle traffic;
	c) multi-lane and multi-vehicle traffic conditions such as rush-hour traffic (stop-and-go and closely following), vehicles straddling, side by side, changing lanes, and merging;
	d) accurate assignment and proper framing of each vehicle;
	e) accurate capture and correct association of Transponders and images to the correct vehicle;
	f) accurate classification of vehicles, assignment of toll rates and processing of the transaction;
	g) transaction processing during Equipment failures and degraded modes of operation;

ID#	REQUIREMENT
	h) Performance Requirements using live traffic and controlled vehicles;
	i) redundancy;
	j) receive and process comprehensive and incremental POSI List, Hotlist enforcement notification list and toll rate schedules;
	k) security access;
	l) Interoperability using all required Interoperable Transponder protocols;
	m) lane Business Rules;
	n) interface to the RSS and CEMS; and
	o) interface to the THEA OBOS.
1065	An Audit of the lanes shall be conducted using live traffic to verify that the RTCS is processing vehicles accurately and transactions can be reconciled in the System using the Approved audit tools.
1066	The OSIT shall validate that the RSS meets the Requirements of the Contract, including but not limited to:
	a) functionality of the RSS and MOMS Dashboards shall be verified as it applies to transactions, alarm, and failure monitoring;
	b) all failure conditions;
	c) user interfaces and toll collection management functions;
	d) RSS Business Rules;
	e) reconciliation of transactions;
	f) RSS reports;
	g) Ad-hoc reporting capability;
	h) accuracy of Performance Reports;
	i) interface to the OBOS including reconciliation;
	j) interface to the Roadside System;
	k) interface to the CEMS;
	l) conformance with non-functional Requirements such as Performance, load, and stress test Requirements;
	m) security Requirements;
	n) System backup Requirements;
	o) archival and purging Requirements;

ID#	REQUIREMENT
	p) MOMS asset management; failure notification; work order tracking and performance reporting;
	q) RSS redundancy Requirements; and
	r) RSS DR Requirements.
1067	As part of the OSIT, an end-to-end testing shall be conducted that validates the following functionality, including but not limited to:
	a) System's ability to process and post transactions to the RSS and on to the THEA OBOS;
	b) the successful transfer of images from the Roadside System to the RSS and on to the THEA OBOS;
	c) various transaction posting scenarios that verify the transaction processing, transaction posting, disposition, and reconciliation per the Business Rules; and
	d) the RTCS is configured for Go-Live.

12.4 INSTALLATION AND COMMISSIONING TEST (ICT)

ID#	REQUIREMENT
1068	On each Toll Zone not already subject to OSIT, the ICT shall be conducted by the Contractor as a part of the Contractor's Roadway System installation in accordance with the Approved MTP, detailed testing procedures and Baseline Project Implementation Schedule.
1069	The ICT shall validate the functionality and operational status of the lanes including installation and configuration of all Equipment and Software. The lane operations shall be verified end-to-end upon the completion of the installation checkout prior to opening the toll lanes and Equipment sites for revenue collection.
1070	During the ICT, every piece of in-lane Equipment and its interface to the Roadside System shall be verified to be fully operational. The roadside controller and/or other controllers and servers, its interface to the RSS and the security access system shall be validated to ensure that the interfaces are in place and the RTCS is ready for revenue collection.
1071	An ICT shall be conducted on the RSS and shall include the interfaces to the THEA OBOS. The Contractor shall support the possible Commissioning of the RSS prior to the Commissioning of any Toll Zones.
1072	The ICT shall validate that the RSS meets the Requirements of the Contract, including but not limited to:
	a) normal and exception processing using multi-vehicle traffic;
	b) multi-lane and multi-vehicle traffic conditions such as rush-hour traffic (stop-and-go and closely following), vehicles straddling, side by side, changing lanes, and merging;
	c) End-to-end transaction processing from the lane through the OBOS;
	d) Operations of in-lane Equipment and their ability to report failures to the MOMS including the UPS;

ID#	REQUIREMENT
	e) functionality of the RSS and MOMS Dashboards shall be verified as it applies to transactions, alarm and failure monitoring;
	f) all failure conditions;
	g) user interfaces and toll collection management functions;
	h) reversible express lanes functionality including interface to the ACCS, as applicable;
	i) RSS Business Rules;
	j) reconciliation of transactions;
	k) RSS reports;
	l) interface to the OBOS including reconciliation;
	m) interface to the CEMS;
	n) security Requirements; and
	o) MOMS asset management.

12.5 RTCS OPERATIONAL ACCEPTANCE TEST (OAT)

The objective of the OAT is to ensure that the RTCS Software and Hardware functions over the test period with limited manual intervention in live Operations. It is intended to confirm that the RTCS and the network are sized, tuned, and configured correctly and data is processed without interruption or errors.

ID#	REQUIREMENT
1073	The RTCS OAT shall be conducted by the Contractor in accordance with the Approved MTP, detailed testing procedures and Baseline Project Implementation Schedule after all lanes have been Commissioned in revenue collection.
1074	The OAT shall be conducted upon authorization by the Authority to commence such testing. The RTCS shall be observed in live revenue Operations by the Contractor and the Authority for a minimum of two (2) monthly audit cycles.
1075	The RTCS OAT shall validate the interface of the RTCS to the OBOS and reconcile the transactions and images end-to-end.
1076	During the test period, System accuracy, performance of the System and Operations shall be validated, including:
	a) all Performance Requirements specified in the Contract using representative sample size for each facility under test;
	b) all Maintenance Performance Requirements;
	c) all System Performance Requirements;
	d) a two-hour vehicle audit during AM and PM peak hours for a total of four (4) hours on each lane at each Toll Zone involved in the test;
	e) transaction processing in accordance with Authority Business Rules;

ID#	REQUIREMENT
	f) correct classification of vehicles and assignment of toll; and
	g) monitoring of all interfaces for the accurate and secure transfer and processing of all records.
1077	System reliability and auditability shall be verified manually and through tools and reports provided in the System.
1078	Dashboards and reports shall be verified daily for accuracy and reconciled to Operations and interface files. All exceptions shall be investigated. Queries and detailed reports shall be generated to validate the daily, weekly, monthly, yearly and comparative reports and compared to reports. Inaccurate reports shall result in failure of the test.
1079	The alarms displayed on the MOMS and all interface status notification shall be verified to be accurate.
1080	Failure of the RTCS to meet a Performance Requirement shall result in the restart of that particular test until such time the Performance Requirements are met.
1081	The RTCS OAT shall be repeated until the Authority is satisfied that the RTCS meets the Contract Requirements as set forth in the Contract Documents.

12.5.1 Implementation Phase Acceptance

ID#	REQUIREMENT
1082	Upon the successful completion of OAT for the RTCS, the closure of all "punch-list" items and completion and submittal of all Contract required documents as set forth in the Contract, the Contractor shall be given the Implementation Phase Acceptance as described in the Contract Documents.

13 OPERATIONS AND MAINTENANCE SERVICES

The Contractor will provide turnkey Operations and Maintenance Services for all aspects for the RTCS. The Authority does not reimburse the Contractor for the cost of tolls incurred, nor will any "non-revenue" Transponders be provided for the Contractor's use on Authority Toll Facilities.

13.1 RTCS OPERATIONS AND MAINTENANCE SERVICES – GENERAL REQUIREMENTS

ID#	REQUIREMENT
1083	The Contractor shall provide all Operations and Maintenance Services activities associated with the RTCS throughout the Contract Term as further set forth in this SOW and Requirements.
1084	The Contractor's responsibility for providing Operations and Maintenance Services shall begin upon System Go-Live.
1085	The Contractor shall be responsible for supporting, operating, and maintaining any portions of the RTCS, including provision of image review Services (ongoing tuning/optimization of Optical Character Recognition (OCR) engine and manual image review), during any time period in which the System, or portion of the System, is installed, Commissioned, and placed into revenue service. The Contractor shall coordinate all Operations and Maintenance Services activities with the Authority during this period.

ID#	REQUIREMENT
1086	Operations and Maintenance Services shall include all activities required to operate and maintain the RTCS, including Hardware, Equipment, Software, and components at the required performance levels.
1087	All Equipment mounting Hardware and brackets provided as a part of this SOW and Requirements shall be included under Maintenance Services and, as such, shall be warrantied for the life of the Contract.
1088	If the Contractor is required to perform Authority-Approved repair or other Authority-Approved Services (Extra Work to be invoiced in accordance with the Contract Terms and Conditions) that fall outside the Operations and Maintenance Services described herein, these Services shall be invoiced at the Service rates specified in Price Proposal Sheet 8.
1089	The Contractor shall conduct periodic meetings with the Authority throughout the Operations and Maintenance Phase of the Contract. The frequency of such meetings shall be bi-weekly or as directed by the Authority.

13.1.1 RTCS Maintenance Requirements

The Maintenance Services will include monitoring, preventive, pervasive, corrective, security-related and emergency Maintenance Services, and provision of Upgrades and enhancements to be performed on all elements of the RTCS.

ID#	REQUIREMENT
1090	The Contractor shall monitor the RTCS for failures and alarms and confirm a MOMS work order has been created for each failure, as defined in the System Design, regardless of the failure or alarm Priority level.
1091	The Contractor shall perform all Maintenance and monitoring activities including but not limited to:
	a) proactively monitoring the RTCS to identify security deficiencies and proactively implement security measures;
	b) acknowledging and responding to work orders;
	c) creation and assignment of a work order in MOMS if a work order has not been created;
	d) performing the necessary Maintenance and closing the MOMS work order upon confirmation that the failure has been successfully corrected;
	e) monitoring and Maintenance of the development, pre-production test, production, training, and test environments;
	f) Updating operating system and Software infrastructure in the development, pre-production test, production, training, and test environments;
	g) performing preventive Maintenance in accordance with an Approved System Maintenance Plan;
	h) general Equipment and Hardware Maintenance, replacement, and spare parts inventory in MOMS;
	i) general inspection and Maintenance of roadside infrastructure including sealing in-pavement inductive loops with epoxy as needed;

ID#	REQUIREMENT
	j) pest control services to prevent insects and rodents on cabinets and shelters;
	k) ongoing monitoring, Updates, Maintenance tasks related to roadside subsystems, Operations, controllers, servers, and storage systems;
	l) addressing and resolving third-party Software issues (OS, third-party, peripheral and infrastructure Software);
	m) monitoring the backup systems (verification of successful backups), maintaining (applying Updates when needed) and managing (backup media rotation, offsite storage, etc.);
	n) monitoring, updating, and general Maintenance and troubleshooting of LAN communications and associated devices;
	o) deploying of RTCS Software to the development, pre-production test, production, training, and test environments;
	p) maintaining the ongoing relationship (support and Maintenance agreements) with third-party vendors;
	q) performing Software licensing renewals;
	r) performing of all System administrative functions at regular intervals, if not automated, and recording and tracking such activities as preventive Maintenance work orders through MOMS;
	s) continuous monitoring of System Operations to verify RTCS is functional; security posture is adequate; processes are being executed as scheduled; files are transmitted as specified, and RTCS is operating to Contract Performance Requirements;
	t) development of defect fixes, security fixes, performance fixes and corrections to the Software and applications as identified during audits;
	u) Software changes that are necessary or required to meet the System Requirements, parameter changes, or lane configuration changes;
	v) providing source code Maintenance;
	w) performing internal testing prior to releasing fixes, Updates, or Upgrades to production;
	x) providing ongoing Software Warranty Maintenance as set-forth in the Contract; and
	y) completing change management and configuration management tasks prior to Software and Hardware changes.

13.1.2 Upgrades, Enhancements, and Patches

ID#	REQUIREMENT
1092	The Contractor shall provide Documentation, in electronic format, for all patches and Updates made to the RTCS Software.

ID#	REQUIREMENT
1093	The Contractor shall provide release notes in electronic format for Authority Approval which shall contain a description for the need for the System Software or Hardware change, areas of impact including operational, anticipated downtime, roll back plan, and shall include demonstrated successful internal testing prior to releasing fixes, patches, Updates, Upgrades, or enhancements to production.
1094	Upgrades and enhancements outside the scope of this Contract, shall be proposed by the Contractor or requested of the Contractor in accordance with the Change Order/extra work order process as set forth in the Contract Terms and Conditions. Examples of Upgrades and enhancements include but are not limited to: accommodating major changes to standards, statutes, or Interoperable Equipment; or the addition of new Equipment or functionality providing demonstrable benefits in performance, costs, or productivity.
1095	Software modifications required to maintain and support the RTCS as a part of the normal course of business **shall not be** considered Upgrades or enhancements and shall be provided by the Contractor as part of Maintenance Services. These modifications include but are not limited to: vulnerability and bugfix patches and security Updates; version changes; configuration or parameter changes; minor changes to Software or code, such as changes to the existing Approved ICD; Software modifications required to ensure RTCS is compliant to existing standards; firmware Updates; and changes for the Contractor's benefit that improve the Contractor's ability to efficiently maintain and support the RTCS.
1096	The Contractor is responsible for all Updates, patches and hotfixes for all Software developed, furnished and/or installed under this Contract which are needed to maintain System functionality, performance, and security.
1097	The Contractor shall use the Common Vulnerability Scoring System (CVSS) version 4.0 base score to score vulnerabilities discovered within the RTCS and shall disclose these scores to the Authority.
1098	After calculating the CVSS base score, the Contractor shall rate vulnerabilities according to the following table: CVSS Score / Qualitative Rating 0.0 / None 0.1 – 3.9 / Low 4.0 – 6.9 / Medium 7.0 – 8.9 / High 9.0 – 10.0 / Critical
1099	Vulnerabilities rated High and Critical shall be considered Critical Vulnerabilities. The Contractor shall notify the Authority of Critical Vulnerabilities within forty-eight (48) hours of discovery, or notification by a third-party, or from when the Contractor should have become aware due to open publication by a third-party OEM.
1100	The Contractor shall notify the Authority of vulnerabilities lower than Critical Vulnerabilities in the next Monthly Maintenance and Performance Report following discovery of the vulnerability.
1101	The Contractor shall develop and install patches for Critical Vulnerabilities in Contractor developed Software within seven (7) days of discovery or as Approved by the Authority. These patches shall be considered Critical Updates.
1102	The Contractor shall install patches for Critical Vulnerabilities in third-party COTS Software within three (3) days of availability of the patch from the third-party or as Approved by the Authority.

ID#	REQUIREMENT
1103	The Contractor shall develop and install patches for Medium and lower rated vulnerabilities discovered in Contractor developed Software and shall install patches provided by third-parties for third-party COTS Software within ninety (90) Calendar Days.
1104	The Contractor shall follow the Approved SDP and Operations & Maintenance Plan regarding testing, validation, configuration management, and deployment planning for Critical Updates and other vulnerability patches.

13.1.3 Software Deployment

ID#	REQUIREMENT
1105	The Contractor shall utilize a reliable, and repeatable deployment method to Update the Roadside Software and RSS Software in all Toll Zones / lanes and all environments (development, production, pre-production test, training, and test) as applicable.
1106	The Contractor shall request Approval from the Authority prior to deploying any Software to the Roadside or RSS environments.
1107	The Contractor deployment request shall follow the change management process described in the Approved PMP.
1108	The Contractor shall employ and apply industry standards for enterprise-grade Software deployment.
1109	The Contractor shall provide an automated means for the installation to be verified ensuring that the version installed includes all appropriate Software elements (such as executable files, configuration files, components, libraries, and registry entries) are in place.
1110	The Contractor shall provide full logging of the installation process so issues can be investigated.
1111	The Contractor shall provide a seamless rollback feature as part of the Software installer that will automatically reverse the installation and restore its original version in the event a fatal error is encountered during the installation process.

13.1.4 Operations and Maintenance Staffing and Training

13.1.4.1 Operations and Maintenance Staffing Requirements

ID#	REQUIREMENT
1112	The Contractor shall be responsible for maintaining an adequate level of technical staff to perform Operations, Maintenance and Software support Services on the RTCS. The Contractor shall ensure that sufficient staffing is available to cover all Operations and Maintenance activities identified in this SOW and Requirements, including a designated point of contact for the Authority at all times including during the following periods:
	a) weekends;
	b) Holidays;
	c) personnel on vacation/sick time;
	d) after regularly- scheduled work hours (on-call); and
	e) unexpected emergency or crisis.

ID#	REQUIREMENT
1113	The Contractor shall provide personnel to perform the following functions. It shall be the Contractor's responsibility to staff at appropriate levels to meet the Requirements, using the Operations Plan and the System Maintenance Plan as the guideline for staffing levels and full job descriptions:
	a) Maintenance Management / Maintenance Coordinator: The Contractor's Maintenance Management responsibilities include all Maintenance Coordinator business dealings with the Contractor Project Manager. Responsibilities include single point of contact for all Work-related issues, including System problems, material issues, or Contractor personnel issues. Maintenance Coordinator responsibilities also include ensuring that Systems are properly functioning and that all local and remote Maintenance and repair Work are properly performed and documented.
	b) Monitoring Staff: The monitoring functions shall include the support for the monitoring of the System Operations and ensuring that systems are properly functioning. Additionally, the monitoring staff shall coordinate with the Authority in confirming the Maintenance and repair Work are properly performed.
	c) Remote Maintenance Technical Staff: Responsibilities include responding to Maintenance activities, Alerts, and work orders. Maintenance technicians shall be qualified to troubleshoot Maintenance problems, identify the source of the problem, and resolve problems if remote resolution is appropriate.
	d) Network Engineering: Network Administration shall include the configuration and Maintenance of the network systems and communications network.
	e) Database Administration: Database administration shall include management of the servers and databases. The database administration shall cover all aspects of the System database and ensure the database is optimized for peak performance. The responsibilities include the configuration and operation of the System database and generation of database queries as requested by the Authority and other support personnel.
	f) System Administration: Responsibilities include the configuration and monitoring of all System processing and verifying that all Operations and processes are occurring as scheduled. All MOMS alarms relating to process failures shall be investigated and resolved by the System engineering staff. Systems engineering responsibilities also include ensuring the proper configuration of all servers and coordinating all server Maintenance. System engineering responsibilities also include identifying issues, communicating with the System Software personnel and coordinating resolution of the problem. All user-related problems (application Software) shall also be handled by the System engineering personnel.
	g) Software Technical Staff: Responsibilities include responding to Maintenance activities, Alerts and work orders and resolution of Software problems. Software technical staff shall be qualified to troubleshoot Maintenance problems, identify the source of the problem and correct the problem.
	h) Administrative Staff: Responsibilities include support of the Contractor's Maintenance organization for the performance of Maintenance functions and to provide adequate phone and administrative support at the remote Maintenance management facility.

13.1.4.2 TOOLS AND MATERIALS

ID#	REQUIREMENT
1114	The Contractor shall provide all test Equipment, tools and support, including but not limited to monitoring tools, smart phones, laptops, and any other items required for the Operations, Maintenance and Software Support staff to provide Operations and Maintenance Services. All such devices shall have adequate and up-to-date security Software and be Approved by Authority IT before they are used on the RTCS network. All required test Equipment, tools and Software tools shall be on site (as required) and in adequate supply, with all required personnel trained on their use. All test Equipment shall be standard units that are capable of achieving the measurement they are intended to make.

13.1.4.3 STAFF TRAINING PROGRAM

ID#	REQUIREMENT
1115	The Contractor shall provide trained, qualified technical staff to support the Operations, Maintenance and Software Support Services described in the Scope of Work and Requirements. It is the Contractor's sole responsibility to ensure technicians are qualified (via training or demonstrated previous experience) to successfully perform all of the Operations and Maintenance actions required to keep the System Operational. The Contractor shall ensure that Operations, Maintenance and Software Services staff is properly trained for Requirements of maintaining the System.
1116	The Contractor shall provide PII training to all personnel Approved to work on the Project who have access to secure and personal information.
1117	The Contractor Operations and Maintenance staff shall complete all required training prior to performing actual Maintenance and Software Support Services within a revenue collection environment. In the event changes or modifications are made to the System Equipment or configuration, supplemental training shall be accomplished prior to the actual service date for the changes or modifications.
1118	Training shall include the Contractor's safety standards and guidelines and applicable Authority policies and procedures.
1119	The Contractor shall provide comprehensive training for the Contractor Operations and Maintenance staff, including but not be limited to, the following:
	a) a thorough understanding and operating knowledge of the MOMS is required of all Maintenance personnel;
	b) an in-depth understanding of the RTCS, Design, and Operations, including all Equipment, Software, interfaces, file transfers, and interconnections;
	c) use of Operations and Maintenance Documentation such as Maintenance manuals, drawings, Contractor manuals, and parts list;
	d) functions of the RTCS monitoring tools used to manage the System monitoring tasks;
	e) preventive Maintenance of all systems and sub-systems;
	f) Troubleshooting, diagnostics, repair, testing, and Maintenance follow up;
	g) System logs, errors logs, and processing of exceptions;
	h) System dataflow and workflow queues;

ID#	REQUIREMENT
	i) review of the Dashboard data and analysis;
	j) discussion on the areas of responsibility;
	k) special use Maintenance and monitoring tools; and
	l) queries and reports.

13.1.4.4 Operations and Maintenance Staff Training Materials and Ongoing Education

ID#	REQUIREMENT
1120	The Contractor shall deliver ongoing Operations and Maintenance Training in accordance with the Training Plan.
1121	The Contractor shall deliver ongoing Training for Authority staff in accordance with the Training Plan.

13.1.4.5 System Documentation

ID#	REQUIREMENT
1122	The Contractor shall have appropriate System Documentation available to all Operations, Maintenance and Software Support personnel as required to perform their respective duties.
1123	The Contractor shall update the System Documentation to reflect any changes to the System Approved by the Authority. A version update sheet shall be included with the System Documentation, and the Documentation on file shall have the most recent version from the EDMS. A complete Submittal of the System Documentation shall be made every two (2) years that reflects all Approved changes to date unless otherwise directed by the Authority.

13.1.4.6 Training Records

ID#	REQUIREMENT
1124	The Contractor shall keep accurate training records on all Contractor staff, and the Authority shall be permitted to audit Operations and Maintenance personnel qualifications and training records at any time. Evidence of completion of training by the Contractor and shall be provided to the Authority upon request.

13.2 OPERATIONS SERVICES

13.2.1 Manual Image Review Services

ID#	REQUIREMENT
1125	The Contractor shall provide the necessary staffing to perform manual license plate image review Services to meet or exceed the functional and Performance Requirements described in the Statement of Work. The image review Services shall include the identification of a vehicle's license plate number, Jurisdiction and plate type.

ID#	REQUIREMENT
1126	The Contractor shall be permitted to invoice as "Manually Reviewed IBTs" no more than 25% of the IBTs in a single month, as it is assumed that automation functionality will process a significant portion of the images at the required accuracy. The following rules shall apply when calculating the eligible images for manual review and the images to be invoiced:
	a) Supervisory or secondary reviews will not be invoiced; and
	b) QA/QC reviews will not be invoiced.

13.2.2 RTCS Warranty Program

ID#	REQUIREMENT
1127	The Contractor shall be responsible for the development, implementation, and administration of a Warranty program for all Hardware, Contractor-developed Software, and third-party Software as further set forth in the Contract Terms and Conditions.
1128	The Contractor shall maintain Warranty records and service agreements for all Hardware and third-party Software and shall review and implement Software Upgrades and available patch reports to keep the RTCS current per the Approved System Maintenance Plan and as further set forth in the Contract Terms and Conditions.

13.2.3 Audits

ID#	REQUIREMENT
1129	The Authority shall have the right to audit any aspect of the Operations and Maintenance. The Contractor shall, upon request, support the Authority in any audit activity relating to the Authority's RTCS Operations. In addition, the Contractor shall conduct audits in accordance with the Contractor's QA and QC program. The Contractor shall take any required actions to mitigate the adverse effects identified through the audit process. All deficiencies identified through the audit process shall be successfully corrected by the Contractor at no cost to the Authority. These audits may include, but are not limited to, the following:
	a) internal control procedures (annually);
	b) revenue/transaction reporting (annually);
	c) security controls (annually);
	d) operational controls (annually);
	e) financial audit (annually); and
	f) System processing and performance (annually).
1130	The Contractor shall cooperate fully with annual security audits and penetration testing performed by the Authority, including but not limited to providing test user accounts, providing IP addresses, OS details, and all other pertinent information which is requested or required for the completion of security audits and penetration testing.

13.2.4 SECURITY CERTIFICATION

ID#	REQUIREMENT
1131	The Contractor shall perform monthly automated anti-malware and vulnerability scans using anti-malware and threat-scanning Software that are scheduled in the MOMS, as well as every time a new Software release is deployed, or new network Equipment is added or replaced to evaluate the security risk to the RTCS and identify potential vulnerabilities. Authority IT shall be a party to these security tests and shall be notified in advance of any scheduled tests.
1132	The Contractor is responsible for correcting all RTCS security deficiencies at the Contractor's cost and ensuring there are no security risks.

13.2.5 ANNUAL SYSTEM CERTIFICATION

The Contractor must conduct an Annual System Certification of two (2) Toll Zones at the end of Year 1 of Maintenance and Operations Services, and on an annual basis thereafter for the Term of the Contract. Failure to conduct the test or failure to address punch list items from the test will preclude the Contractor from obtaining CPI cost adjustments in accordance with the Contract Terms and Conditions.

ID#	REQUIREMENT
1133	The Contractor shall conduct a System certification test at two (2) Toll Zones of the Authority's choosing, at the end of Year 1 of Maintenance and Operations Services, and on an annual basis thereafter for the Term of the Contract. The Authority will communicate to the Contractor the date of the System certification each year ten (10) Days in advance of the test. The specific Toll Zones to be tested will be revealed prior to the commencement of the test.
1134	The Annual System Certification test shall be conducted in accordance with the Approved System certification test procedures, the RTCS Testing Requirements, and shall be witnessed by the Authority and/or Authority-Designated Representatives.
1135	The Annual System Certification test shall validate that the Toll Zone meets the Requirements of the Contract, including but not limited to:
	a) accurate assignment and proper framing of each vehicle through various traffic conditions and test scenarios;
	b) accurate capture of images and association of Transponders and images to the correct vehicles;
	c) accurate classification of vehicles, assignment of toll rates and processing of the transaction;
	d) normal and exception processing using known vehicles/Transponders as well as multi-vehicle live traffic;
	e) compliance to Performance Requirements using a sample size Approved by the Authority;
	f) correct application of Business Rules; and
	g) accurate transaction reconciliation with OBOS.
1136	The Contractor shall address all deficiencies identified during the Annual System Certification process.

13.2.6 SUPPORT FOR INDEPENDENT TOLL ZONE CERTIFICATION

The Authority may engage with a third-party vendor that will conduct an independent certification of selected Toll Zones. For estimation purposes, the Contractor will assume the test will take place at two (2) Toll Zones of the Authority's choosing, at the end of Year 1 of Maintenance and Operations Services, and on an annual basis thereafter for the Term of the Contract.

ID#	REQUIREMENT
1137	The Contractor shall, at the request of the Authority, provide the necessary personnel to support the Authority's independent Toll Zone certification process. The Contractor shall participate in meetings, assist with access to the System and data, and address all deficiencies identified during the annual certification process.

13.2.7 Security and Confidentiality

ID#	REQUIREMENT
1138	All Contractor personnel shall be subject to appropriate security and background checks to the satisfaction of the Authority.
1139	The Contractor shall obtain written Approval from the Authority for all Contractor personnel, and each Contractor personnel shall be required to sign an acceptable use agreement.
1140	The Contractor's personnel shall be issued Authority identification badges and shall wear such identification badges at all times when on Authority property. Use of such identification badges for purposes other than Work associated with the Contract will result in termination of the employee from the Contract and possible other legal or disciplinary action.
1141	The Services and Work performed under the Contract are considered highly confidential, and the Contractor personnel shall at all times comply with Authority security and privacy Requirements. All employees of the Contractor shall not discuss their Authority-related Work with unauthorized personnel, or any individuals not directly associated with the Authority.
1142	Discussion by the Contractor of any Services or Work performed under the Contract with the media, in oral presentations, in written publications, or in any other form, shall be Approved in advance by the Authority. The Contractor personnel shall be required to sign a Non-Disclosure Agreement (NDA) at NTP, or when first beginning Work on this Project.

13.2.8 Cooperation with Other Vendors and Providers

ID#	REQUIREMENT
1143	The Contractor shall cooperate to the fullest extent with other contractors and third-party vendors in order to ensure that the RTCS Operation and Maintenance do not conflict with or cause any deterrent in capability or service to the traveling public, customers, or the Authority.

13.2.9 Interoperability Requirements

ID#	REQUIREMENT
1144	The Contractor shall support the following Interoperable Agency and NIOP activities as required by the Authority. Activities include but are not limited to:
	a) support Authority Interoperable Agency and NIOP Agency testing as requested;
	b) support changes to the System to meet modifications to Authority Interoperable Partners and NIOP specifications; and

ID#	REQUIREMENT
	c) be compliant with the latest published Authority Interoperable Partners and National Interoperable specifications for the duration of the Contract.

13.2.10 EMERGENCY RESPONSE MANAGEMENT

ID#	REQUIREMENT
1145	The Contractor shall promptly address any emergency situation, and repair the System, upon notification by the Authority or otherwise. This includes situations that have already caused or could potentially cause damage to the RTCS. The Contractor shall be prepared to deploy all necessary resources to manage or rectify the emergency condition.
1146	Such emergency conditions shall be handled in accordance with the policies and procedures established by the Authority. The following are a few examples of emergency conditions:
	a) weather related;
	b) vehicle accident;
	c) conditions that invoke the DRP;
	d) third-party (power outage or communication failure);
	e) vandalism that causes parts of the RTCS to be inoperable; and
	f) detection of security breaches, discovered vulnerabilities and activities that pose a security threat to the RTCS.

13.2.11 ROADWAY SUPPORT SYSTEM (RSS) DISASTER RECOVERY (DR)

ID#	REQUIREMENT
1147	The Contractor shall perform DR and BCP procedures in accordance with the Approved DRP in the event of a disaster and return the RSS to a fully operational condition.
1148	The Contractor shall test the DR and BCP procedures on a yearly basis during the Contract Term to validate that they are functioning per the Design. The Authority shall witness the test, and the Contractor shall provide a report outlining the test, test results and any anomalies encountered for The Authority's review and Approval.
1149	The Contractor shall address any issues encountered from the yearly DR and BCP testing.

13.2.12 SYSTEM CHANGE AND RELEASE MANAGEMENT PROCESS

ID#	REQUIREMENT
1150	The Contractor shall comply with the change management process defined in the Approved PMP. The Contractor shall meet with the Authority and provide Documentation to support proposed Contractor changes and Authority Changes that affect the RTCS. The Contractor shall participate and provide resources through the testing and release process as defined below and throughout the Term of the Contract.
	1 Development and Unit Testing;

ID#	REQUIREMENT
	2 Regression Testing;
	3 Performance Testing;
	4 IT Security Testing;
	5 Rollout and backout plan; and
	6 Post-implementation validation.

13.2.13 INCIDENT AND REVENUE LOSS REPORTING

ID#	REQUIREMENT
1151	The Contractor shall immediately notify the Authority of any incident or event whereby the potential or actual loss of revenue occurred. This communication shall be in addition to any automated Alerts and shall be initiated by the Contractor's Maintenance Manager. The Contractor shall take immediate action to rectify the condition and return the RTCS to normal functioning.
1152	A monthly incident report shall be provided by the Contractor that includes a breakdown of lost transaction data and revenue for each incident. If the condition is determined to be due to the fault of the Contractor, damages shall be assessed in accordance with the Contract Terms and Conditions**.**

13.2.14 MAINTENANCE OF DOCUMENTATION

It is the Contractor's responsibility to ensure that System Documentation is updated on a regular basis and remain current.

ID#	REQUIREMENT
1153	During the Operations and Maintenance Phase, the Contractor shall update Documentation as changes occur and submit to the Authority for Approval on a bi-annual basis unless otherwise directed by the Authority. These updates shall be version controlled and maintained in the EDMS.
1154	The Contractor shall provide, on a yearly basis throughout the Operations and Maintenance Phase, a System status report that includes a detailed assessment of Equipment and Software warranties, end-of-life status, and anticipated spare parts replacement along with associated costs for the upcoming year that the Authority can use for budgeting purposes.

13.3 MAINTENANCE SERVICES

13.3.1 RTCS HARDWARE MAINTENANCE AND SOFTWARE SUPPORT SERVICES

The Requirements in this section describe Hardware Maintenance and Software Support Services.

ID#	REQUIREMENT
1155	The Contractor shall perform monitoring and troubleshooting of the RTCS, including but not be limited to:

ID#	REQUIREMENT
	a) roadside controllers and/or other Roadside System servers;
	b) AVI subsystem;
	c) AVDC subsystem;
	d) ICPS components and controllers;
	e) ALPR Software;
	f) IBT alarms;
	g) inspection, test, and repair of cables, wiring and terminations. Any item not in compliance with Contract Requirements will be reported to the Contractor and shall be replaced by the Contractor at no cost to the Authority unless such failure is considered non-chargeable as described in these Requirements;
	h) all in-lane System electronics and controllers;
	i) ACSMS cameras and system;
	j) Contractor-supplied network Equipment;
	k) monitoring and Maintenance of the production, development, pre-production test, training, and test environments;
	l) monitoring, Updating, and general Maintenance and troubleshooting of LAN communications, issues with ISP, network Equipment, and associated devices;
	m) all Roadside Contractor and third-party Software;
	n) perform automated routine diagnostics on all in-lane peripherals and in-lane subsystems;
	o) provide inspection and Maintenance of environmental control devices, UPS, generators, and CEMS monitoring devices; and
	p) Inspection and Maintenance of racks, toll Equipment cabinets, and general supporting infrastructure.
1156	The Contractor shall monitor and maintain RTCS Software processes, Operations, internal interfaces, and interface to THEA OBOS as identified further in Reference Document R_08 - Maintenance Responsibility Matrix.
1157	The Contractor shall monitor real-time roadway operations screens and Dashboards and respond to issues.
1158	The Contractor shall maintain the RTCS LAN that includes all Contractor network connections in the toll Equipment cabinets and interconnections between the toll Equipment cabinets, excluding the fiber plant.
1159	The Contractor shall retrieve data manually, using a secure and Authority-Approved device, from the roadside controllers or other appropriate server or device and upload the POSI List and toll rate and schedule files in the event there is an extended communications failure.
1160	The Contractor shall re-establish or re-install System files, programs, and parameters, as required, following a failure or damage to the System and return the RTCS to fully operational condition.

ID#	REQUIREMENT
1161	The Contractor shall perform DR procedures as needed and return the RTCS to fully operational condition.

13.3.2 MONITORING AND SYSTEM ADMINISTRATION SERVICES

The Requirements in this section describe the monitoring and System administration Services.

ID#	REQUIREMENT
1162	All RTCS administrative functions, if not automated, shall be performed by the Contractor at regular intervals as part of the RTCS preventive Maintenance Services according to the Approved System Maintenance Plan to ensure System performance is optimized. All such System administrative functions shall be scheduled as preventive Maintenance work orders through MOMS and tracked.
1163	The Contractor shall perform continuous monitoring of Operations, including but not be limited to:
	a) confirming and verifying receipt of all the MOMS messages and Alerts;
	b) verifying the MOMS is receiving and processing System events and reporting the correct status;
	c) evaluating sample transactions data for exceptions;
	d) confirming data and image transmission to the THEA OBOS;
	e) verifying processes, programs and scheduled jobs are successful;
	f) reviewing comparative reports to identify System degradation;
	g) confirming the successful transfer of POSI List to the lanes;
	h) reviewing ALPR and manual image review results and poor-quality images;
	i) verifying ACSMS cameras are Operational;
	j) reviewing sample images from each Toll Zone;
	k) correcting performance issues identified;
	l) evaluating storage Requirements;
	m) verify time synchronization is occurring as Configured, and System clocks are not drifting beyond acceptable threshold; and
	n) reviewing error logs and Alerts.
1164	Provide continuous 24/7 System administration Services coverage on the RTCS to ensure that it is performing and shall continue to perform at a satisfactory level.
1165	Provide a System status update email to the Authority 3 times a day (morning, afternoon, and evening). The System status email shall either report all systems normal and no issues or if there is an issue, the issue is briefly identified, the current actions to resolve are briefly identified and the potential impact of the issue is briefly identified.

ID#	REQUIREMENT
1166	System administration Services shall include monitoring and corrective action to ensure System performance is in accordance with Requirements of this SOW. This shall include but is not limited to:
	a) monitoring RSS servers, storage devices and backup systems;
	b) all data / files and messages described in the Approved ICD are being successfully exchanged between the RTCS and THEA OBOS;
	c) confirm applications are functional and available to Authorized Users;
	d) all scheduled reports are successfully generated and available to Authorized Users;
	e) all processes are functioning, and data and images are moving successfully.
	f) all third-party interfaces are functioning and successfully exchanging data / files;
	g) scheduling preventive Maintenance activities;
	h) any daily, weekly, or periodic Maintenance required to maintain the RTCS at required performance levels (for example: indexing and tuning databases; archiving and purging in accordance with the Authority's retention policy);
	i) maintaining and updating records of all Maintenance events and activities in the MOMS;
	j) third-party Software or firmware Upgrades in conjunction with the Authority, as required and to be compliant to security Requirements, including but not limited to performing security Software Upgrades, database Upgrades, and operating System Upgrades;
	k) Updates to all Software drivers to meet any new standard operating system Upgrades as they become available and such Updates shall be deployed in accordance with Authority standards;
	l) contact with the Authority, Operations and contractors regarding System issues, performance, security posture, Software release, and Maintenance scheduling;
	m) Approved manual actions, adjustments, and Updates to the System data based on predefined criteria to correct issues and as authorized by the Authority;
	n) monitoring of error logs and System logs;
	o) Maintenance of up-to-date Software backups (all System Software and data);
	p) installation of new Software and confirmation of successful installation;
	q) Software configuration;
	r) Software version control;
	s) assisting Authority Operations staff as requested by the Authority;
	t) troubleshooting RTCS issues;
	u) annual tuning of subsystems as necessary to meet the Performance Requirements;

ID#	REQUIREMENT
	v) creation of ad-hoc data queries requested by the Authority;
	w) generation of queries as requested by the Authority; and
	x) analysis of data as requested by the Authority.
1167	Software support Services shall include monitoring and corrective action to ensure System performance is in accordance with Requirements of this SOW, to include database management and Operation. This shall include but is not limited to investigation and analysis of errors and exceptions and taking corrective action, including correcting the problem and reprocessing the data, monitoring of notifications, and initiating corrective actions on application programs to meet the Requirements listed below:
	a) investigation and analysis of potential errors and exceptions, and taking preventive or corrective action including correcting the problem and reprocessing the data, for example, dispositioning transactions generated by a reversible Toll Zone that did not reverse due to an error;
	b) monitoring of notifications, and initiating corrective actions on application programs to meet Requirements;
	c) development of defect fixes, security fixes, performance fixes and corrections to the Software and Applications as identified during audits;
	d) Updates to the RTCS and application to support Upgrades to Hardware or third-party Software;
	e) Updates to the RTCS and application to support all changes to Business Rules and RTCS Configurable parameters, and deploy changes in production;
	f) attend Interoperability meetings and other Authority meetings (e.g., FTE, Collections Agency, tax collector) as requested by the Authority;
	g) Updates to the RTCS and application to support minor changes to the Authority Interoperable partner and NIOP ICD, including the addition of new Interoperable Partners and changes to support the commercial back office (FTE's CCSS);
	h) Updates to the RTCS and application to support the addition of new Interoperable Agencies;
	i) Updates to the RTCS and application to support changes to continue its compliance to Updated security Requirements; and
	j) Updates to the RTCS and application to support legislative and statutory changes.
1168	The Contractor shall perform ALPR Updates as required to meet the Performance Requirements defined in this Scope of Work and Requirements.
1169	As part of the Software support Services, the Contractor shall develop and test Software as required to accommodate corrective actions, changes to Business Rules, or configurations. The scope shall include the provision of evidence packages detailing the planned changes for the Authority's review and Approval, including installation of new Software and confirmation of successful installation per the Approved Project Management Plan.
1170	As part of the network administration, the Contractor shall monitor all network Alerts and alarms, as well as to detect intrusion attempts and prevent intrusions.

ID#	REQUIREMENT
1171	The Contractor shall Upgrade and Update the network security and provide the required Software and monitoring tools to ensure the RTCS is always in compliance with the most recent penetration and vulnerability test Requirements.

13.3.3 TYPES OF MAINTENANCE

13.3.3.1 PREVENTIVE MAINTENANCE

ID#	REQUIREMENT
1172	The Contractor shall provide and perform onsite preventive Maintenance on the RTCS Hardware, RSS Hardware, Contractor communications Equipment, and Software in accordance with the preventive Maintenance program defined in the Approved System Maintenance Plan. The schedule for the upcoming onsite preventive Maintenance shall be provided as part of the monthly Maintenance and performance report.
1173	The Contractor shall inspect all Contractor- installed Equipment, both major components and support components (fans, cables, connectors, cabinets, Equipment racks, storage units) that constitute the RTCS and shall make such repairs, cleaning, adjustments, and replacements of components as necessary to maintain the Equipment in normal operating condition in accordance with the preventive Maintenance program defined in the Approved System Maintenance Plan.
1174	In addition to required ongoing Contractor monitoring, the servers and data processing units shall be periodically checked by the Contractor to verify that storage space is not reaching limits, disks are not fragmented or damaged, Software being used is of latest version per the configuration management and data is being processed and transferred in an appropriate manner. The Contractor is responsible for determining the appropriate frequency of these checks to prevent issues. Failure to perform these checks adequately, leading to any problems, will be the responsibility of the Contractor.
1175	Transaction and image processing volumes and times shall be monitored by the Contractor and Systems optimized for performance with Approval.
1176	Report generation times, System access times, and System response time shall be monitored by the Contractor to ensure performance continues to meet the Approved performance.
1177	The Contractor shall include all Equipment and Systems as part of the preventive Maintenance program in accordance with the original Equipment manufacturer's guidelines. Any variations or exceptions shall be noted by the Contractor and Approved in advance by the Authority.
1178	The Contractor shall provide all diagnostic aids, tools, and Equipment to perform preventive Maintenance. Equipment analysis shall be provided by the Contractor, as necessary.
1179	For Preventive Maintenance which will have an impact to Performance or function of the RTCS or has a reasonable risk of impacting Performance or function of the RTCS, the Contractor shall schedule all Maintenance windows between 9:00 p.m. and 5:00 a.m. If the Contractor needs a Maintenance window outside of these hours, the Contractor shall obtain Approval.
1180	Preventive Maintenance requiring lane closure shall be scheduled by the Contractor for off-peak travel periods between 9 :00 p.m. and 5:00 a.m., evenings, Saturdays, and Sundays and Approved by the Authority, so that the Work shall not interfere with normal traffic flow unless otherwise Approved by the Authority.

ID#	REQUIREMENT
1181	The Contractor shall notify the Authority of any changes to the corrective, preventive, or pervasive Maintenance schedule as soon as changes become known due to weather, contractor availability, or any other reason.
1182	The preventive Maintenance schedule shall be entered by the Contractor into the MOMS, and work orders shall be automatically created to alert Contractor staff of required preventive Maintenance. Failure of the Contractor to perform required preventive Maintenance in accordance with the Approved schedule shall result in monthly fee adjustments, as specified below in the Maintenance Performance Requirements.

13.3.3.2 PREDICTIVE MAINTENANCE

ID#	REQUIREMENT
1183	The Contractor shall establish a predictive Maintenance program by which failure analysis can be determined by identifying potential failures through the analysis of MOMS records. The failure analysis shall take into account either or both specific components and sub-systems. This information shall then be used to investigate and correct problems and failures that could disrupt toll collection Operations. Examples include the image quality, IBT Transaction rate, and reader handshakes.
1184	The Contractor shall utilize Equipment supplier's MTBF information in the initial development of predictive Maintenance.
1185	The Contractor shall maintain all failure analysis Documentation on site and provide the information, including charts or other analysis tools, and shall submit the analysis as part of its monthly report.

13.3.3.3 PERVASIVE MAINTENANCE

ID#	REQUIREMENT
1186	The Contractor shall establish a pervasive Maintenance program by which failure analysis can be determined by identifying continuing or repetitive failures through the MOMS records. The failure analysis shall take into account either or both specific components and sub-systems. This information shall then be used to investigate and correct problems and failures that continue to occur on a particular item of Equipment, sub-system, or component.
1187	The Contractor shall maintain all failure analysis Documentation on site and the EDMS and provide the information, including charts or other analysis tools, and shall submit the analysis as part of its monthly report.

13.3.3.4 CORRECTIVE MAINTENANCE

ID#	REQUIREMENT
1188	All Work performed by the Contractor to correct defects or problems to meet the Requirements of the Contract shall be considered as corrective Maintenance. Such problems include but are not limited to:
	a) failure of subsystem functions and devices;
	b) problems identified by the users, including the Authority, and customers;
	c) interface issues and devices;

ID#	REQUIREMENT
	d) failure of processes and programs;
	e) data reconciliation issues;
	f) report issues;
	g) application failures;
	h) RTCS network issues;
	i) inadequate security posture;
	j) Software defects;
	k) Hardware defects;
	l) degraded RTCS or component performance; and
	m) non-conforming availability or MTBF.
1189	Notwithstanding the foregoing, for the repeated failure of Equipment, components, or systems, the Contractor shall undertake an investigation. If the problem is determined by the Authority to be a Pervasive Defect, the Contractor shall be responsible for resolution as set forth in the Contract Terms and Conditions.

13.3.4 MAINTENANCE COVERAGE

ID#	REQUIREMENT
1190	The Contractor shall provide continuous (24/x7) coverage for all monitoring and Maintenance-related activities sufficient to meet the Performance Requirements of the Contract.

13.3.5 SPARE PARTS

This Section details the Contractor's responsibilities regarding spare part management for the duration of the Maintenance Phase.

ID#	REQUIREMENT
1191	The Contractor shall be responsible for procuring and maintaining a spares facility and storage area. All costs associated with the spares facility and storage area are the responsibility of the Contractor.
1192	The spares facility and storage area shall be secured and connected to an up-to-date security network System with alarm notification monitored by the Contractor. The Authority will have full and unrestricted access to the Maintenance and/ or storage facility.
1193	The Contractor shall be responsible for the inventory of all spare parts at the storage facility and shall be insured in this regard as set forth in the Contract. The Contractor shall account for all spare parts and shall provide safeguards against theft, damage, or loss of the spare parts.

13.3.5.1 PROCUREMENT AND CONTROL OF SPARE PARTS

Please note the requirement to monitor for and replace any banned equipment at the Contractor's cost.

ID#	REQUIREMENT
1194	Prior to placing the RTCS in revenue collection, the Contractor shall have purchased and have on hand, an adequate inventory of spare parts to maintain the System in accordance with all System availability KPIs.
1195	The Contractor shall purchase all spare parts on behalf of the Authority and shall be owned by the Authority.
1196	Any spare parts that are lost or damaged due to the negligence, intentional act, or omission of the Contractor or its employees, Subcontractors, Agents, or invitees shall be replaced by the Contractor at its sole cost.
1197	The Contractor shall monitor for RTCS Hardware and/or Software that is/becomes banned for use in the United States by the US Government. In the event that Hardware and/or Software used in the RTCS is banned, the Contractor shall propose an in-kind replacement for Authority Approval, expedite the removal of the banned Hardware and/or Software, and implement the replacement. The Contractor shall cover the costs if the RTCS Hardware and/or Software becomes banned during the Implementation Phase at the time of ordering. If it happens afterward and during the Operations and Maintenance Phase, the Authority will be responsible for payment.

13.3.5.2 SPARE PARTS INVENTORY MANAGEMENT

ID#	REQUIREMENT
1198	The Contractor shall keep accurate records within MOMS of all parts entering and leaving inventory, including but not limited to time and date part was dispensed, and the location within the RTCS where the part was dispatched and used, and return material authorizations.
1199	The Contractor shall be responsible for purchasing and replenishing spare parts inventories to the levels required to meet the Performance Requirements. The Contractor's failure to purchase or replenish the spare parts or consumables to levels necessary to meet the Performance Requirements is not an excusable failure and will not relieve the Contractor from Performance Requirements or any associated liquidated or actual damages resulting from the non-performance.
1200	The Contractor shall also be responsible for tracking of all Warranty replacement for Contractor- provided Equipment through returned material authorization process. If the replaced part is under Warranty, the part shall be immediately replaced with a new part. If the replaced part is out of Warranty, the Contractor shall consider cost-effective ways, including repairing the part, provided it does not negatively impact the Contractor's ability to meet the Performance Requirements.
1201	The Contractor shall notify the Authority if a spare part is to reach the Manufacturer's/Supplier's end of life cycle or support prior to the end of the Contract. The Contractor shall provide recommendations for the item, such as use of a suitable substitute, increase of spare stock prior to end of life, or modification to the RTCS to utilize a next generation version of the part. The cost of obtaining the replacement / substitute spare part shall be the Contractor's responsibility.
1202	The Contractor shall ensure that only spare parts and Equipment required to service the RTCS are stored at this facility and shall only be used for the RTCS.
1203	At the end of the Maintenance Contract Term, all Authority-owned spare parts inventory shall be turned over to the Authority. The Contractor shall identify (via the MOMS) the Warranty status for each piece of Hardware throughout the Contract Term and the Warranty period remaining, if applicable.

13.3.6 NOTIFICATIONS

ID#	REQUIREMENT
1204	An Alert from MOMS or a verbal or written notification of the presence of a failure Alert shall constitute the start of the repair time.
1205	For purposes of measurement of performance and for the development of Maintenance policy and procedures, notification of RTCS malfunctions, problems and discrepancies may be provided to the Contractor in four (4) different methods, summarized below.
	a) Verbal Notification: Defined as an in-person notification or telephone call to the Contractor's designated Maintenance personnel. In all cases, the first conversation with, or notification to the Contractor shall signify the start of the response time for purposes of measuring the Contractor's response time. All verbal notifications shall be recorded in MOMS by the Contractor. A verbal notification shall be followed up with an email for documentation support when available.
	b) Written Notification: Defined as a written description of a problem or condition, typically provided by the Authority or its representatives by electronic communication. The time of receipt email shall signify the start of the response time for purposes of measuring the Contractor's response time. All written notifications shall be recorded in MOMS by the Contractor.
	c) MOMS Notification: Defined as an automatic notification through the MOMS identifying a problem within the RTCS that is the Maintenance responsibility of the Contractor and sending out an automatic work order message by email or text to a Contractor's Maintenance staff to respond to the failure. In addition to the Contractor notification, the work order shall be posted on the MOMS and available via reports.
	d) Generation of Alert: Defined as automatic creation of an Alert identifying a problem within the RTCS that is the Maintenance responsibility of the Contractor.
1206	The Contractor shall submit to the Authority any requests for lane closures to address emergency corrective repairs. The request shall be submitted immediately after the System failure is detected. This approach shall be detailed in the TMP.

13.3.7 MAINTENANCE AND SOFTWARE SUPPORT RECORDS

ID#	REQUIREMENT
1207	The Authority will have access to all Maintenance and Software service records for review and audit, upon two (2) Business Days' Notice. The Contractor shall provide monthly reports generated in the RTCS that permits the Authority to evaluate the Contractor's Maintenance performance. The Contractor shall provide a template at least sixty (60) Calendar Days prior to Go-Live for Authority review and Approval.
1208	The Contractor's Maintenance manager shall maintain current, complete, and accurate records for all Maintenance and Software support Services activities. The Contractor's Maintenance manager shall institute procedures that make sure the Maintenance staff enters complete information into the MOMS before closing a work order or trouble ticket.
1209	The Contractor shall keep all information regarding its activities pursuant to this Contract confidential and will communicate such information only with authorized Authority personnel or Authority- Designated Representatives.

13.3.8 Recording of Maintenance Activities

ID#	REQUIREMENT
1210	The Contractor shall utilize the MOMS for initiating the work orders. MOMS shall be utilized for recording and tracking all Maintenance and Software support Services performed on the RTCS. Additionally, all Equipment provided under this Contract shall be tracked through MOMS from the purchase to their disposal.
1211	In all cases, the Contractor is responsible for logging all reported Maintenance activities into the MOMS. The Contractor shall also be responsible for documenting all information and issues related to a failure condition, including all actions taken to complete the correction into the MOMS.
1212	The work order shall contain as much information as possible in order for persons other than the technician or his supervisor to reasonably determine the fault, when it was worked on, the corrective action, and any other information pertaining to the individual Maintenance event, including replacement of parts.
1213	All Maintenance performance metrics shall be recorded and tracked through the MOMS, and compliance to Performance Requirements shall be validated using MOMS reports.
1214	It is the Contractor's responsibility to ensure that its Maintenance staff has real-time access to the MOMS and that all the required connections are established and ongoing to ensure that the Maintenance staff has secure remote access Approved by the Authority. Maintenance staff shall be trained in the use of the MOMS.

13.3.9 Maintenance of Traffic (MOT) During the Maintenance Phase

ID#	REQUIREMENT
1215	After each Toll Zone is placed into revenue service, the Contractor shall perform and pay for all MOT associated with the System Maintenance Phase.
1216	The Contractor shall adhere to the Approved TMP when setting up, working under MOT and restoring lanes to traffic. All lane closures shall also be coordinated in advance with the Authority.
1217	The Contractor shall conform to all applicable Requirements detailed in the Maintenance of Traffic Requirements section throughout the entire Operations and Maintenance Phase.

13.3.10 Updates to System Maintenance Plan and Other Maintenance Related Documentation

ID#	REQUIREMENT
1218	The Contractor shall periodically update the System Maintenance Plan and other Maintenance Documentation to reflect any changes to the policies or procedures developed by the Contractor and Approved by the Authority for the RTCS Maintenance Services. The System Maintenance Plan shall be updated and submitted for review and Approval on an annual basis or as required by the Authority on a less frequent basis. However, sections of the System Maintenance Plan or its Appendices shall be submitted for review and Approval as the changes are identified. A version update sheet shall be included with the System Maintenance Plan, and the System Maintenance Plan on file shall have the most recent version from the configuration management EDMS. A final Submittal of the System Maintenance Plan and other Maintenance Documentation shall be provided at the end of the Contract Term.

ID#	REQUIREMENT
1219	The Contractor shall provide Documentation in electronic format including all patches, Updates, and enhancements made to the System Software (third-party and Contractor) after Implementation Phase Acceptance.

14 PERFORMANCE REQUIREMENTS – OPERATIONS AND MAINTENANCE

The Contractor will provide a RTCS that is Designed to meet the Requirements set forth in this SOW and Requirements during Operations and Maintenance.

The Authority requires the Contractor to continuously maintain and operate the RTCS in accordance with the standards of performance identified in these Performance Requirements and further, that the Contractor fully meets these Performance Requirements beginning with the first full month of Operations and Maintenance.

The Authority intends to focus on the outcomes from the RTCS by minimizing the number of Performance Requirements to be tracked, monitored, and reported while still maintaining high confidence in the RTCS performance. This is done by closely aligning performance measurement to the timely transmission of accurate and Complete Transactions to the THEA OBOS and availability of the RTCS instead of focusing on the intermediate steps in the process.

The Contractor's performance will be monitored by the Authority and will be rated based on the Contractor's ability to meet these Performance Requirements. The Contractor will use the Approved measurement and reporting methods developed collaboratively with the Authority during the Performance Reporting Workshops and recorded in the Approved KPI Guidebook, to evaluate and report on the Contractor's performance against these Performance Requirements.

The Authority will utilize a points-based performance scorecard to track the Contractor's compliance with the Performance Requirements. If the Contractor fails to meet these Performance Requirements, the Authority will assess non-compliance points for each failure. Non-compliance points will be summed, the total of which will determine any performance adjustments to be made to the Contractor's monthly invoice as further detailed below. The Contractor is also subject to direct damages for actual revenue loss as documented in the Agreement. The Authority may waive KPI non-compliance points or performance adjustments (either partially or in full) at its sole discretion.

The Contractor will use best efforts to minimize the impacts that result from failure to meet the Performance Requirements, regardless of whether Invoice Adjustments are made. Furthermore, the Contractor will take corrective action to immediately remedy any failures to meet the Performance Requirements and provide a CAP to the Authority for Approval if requested.

A summary of the RTCS Performance Requirements is provided in below in **Table 11-1 RTCS Performance Requirements**, including measurement frequency and non-compliance points for each Performance Requirement.

14.1 GENERAL PERFORMANCE REQUIREMENTS

The Contractor will be required to meet all Operational Performance Requirements detailed herein and, as part of the monthly invoice, provide reports that show compliance to the defined Performance Requirements including details of failures that resulted in the non-compliance and details of the KPI measurement.

ID#	REQUIREMENT
1220	The Contractor shall Design, implement, Maintain and Operate the RTCS to meet the Performance Requirements specified herein.
1221	The Contractor shall facilitate performance monitoring by reporting performance in clearly measurable, concise, and easy to understand terms and reports.

ID#	REQUIREMENT
1222	Beginning from the start of Operations and Maintenance, the Contractor shall report System performance to the Authority in the monthly Maintenance performance report as prescribed in the Approved KPI Guidebook.
1223	Following Go-Live each Toll Zone shall be included in the monthly Maintenance performance report beginning from the start of the next full month following Go-Live of the Toll Zone unless there is fewer than fourteen (14) days between Go-Live and the start of the following month, in which case the Contractor shall begin reporting on the Toll Zone at the start of the subsequent month.
1224	The Authority will conduct a review of the Contractor's performance on a monthly basis, utilizing a combination of reports generated by the RTCS, including MOMS, and other Approved reports provided by the Contractor, as determined by the Authority to be necessary. The Contractor shall provide systems, processes, and procedures to meet all Performance Requirements.
1225	The Contractor shall be assessed damages in accordance with the Contract Terms and Conditions for any loss of revenue determined to be due to the fault of the Contractor.
1226	If the resolution of any failure is under the Contractor's control and/or responsibility, the Contractor shall take action to correct the failure condition and return the RTCS to normal Operations in accordance with the Contract. If the failure condition is determined to be due to the Contractor's fault and it results in failure to meet the Performance Requirements, the Authority may assess non-compliance points for each failure as described in this performance section and may be subject to other remedies in accordance with the Contract.
1227	For failure to maintain spare parts inventory at adequate levels, as defined in the System Maintenance Plan, for the month, the Contractor shall be assessed 5.0 points for failure to maintain spare parts inventory at adequate levels.

14.1.1 Maintenance Priorities and Repair Times

ID#	REQUIREMENT
1228	Repair times for every Maintenance event shall be recorded in the MOMS and reported, and such reports shall be provided to the Authority in accordance with the reporting Requirements of this SOW and Requirements.
1229	The Contractor shall provide to the Authority a weekly staff schedule identifying a primary and a backup point of contact for all times of day for onsite and on-call Maintenance.
1230	Repair times shall be determined by Priority, as described below. Contractor failure to meet the repair time criteria described below shall result in Performance Scorecard point assessments, as specified in this Section.
1231	The Priority of failures shall be defined during the Design. The allowed time to repair is determined by Priority and is defined as below.
1232	A Priority 1 event is defined as:
	a) any malfunction or fault that results in the immediate loss of revenue;
	b) failures of AVI System functionality that cause Transponder read or reporting failures;
	c) failures of image capture of the entire front of the vehicle;
	d) failures of image capture of the entire rear of the vehicle;

ID#	REQUIREMENT
	e) transmission failure that causes image loss;
	f) any degradation such that license plates are not Human Readable;
	g) failures of AVDC functionality that causes vehicle detection failures or non-classification (including assigning a default classification) or misclassification of vehicles;
	h) failures of Toll Zone Hardware or Software, such as roadside controllers or any intermediate support servers, that cause transactions to be in error or lost;
	i) failures of RSS Hardware or Software that cause transactions to be in error or lost;
	j) closure of lanes resulting in chargeable downtime affecting lane availability;
	k) security breach; and
	l) hazard to personnel or driving public.
1233	Errors causing transactions to be rejected by the OBOS as not complying with the Approved ICD, but which may still be resubmitted within twenty-four (24) hours without loss of revenue shall not count as Priority 1 events until twenty-four (24) hours have passed.
1234	A Priority 2 event is defined as any malfunction or fault that degrades the RTCS performance but not the revenue collection ability of the RTCS, including but not limited to:
	a) delays in transmission of transactions and images from the Toll Zone to the RSS that do not cause a loss of data;
	b) delays in transmission of transactions and images to the OBOS that do not cause a loss of data;
	c) inaccurate reporting;
	d) delays in generation of reports in excess of the times in accordance with the Requirements;
	e) inability to reconcile revenue;
	f) loss of System functionality that impacts access to operational or audit data; and
	g) identified vulnerability in the System that could lead to a security breach as well as any failure in performing preventive Maintenance and System Updates/Upgrades that introduces security risk to the System.
1235	A Priority 3 event is defined as any action or event that has the potential to result in a malfunction or degrading of the System performance but has not impacted performance and is not anticipated to impact performance immediately, including but not limited:
	a) failure of a redundant component, provided there is no loss of function or performance (that is, the remaining set of components in the functional set are healthy and functioning properly);
	b) failure to complete preventative Maintenance as scheduled;
	c) failures of RTCS components or functionality of the Test Toll Zone; and
	d) any failure not covered under Priority 1 or Priority 2 definitions.

ID#	REQUIREMENT
1236	Priority 4 events are defined as tasks performed under the preventive Maintenance program defined in the System Maintenance Plan. The System must be fully available and Operational within the Approved time schedule for such activities and upon completion of the preventive Maintenance period. Delays and problems associated with not completing scheduled preventive Maintenance within the window specified may be included in the Performance Requirement calculations. Any failures generated or resulting from preventive Maintenance activities must be accounted for as Priorities 1, 2 or 3, and be addressed in accordance with these Requirements.

14.1.2 Authority Identified Anomalies and Research Requests

In addition to the Contractor's monitoring of the RTCS performance, the Authority will also review System and performance data and perform tests as deemed necessary. The Authority may identify data that may indicate a failure to meet one (1) or more of the Performance Standards. As a result of the Authority's activities, the Authority may request that the Contractor research and/or provide additional data, identify the extent of the problem or explanation related to anomalies or trends identified by the Authority.

ID#	REQUIREMENT
1237	The Contractor shall respond and fulfill the Authority's requests for research, analysis, and/or explanation and provide feedback/report within one (1) week or one (1) month as agreed to by the Authority.
1238	The Contractor shall be assessed 1.0 point per occurrence of failure to provide the requested feedback or report within the time agreed by the Contractor and Authority.

14.1.3 Corrective Actions

Failure to meet a Performance Requirement does not relieve the Contractor of the Requirement to complete the activity associated with the Performance Requirement. In addition, to prevent future reoccurrence of the problem associated with the non-compliance a CAP may be requested by the Authority for any issue it deems critical, complex, or re-occurring. The CAP will identify the problem including RCA, resolution to the issue and when the issue will be resolved and verified. The Corrective Action Plan will also include all evidence required to resolve the failure. This will be documented in the CAP submitted to the Authority within three (3) Business Days of the request. For example, if the Contractor fails to completely and accurately transmit transactions to the OBOS within the time required by the Performance Requirement, the transactions must still be completely and accurately transmitted and if a CAP is requested the Contractor must identify the root cause of the failure, identify the extent of the problem and provide a plan to prevent future occurrences including a plan for validating the resolution.

ID#	REQUIREMENT
1239	Any failure to meet a Performance Requirement that requires the completion of a specific action(s), which is not completed in accordance with the Requirement, does not relieve the Contractor of the responsibility to perform in accordance with the RTCS Requirements. For example, if the Contractor fails to transmit all transactions to the OBOS within the performance requirement, the files must still be sent to the OBOS.
1240	For each critical incidents as requested by the Authority the Contractor shall develop a CAP and an RCA for the failure identifying the root cause(s) and providing a plan to rectify the current situation, if applicable, and prevent future occurrences, within either twenty-four (24) hours or three (3) Business Days of the request, as directed by the Authority.
1241	The CAP and RCA provided by the Contractor shall be in a format Approved by the Authority.

ID#	REQUIREMENT
1242	The Contractor shall submit a CAP and an RCA for each incident as requested by the Authority for the Authority's review and Approval. Until the Authority confirms completion of the CAP, the failure cannot be considered resolved.
1243	The CAP and RCA shall identify the subsystem(s), component(s), processes, and activities associated with the failure to meet a Performance Requirement in sufficient detail to allow the Authority to understand the issue and why the proposed solution shall prevent future occurrences.
1244	The Contractor shall be assessed 1.0 point per occurrence for every additional delay of one (1) Business Day to produce a CAP beyond either one (1) or three (3) Business Days, as originally directed by the Authority.

14.1.4 PURCHASE ORDERS

The Authority may request the Contractor to modify or enhance the System during the term of the Contract. Upon the Authority's request, the Contractor is responsible for coordinating with the Authority to fully document and submit a Purchase Order for the Authority's review and Approval. The Authority will discuss a timeline with the Contractor and Agree on a deadline for submission of the Purchase Order for review.

ID#	REQUIREMENT
1245	The Contractor shall provide a proposed timeline for submission of a requested Purchase Order including a deadline for submission of the Purchase Order for the Authority's review and Approval.
1246	The Contractor shall be assessed 1.0 point per each additional week for failure to provide the requested Purchase Order by the deadline Agreed by the Contractor and Authority until the submission of the requested Purchase Order.

14.2 PERFORMANCE MEASUREMENT

The performance will be measured in categories that align with the primary functions of the RTCS. These categories are:

a) Availability;

b) Operations; and

c) Repair.

Each of these categories represents a group of functions within the RTCS, and each function includes individual KPIs, which will be used to measure the Contractor's performance in meeting the Performance Requirements.

The specific method of measuring the Contractor's performance will vary depending on the KPI being measured but will generally be measured against the Performance Requirement on a monthly basis. Regardless of how a KPI is measured, the Contractor will provide reporting for all Performance Requirements monthly.

The amount by which the KPI is missed matters in determining how well the RTCS is performing, so the non-compliance points for a particular failure are increased as the deviation from the KPI increases. For example, if the Expressway is required to be available 99.9% of the time and the actual availability was measured to be 99.85%, the Contractor would be assessed 1 non-compliance point. If the availability were measured to be 99%, the Contractor would be assessed nine (9) non-compliance points.

Below, table **11-1: RTCS Performance Requirements** provides a summary of the KPIs for the Contractor. A detailed description of each KPI and its associated Performance Requirements are provided in the

subsequent sections.

Table 14-1 RTCS Performance Requirements

	Category	KPI	Performance Requirement	Measurement Frequency	Points*
1	**Availability**	AET Lanes Availability	Each lane (travel lanes and shoulders) 99.9% of the time, excluding scheduled and Approved Maintenance.	Monthly	1 point for each 0.1% or portion thereof below the Requirement for each lane
2	**Availability**	Roadway Support System Availability	All components of the RSS 99.9% of the time, excluding scheduled and Approved Maintenance.	Monthly	1 point for each 0.1% or portion thereof below the Requirement
3	**Operations**	ETC Transaction Complete and Timely Transmission to OBOS	Within 8 hours of the transaction date/time for 99.995% of the transactions.	Monthly	0.25 points for each 0.100% or portion thereof below the Requirement
4	**Operations**	IBT Timely Transmission to OBOS	Within 8 hours of the transaction date/time for 99.995% of the transactions (not including license plate data).	Monthly	0.25 points for each 0.100% or portion thereof below the Requirement
5A	**Operations**	IBT Complete and Timely Transmission to OBOS with image review Services provided	Within 120 hours of the transaction date/time for 100% of the transactions.	Monthly	0.5 points for each 0.500% or portion thereof below the Requirement
5B	**Operations**	IBT Complete and Timely Transmission to OBOS with image review Services provided	Within 240 hours of the transaction date/time for 100% of the transactions.	Monthly	0.25 point for each 0.100% or portion thereof below the Requirement
6	**Operations**	Vehicle Detection Accuracy	Create one (1) transaction for each vehicle that passes through a zone at an accuracy of 99.99% or more	Monthly	0.25 point for each 0.01% or portion thereof below the Requirement
7	**Operations**	ETC Transaction Capture and Correlation Accuracy	Capture and correlate AVI Transponders to the correct vehicle and report the correct Transponder status at an accuracy rate of 99.85% or more.	Monthly	1 point for each 0.10% or portion thereof below the Requirement

	Category	KPI	Performance Requirement	Measurement Frequency	Points*
8	**Operations**	Image Based Transaction Accuracy	Provide and correlate accurate and complete license plate information and images to the IBT vehicle at an accuracy rate of 99.90% or more.	Monthly	0.5 points for each 0.01% or portion thereof below the Requirement
9	**Operations**	Classification Accuracy	Provide vehicle classification at an accuracy rate of 99.8% or more.	Monthly	1.0 point for each 0.1% or portion thereof below the Requirement
10	**Operations**	Image Rejection Accuracy	Correctly reject images that cannot be pursued for revenue and record correct rejection code with an accuracy rate of 98.5% or more.	Monthly	1.0 point for each 0.1% or portion thereof below the Requirement
11	**Operations**	Image Quality	Provide images of sufficient image quality such that 99.9% of images captured at each Toll Zone are Human Readable	Monthly	0.5 points for each 0.1% or portion thereof below the Requirement
12	**Operations**	Final Disposition	100 percent of Transactions captured in the lanes shall reach the correct final status	Monthly	1.0 point for each 0.001% or portion thereof below the Requirement
13	**Operations**	False Reads	False reads less than 0.005 percent of the ETC Transactions	Monthly	1.0 point for each 0.002% or portion thereof below the Performance Requirement
14	**Operations**	POSI List Processing	File processing time Requirements must be met each Day.	Monthly	1.0 point for each Day where file processing Requirements are not met
15	**Operations**	OBOS File Communications	OBOS communication processing time of twenty-four (24) hours must be met each Day.	Monthly	1.0 point for each Day where OBOS communications processing Requirements are not met

	Category	KPI	Performance Requirement	Measurement Frequency	Points*
16	**Operations**	Maintenance MOT Notification and Approval by the Authority	Provide Authority staff with MOT schedules and MOT plans ahead of placement of lane closures for any type of Maintenance.	Monthly	1.0 point for each instance of a MOT that is placed without a documented notification to and prior Approval from the Authority
17	**Operations**	Maintenance MOT Implementation	All MOT of Authority facilities shall be in accordance with Authority standards.	Monthly	2.0 points for each instance of a MOT that is placed out of accordance with Authority standards
18	**Repair**	Time to Repair	All work orders shall be repaired within the time to repair applicable to the Priority level.	Monthly	1.0 point per additional period (varies by Priority) for each work order that fails to meet the applicable Time to Repair
19A	**Repair**	Vulnerability Notification	The Contractor shall meet the Requirements to notify the Authority of Critical Vulnerabilities and lower than Critical Vulnerabilities.	Monthly	5.0 or 2.0 points for each failure to notify of vulnerabilities (varies by severity of the vulnerability)
19B	**Repair**	Vulnerability Patch Updates	The Contractor shall the Requirements to develop (if non-3rd party) and install patches for Critical Vulnerabilities and lower than Critical Vulnerabilities.	Monthly	5.0 or 2.0 points for each failure to notify of vulnerabilities and install patches (varies by severity of the vulnerability)
20	**Operations**	Authority Requested Research	The Contractor shall respond and fulfill the Authority's requests for research, analysis, and/or explanation and provide feedback/report within one (1) week or one (1) month as agreed to by the Authority.	Monthly	1.0 point per instance of failure to meet the deadline to fulfil the Authority's request.

	Category	KPI	Performance Requirement	Measurement Frequency	Points*
21	**Operations**	Corrective Action Plan	For each critical incidents as requested by the Authority the Contractor shall develop a CAP and an RCA for the failure identifying the root cause(s) and providing a plan to rectify the current situation, if applicable, and prevent future occurrences, within either twenty-four (24) hours or three (3) Business Days of the request, as directed by the Authority.	Monthly	1.0 point per instance of failure to meet the deadline to develop a CAP as directed by the Authority.
22	**Operations**	Purchase Orders	The Contractor shall meet the Agreed deadline for submission of each Purchase Order for the Authority's review and Approval.	As Needed	1.0 point per each additional week for failure to provide the requested Purchase Order by the deadline Agreed by the Contractor and Authority until the submission of the requested Purchase Order.
23	**Operations**	Spare Parts Inventory	Maintain spare parts inventory at adequate levels, as defined in the System Maintenance Plan.	Monthly	5.0 points for failure to maintain spare parts inventory at adequate levels.

** The point values showing in these Tables reflect the number of non-compliance points assessed for each deviation from the KPI. Additional points will be assessed for failures in consecutive months and shall escalate as described in the Performance Scorecard.*

Each KPI is assigned a weighted point value, as shown in the above **Table 11-1 RTCS Performance Requirements.** The value of the non-compliance points ("points") assigned depends on the severity of the failure and its potential impact on the Authority's business.

The Contractor will Design and develop performance measurement reports, including the Monthly Performance Scorecard. An example of a Monthly Performance Scorecard is provided in **Table 11-2 Contractor's Monthly Performance Scorecard**. Failure to comply with the Performance Requirement for each KPI will result in the KPI's associated non-compliance points being applied to the Contractor's Monthly Performance Scorecard. If the accumulated non-compliance points reach a specified threshold, the Contractor's invoice for the month must be adjusted by a percentage of the total invoice value, as shown in **Table 11-3 Non-Compliance Adjustments**. The Contractor will develop a Proposed Contractor's Monthly Performance Scorecard and include it for Authority review and Approval in the System Maintenance Plan.

Table 14-2 Contractor's Monthly Performance Scorecard
Reporting Period: mm/dd/yyyy to mm/dd/yyyy
(EXAMPLE ONLY)

Category	Key Performance Indicator	Points
Availability	AET Lanes Availability	0
	Roadway Support System Availability	0
	TOTAL No. of Points Assessed - Availability	**0**
Operations	ETC Transaction Complete and Timely Transmission to OBOS	0
	IBT Timely Transmission to OBOS	0
	IBT Complete and Timely Transmission to OBOS with image review Services provided (within 120 hours)	0
	IBT Complete and Timely Transmission to OBOS with image review Services provided (within 240 hours)	0
	Vehicle Detection Accuracy	0
	ETC Transaction Capture and Correlation Accuracy	0
	IBT Accuracy	0
	Classification Accuracy	0
	Image Rejection Accuracy	0
	Image Quality	0
	Final Disposition	0
	False Reads	0
	POSI List Processing	0
	OBOS File Communications	0
	Maintenance MOT Notification and Approval by the Authority	0
	Maintenance MOT Implementation	0
	TOTAL No. of Points Assessed - Operations	**0**
Repair	Time to Repair (Priority 1)	0
	Time to Repair (Priority 2)	0
	Time to Repair (Priority 3)	0
	Vulnerability Notification	**0**
	Vulnerability Patch Updates	**0**
	Authority Requested Research	**0**
	Corrective Action Plan	**0**
	Purchase Orders	**0**
	Spare Parts Inventory	**0**
	TOTAL No. of Points Assessed – Repair	**0**
	TOTAL No. of Points Assessed – ALL CATEGORIES	**0**
	PERFORMANCE ADJUSTMENT PERCENTAGE BASED ON PERFORMANCE LEVEL	**0 %**

14.3 RTCS PERFORMANCE REQUIREMENT DETAILS

These KPIs are based on performance that is measured across Calendar Days, hours and minutes as applicable. Any issues outside of the Contractor's control that affects its ability to meet a KPI should be noted, documented appropriately and with sufficient detail and discussed as part of monthly RTCS performance reviews.

The Authority places a great deal of importance on the controls the Contractor has in place for the RTCS and the effectiveness of those controls. The Authority will monitor the Contractor's performance for compliance with the Performance Requirements. The Contractor will be required to meet all RTCS Performance Requirements as detailed in these Requirements.

14.3.1 AET Lanes Availability

Transactions are collected twenty-four (24) hours a day, seven (7) days a week less scheduled Maintenance Work as Approved by the Authority. The Expressway Toll Lanes are viewed as a function; a combination of Hardware and Software that builds accurate Complete Transactions. This Requirement will measure the function; thus, if one (1) of two (2) redundant components are not working, yet the component still performs the function as Approved in Design, it would not be counted against availability.

ID#	REQUIREMENT
1247	Each AET lane within each Toll Zone with all of its subsystems shall be properly functioning and available to collect revenue and send required transactions and images to the RSS 99.9% of the time excluding scheduled and Approved Maintenance and any other exceptions as shall be detailed in the Approved KPI Guidebook. Availability shall be calculated based on the following calculation: Availability = 1- (chargeable downtime min / (minutes in period-exception min in period))*100 percent
	a) Availability shall be measured using RTCS reports detailing the Lane availability. MOMS and help desk tickets, work orders, and feedback from customers, OBOS staff, Authority staff, and consultants shall also be used to identify availability failures not identified by reports. All of the above shall be utilized to calculate the RTCS Lane availability as detailed in the Approved KPI Guidebook.
	b) For any month in which **all** functions of any lane are not fully available and Operational at least 99.9% of the time excluding scheduled and Approved Maintenance, the Contractor shall be assessed 1.0 point for each 0.1% or portion thereof below the Performance Requirement for each mainline lane failing to meet the performance requirement and 0.5 points for each 0.1% or portion thereof below the Performance Requirement for each ramp lane failing to meet the performance requirement.

14.3.2 Roadway Support System Availability

Tolls are collected twenty-four (24) hours a day, seven (7) days a week, and as such the RSS must achieve a high degree of availability. The Contractor will meet all Requirements and Design the RSS such that it allows other Authority staff and contractors to access and use the RSS while transactions continue to be processed on the RSS without degradation.

ID#	REQUIREMENT
1248	The RSS with all of its devices, Software, applications, and processes (including network) are properly functioning and available to the Authorized Users, successfully transmitting transactions to the THEA OBOS systems, communicating with the in-lane systems and reporting device health statuses 99.9% of the time excluding scheduled and Approved Maintenance. Availability shall be calculated based on the following calculation: Availability = 1- (chargeable downtime min / (minutes in period-exception min in period))
	a) Availability shall be measured using System reports detailing the RSS availability. MOMS and help desk tickets, work orders, and feedback from customers, OBOS staff, Authority staff and consultants shall also be used to identify availability failures not identified by reports. All of the above shall be utilized to calculate the RTCS Lane availability as detailed in the Approved KPI Guidebook.

ID#	REQUIREMENT
	b) For any month in which **all** components of the RSS are not fully available and Operational at least 99.9% of the time excluding scheduled and Approved Maintenance, the Contractor shall be assessed 1.0 point for each 0.1% or portion thereof below the Performance Requirement.

14.3.3 ETC Transaction Complete and Timely Transmission to OBOS

The Contractor will be responsible for the timely processing of ETC Transactions. The Authority is subject to contractual requirements and is obligated to customers and Interoperable Agencies to process all transactions in a timely manner. The Contractor's performance in this area has a direct impact on the Authority's revenue stream.

ID#	REQUIREMENT
1249	The Contractor shall process and transmit all ETC Transactions to the OBOS within eight (8) hours after the vehicle travels through the Toll Zone.
	a) The timeliness of the ETC Transaction transmission to the OBOS shall be determined by examining timestamps logged by the RTCS to determine the time interval between the transaction date/time, and the date/time that the transaction was acknowledged by the OBOS.
	b) The OBOS validates transactions to ensure that they comply with the agreed-upon Approved ICD; and transactions that do not meet the Approved ICD will be rejected as incomplete or inaccurate. Unless a rejected transaction is corrected and resubmitted within a twenty-four (24) hour period starting from the time the vehicle traversed the Toll Zone, it shall not meet this KPI.
1250	For any month in which 99.995% of the ETC Transaction records are not transmitted in accordance with the Approved ICD to the OBOS within eight (8) hours, the Contractor shall be assessed 0.25 points for each 0.100% or portion thereof below the Performance Requirement.

14.3.4 Image Based Transaction Timely Transmission to OBOS

The Contractor will be responsible for the timely transmission of IBT to the OBOS, that is, the transaction data excluding license plate data, which is requested later by the OBOS. The Authority is subject to contractual requirements and is obligated to customers and Interoperable Agencies to process all transactions in a timely manner. The Contractor's performance in this area has a direct impact on the Authority's revenue stream.

ID#	REQUIREMENT
1251	The Contractor shall process and transmit all IBT records, excluding license plate data, to the OBOS within eight (8) hours after the vehicle travels through the Toll Zone (transaction date/time).
	a) System reporting detailing the transaction date/time and the date/time that the transaction was acknowledged by the OBOS shall be compared to a matching RSS Report.

ID#	REQUIREMENT
	b) The RTCS and OBOS validates the transactions to ensure that they comply with the Approved ICD, and transactions that do not meet the Approved ICD shall be rejected as incomplete or inaccurate. Unless a rejected transaction is corrected and resubmitted within a twenty-four (24) hour period starting from the time the vehicle traversed the Toll Zone, they shall not meet this KPI.
1252	For any month in which 99.995% of the IBT records are not transmitted in accordance with the Approved ICD to the OBOS within eight (8) hours, the Contractor shall be assessed 0.25 points for each 0.100% or portion thereof below the Performance Requirement.

14.3.5 Image Based Transaction Complete and Timely Transmission to OBOS with Image Review Services Provided

The Contractor will be responsible for the timely processing of image transactions including license plate data. The Authority is subject to contractual requirements and is obligated to customers and Interoperable Agencies to process all transactions in a timely manner. The Contractor's performance in this area has a direct impact on the Authority's revenue stream.

ID#	REQUIREMENT
1253	The Contractor shall process images and transmit complete details, including license plate data if requested by the OBOS, for final disposition of all IBTs within 120 hours after the vehicle travels through the Toll Zone. This includes entering all required plate data or rejecting the plate if it meets the criteria to be rejected, as well as transmitting appropriate images to the OBOS per the Approved ICD.
	a) System reporting detailing the transaction date/time and the date/time that the transaction was acknowledged by the OBOS shall be compared.
	b) The RTCS and OBOS validates the transactions to ensure that they comply with the Approved ICD, and transactions that do not meet the Approved ICD shall be rejected as incomplete or inaccurate. Unless a rejected transaction is corrected and resubmitted within the required transmission period, they shall not meet this KPI.
1254	For any month in which 100% of the complete IBTs are not transmitted in accordance with the Approved ICD to the OBOS within 120 hours, the Contractor shall be assessed 0.5 points for each 0.500% or portion thereof below the Performance Requirement.
1255	For any month in which all one hundred percent (100%) of the complete IBTs are not transmitted in accordance with the Approved ICD to the OBOS within 240 hours, the Contractor shall be assessed 0.25 points for each 0.100% or portion thereof below the Performance Requirement.

14.3.6 Vehicle Detection Accuracy

The System will be required to generate exactly one (1) transaction for each vehicle which passes through a Toll Zone. Errors can result in lost revenue or inaccurate billing and customer service disputes.

ID#	REQUIREMENT
1256	The Contractor shall create a single transaction for each vehicle which passes through a Toll Zone. A single vehicle may include a vehicle and any additional attachment, such as a trailer. Errors in this metric may be detected through the following:

ID#	REQUIREMENT
	a) Detailed Contractor-led audits, defined during Design, of Toll Zone DVAS (if provided);
	b) Contractor-created data analytics used to detect false/ghost transactions;
	c) Contractor-created data analytics used to detect missing or duplicate transactions; and
	d) Audits conducted through the Authority's independent Digital Video Audit System.
1257	For any month in which the vehicle detection transaction accuracy falls below 99.99%, the Contractor shall be assessed 0.25 points for each 0.01% or portion thereof below the Performance Requirement.

14.3.7 ETC Transaction Capture and Correlation Accuracy

The Contractor will be required to process AVI Transponders accurately. Errors can lead to customers being charged incorrect rates or require image reviews when the Transponder is not read. Such errors affect customer service, public perception, and increase costs for the Authority. Failure to capture, failure to correlate to the correct vehicle, and tags which are not correlated to any vehicle (sometimes known as flushed tags) will count as errors for this KPI.

ID#	REQUIREMENT
1258	The Contractor shall correctly read and correlate properly-mounted Transponders to the correct vehicle and report the correct Transponder status. Error detection methods include but are not limited to the following:
	a) Detailed audits, using data analytics such as a Golden List;
	b) Feedback from customers, OBOS and OBOS staff, Authority staff, and consultants may be utilized to identify inaccurate transactions;
	c) The Authority will utilize trend reporting to identify transactions, or lanes/Toll Zones for further review to identify possibly inaccurate transactions;
	d) Transactions rejected by the OBOS may also be reviewed by the Contractor; and
	e) The Authority may conduct unannounced controlled testing in live traffic as well.
1259	For monthly performance reporting, the Contractor shall audit a sample of ETC Transactions using a list previously constructed by the Contractor of Transponder to plate matches (commonly referred to as a Golden List or Commuter List). This audit shall use statistical methods to determine the ETC Transaction accuracy as detailed in the Approved KPI Guidebook.
1260	For any month in which the ETC Transaction accuracy falls below 99.85%, the Contractor shall be assessed 1.0 point for each 0.10% or portion thereof below the Performance Requirement.

14.3.8 Image Based Transaction Accuracy

This metric will evaluate how accurately the IBT formation process captures and matches images to transactions. It will also check if the correct license plate number, jurisdiction, and plate type are identified. Inaccurate image transactions can result in lost revenue or incorrect billing, which can impact public trust.

ID#	REQUIREMENT
1261	The Contractor shall correctly form IBTs by capturing and correlating images as specified in the functional Requirements and providing the images to the OBOS as specified in the Approved ICD along with license plate data. This metric measures the Contractor's performance in image capture and correlation as well as the accurate identification of license plate number, jurisdiction, and Plate Type. Error detection methods include but are not limited to the following:
	a) Detailed audits of transactions by the Contractor;
	b) Feedback from customers, Authority staff, and consultants shall be utilized to identify inaccurate transactions;
	c) The Authority will utilize trend reporting to identify transactions, or lanes/Toll Zones for further review to identify possibly inaccurate transactions; and
	d) The Authority may conduct unannounced controlled testing in live traffic as well.
1262	For monthly performance reporting, the Contractor shall audit a sample of IBT transactions to determine the IBT Transaction accuracy as detailed in the Approved KPI Guidebook.
1263	For any month in which the IBT accuracy falls below 99.90%, the Contractor shall be assessed 0.5 points for each 0.01% or portion thereof below the Performance Requirement.

14.3.9 CLASSIFICATION ACCURACY

The Contractor must accurately classify all vehicles for proper fare assignment. Incorrect classification assignment can result in incorrect fare assignment which can impact the Authority's revenues and public trust.

ID#	REQUIREMENT
1264	The Contractor shall correctly classify all vehicles according to the functional Requirements in the Contract. Errors may be detected through the following:
	a) Contractor-implemented detailed audits, potentially using data analytics;
	b) Feedback from customers, OBOS staff, Authority staff, and consultants shall be utilized to identify inaccurate transactions;
	c) The Authority will utilize trend reporting to identify transactions, or lanes/Toll Zones for further review to identify possibly inaccurate transactions; and
	d) The Authority may conduct unannounced controlled testing in live traffic as well.
1265	For monthly performance reporting, the Contractor shall audit a sample of transactions to determine the classification accuracy as detailed in the Approved KPI Guidebook.
1266	For any month in which the transaction accuracy falls below 99.8%, the Contractor shall be assessed 1.0 point for each 0.1% or portion thereof below the Performance Requirement.

14.3.10 IMAGE REJECTION ACCURACY

The Contractor will be required to review and disposition images accurately. The incorrect rejection of images results in the inability to collect a toll for that transaction and therefore has a direct impact on the Authority's revenues and can impact the reliability of data used to measure System performance and detect issues. This metric only applies to images that have been rejected.

ID#	REQUIREMENT
1267	The Contractor shall determine the correct reject reason for all images that are rejected and do not meet the criteria for license plate, jurisdiction and plate type identification.
	a) The image shall be rejected accurately and correct rejection code shall be selected 99.75% of the time.
	b) For monthly performance reporting, a sample set of rejected image transactions sized and selected as detailed in the KPI Guidebook shall be selected and audited, then provided to the Authority for their final review of the image review outputs and image rejection codes.
	c) Feedback from customers, OBOS staff, Authority staff, and consultants shall be utilized to identify inaccurate rejections.
1268	For any month in which the image rejection accuracy falls below 99.85%, the Contractor shall be assessed 1.0 point for each 0.1% or portion thereof below the Performance Requirement.

14.3.11 IMAGE QUALITY

The Contractor will capture images of sufficient quality for image review processing. If the image quality is poor, image review will take longer, and ultimately, images may be rejected. The Contractor's performance in this area has a direct impact on the Authority's revenue stream.

ID#	REQUIREMENT
1269	The RTCS shall provide images of sufficient image quality to meet the Requirements such that 99.9% of images captured at each Toll Zone are Human Readable. Images falling into the following categories shall be excluded from this KPI:
	a) the vehicle has no plate;
	b) the plate is not in the camera field of view because it is not mounted in accordance with State laws;
	c) the plate is covered by dirt, a trailer hitch, tailgate, or some other material such that the numbers/letters are not human-readable; or
	d) the plate is damaged so that numbers/letters are not Human Readable.
1270	The Contractor shall audit each Toll Zone monthly by evaluating a random sample of images captured throughout the month to assess the percent which are Human Readable. The Contractor shall provide the data from this audit for Authority review as part of the monthly performance reporting.
1271	For any month in which the Requirement is not met, the Contractor shall be assessed 0.5 points for each 0.1% or portion thereof below the Performance Requirement for each Toll Zone failing to meet the Requirement.

14.3.12 FINAL DISPOSITION

ID#	REQUIREMENT
1272	100.0 percent of Transactions captured in the lanes shall reach the correct status per the Approved Design reflecting delivery of the transaction and all required plate information to the OBOS as of the monthly performance reporting (regardless of subsequent conversion of ETC Transactions to IBT, which shall restart the time for delivery of this information) and shall be auditable and reconcilable through System Reports. The interim and final statuses and disposition of the transactions shall be tracked and reported.
1273	The final status and disposition of all transaction shall be audited to determine if the correct final status was reached.
1274	For any month in which the Requirement is not met, the Contractor shall be assessed 1.0 point for each 0.001% or portion thereof below the Performance Requirement.

14.3.13 FALSE READS

ID#	REQUIREMENT
1275	False reads, defined as cross lane reads and duplicate reads, shall be less than 0.005 percent of the ETC Transactions under all conditions described in this Scope of Work and Requirements.
1276	For monthly performance reporting, the Contractor shall include results from the ETC Transaction Capture and Correlation audit where the cause of incorrect correlation is determined to be a cross lane or duplicate read. In addition, inaccurate account posting or rejects determined to be caused by false reads which are communicated to the THEA OBOS shall be included. The method for combination of these two inputs and calculation of false reads shall be as detailed in the Approved KPI Guidebook.
1277	For any month in which the Requirement is not met, the Contractor shall be assessed 1.0 point for each 0.002% or portion thereof below the Performance Requirement.

14.3.14 POSI LIST PROCESSING

The THEA OBOS will create daily and incremental POSI List files. Receipt of files from THEA OBOS, their version, time of receipt, and processing status will also be tracked. The Contractor will provide the Authority or their designee access adequate to validate the application of POSI List updates and use in transaction processing.

ID#	REQUIREMENT
1278	The RTCS shall receive, process, transmit and apply one hundred percent (100%) of POSI List files as applicable in accordance with these Requirements.
	a) Daily Full POSI List Files – Files transmitted once daily with a full list of Transponders and corresponding statuses must be processed and in use to determine Transponder status within fifteen (15) minutes of receipt from the OBOS.
	b) Incremental POSI List Files – Incremental updates to the POSI List file will be provided throughout each day according to the Approved ICD. These files must be processed and in use to determine Transponder status within ten (10) minutes of receipt from OBOS.
1279	The Contractor shall be assessed 1.0 point for each Day the System fails to meet the processing Requirements for a single Full or Incremental POSI List file.

14.3.15 OPERATIONAL BACK OFFICE SYSTEM COMMUNICATIONS

The THEA OBOS will create daily files such as License Plate Correction as well as send via Application Programming Interface (API) information such as transaction disposition. Receipt of files and API data from the THEA OBOS, their version, time of receipt, and processing status must also be tracked. The Contractor will provide the Authority or their designee evidence adequate to validate the incorporation into processing of the updates locations within the System of their choosing, as detailed in the Approved KPI Guidebook.

ID#	REQUIREMENT
1280	The RTCS shall receive, process, transmit as necessary, and apply the OBOS file and API communications and updates – as defined in the OBOS-RTCS ICD and the SDDD. One hundred percent (100%) shall be processed and applied within twenty-four (24) hours.
1281	The Contractor shall be assessed 1.0 point for each Day the System fails to meet the OBOS communications processing Requirements.

14.3.16 MAINTENANCE MOT NOTIFICATION AND APPROVAL BY THE AUTHORITY

The Contractor will be required to notify the Authority of all MOT placed on the Projects during the Maintenance periods. The Authority must Approve all MOT before Work commences.

ID#	REQUIREMENT
1282	The Contractor shall notify the Authority of all MOT activities during the Maintenance period including MOT for scheduled preventive and predictive Maintenance and for corrective Maintenance.
	a) The Contractor shall provide a schedule of all preventive and predictive Maintenance MOT activities for the month by the fifth (5th) Calendar Day of the month.
	b) The Contractor shall provide a minimum of forty-eight (48) hours of notice prior to any changes to the monthly Maintenance MOT schedule.
1283	The Contractor shall be assessed 1.0 point for each instance of failure to inform the Authority of MOT activities within the Required prior notice and for each failure to receive Approval for MOT activities.

14.3.17 MAINTENANCE MOT IMPLEMENTATION

The Contractor will be required to meet the MOT implementation requirements listed in the Maintenance MOT Implementation section during the Operations and Maintenance Phase. Any failure to adhere to these requirements while implementing MOT, including during setup and takedown, will result in assessment of non-conformance points.

ID#	REQUIREMENT
1284	The Contractor shall be assessed 2.0 points for each instance of failure to adhere to the MOT implementation Requirements listed in the Maintenance of Traffic section during the Maintenance Phase.

14.3.18 TIME TO REPAIR (TTR)

ID#	REQUIREMENT
1285	Time to Repair shall be measured from the time of the failure Alert to the actual time of return to service.

ID#	REQUIREMENT
1286	The Contractor shall record the actual end time and the basis of that determination in the MOMS Work Order record, including auto-closures.
1287	The Contractor shall complete repair of **Priority 1** failures/events as follows:
	a) Roadside System: respond and complete repair within two (2) hours of failure/event notification.
	b) RSS: respond and complete repair within four (4) hours of failure/event notification.
1288	The Contractor shall be assessed 1.0 point per occurrence for every additional delay of one (1) hour to respond and complete repair of Priority 1 failures/events.
1289	The Contractor shall respond to, and complete repair of **Priority 2** failure/events as follows:
	a) Roadside System: respond and complete repair within four (4) hours of failure/event notification.
	b) RSS: respond and complete repair within eight (8) hours of failure/event notification.
1290	The Contractor shall be assessed 1.0 point per occurrence for every additional delay of two (2) hours to respond and complete repair of Priority 2 failures/events.
1291	The Contractor shall respond to, and complete repair of **Priority 3** failures/events as follows:
	a) Roadside System: respond and complete repair within eight (8) hours of failure/event notification.
	b) RSS: respond and complete repair within twenty-four (24) hours of failure/event notification.
1292	The Contractor shall be assessed 1.0 point per occurrence for every additional delay of two (2) hours to respond and complete repair of Priority 3 failures/events.
1293	Adjustments to the TTR shall be adjusted by the following:
	a) time between when the Contractor requests Approval of an MOT and when the Authority Approves an MOT for a Maintenance response shall be excluded;
	b) time between when the Authority Approves an MOT and the scheduled completion of MOT setup shall be excluded;
	c) time between when the Contractor completes Work and when the MOT is removed shall be excluded;
	d) time between when the Contractor requires and requests access to any location for which the Authority controls access and when the Approved access time begins shall be excluded; and
	e) time to access the any location may be excluded to the extent a delay is caused by the Authority. The Contractor shall document the access delay and demonstrate an impact subject to Authority review and Approval.

14.3.19 VULNERABILITY PATCH UPDATES

The Contractor will be required to meet the following requirements regarding notification of vulnerabilities and installation of Critical Updates and patches to vulnerabilities discovered during the course of Operations

and Maintenance.

ID#	REQUIREMENT
1294	The Contractor shall be Assessed 5.0 points per occurrence for failure to meet the Requirements to notify the Authority of Critical Vulnerabilities. Vulnerabilities reported together by a single entity (e.g. OEM) shall count as a single occurrence for purposes of this KPI.
1295	The Contractor shall be Assessed 2.0 points per occurrence for failure to meet the Requirements to notify the Authority of vulnerabilities lower than Critical Vulnerabilities. Vulnerabilities reported together by a single entity (e.g. OEM) shall count as a single occurrence for purposes of this KPI.
1296	The Contractor shall be Assessed 5.0 points per occurrence for failure to meet the Requirements to develop and install Critical Updates. Patches provided together by a single entity (e.g. OEM) shall count as a single occurrence for purposes of this KPI.
1297	The Contractor shall be Assessed 2.0 points per occurrence for failure to meet the Requirements to develop and install patches for vulnerabilities lower than Critical Vulnerabilities. Patches provided together by a single entity (e.g. OEM) shall count as a single occurrence for purposes of this KPI.

14.4 NON-COMPLIANCE PERFORMANCE ADJUSTMENTS

ID#	REQUIREMENT
1298	The Contractor's performance level shall be determined each month by adding the points assessed for non-compliance. The performance level is set based on the applicable range of non-compliance points as depicted below in **Table 11-3: Non-Compliance Adjustments**.
1299	A performance adjustment shall be made to the monthly invoice in each month that the Contractor exceeds the allowable number of non-compliance points in accordance with the monthly adjustment percentage identified in **Table 11-3: Non-Compliance Adjustments**. The maximum monthly adjustment amount that may be made by the Authority to the Contractor's monthly invoice is fifty percent (50%).

Table 14-3 Non-Compliance Adjustments

Performance Level	Non-Compliance Points	Monthly Adjustment Percentage
Level 1	0 – 10	0%
Level 2	11 – 20	5%
Level 3	21 – 30	10%
Level 4	31 – 40	15%
Level 5	41 – 50	20%
Level 6	51 – 60	25%
Level 7	61 – 70	30%
Level 8	71 – 80	35%
Level 9	81 – 90	40%
Level 10	91 – 100	45%
Level 11	>100	50%

14.5 ESCALATION

In cases where the Contractor fails to meet a specific Performance Requirement in two (2) or more consecutive months, the number of non-compliance points will be multiplied by two (2) or by four (4) depending on the number of consecutive months and up to the maximum monthly adjustment amount of fifty percent (50%) of the Contractor's monthly invoice as detailed in the Requirements below.

ID#	REQUIREMENT
1300	The first month that a specific Performance Requirement is not met shall result in the assessment of the initial value of the non-compliance points assigned in **Table 11-3: Non-Compliance Adjustments**.
1301	If a specific Performance Requirement is not met again for a second consecutive month, the non-compliance points shall be double the points assessed for all failures of that Performance Requirement for that month.
1302	If a specific Performance Requirement is not met again for a third consecutive month (and for subsequent consecutive non-compliant months thereafter), the non-compliance points shall be set at quadruple the points assessed for all failures of that Performance Requirement for that month (and assessed quadruple the points for any subsequent non-compliant months).

The following scenario is provided as an example:

Table 14-4 Points Escalation Assessment Example

Month	Required KPI	Actual KPI	Missed	Points	Escalation Assessed	Actual Points Assessed
1	99.95%	99.45%	0.50%	5	1x	5
2	99.95%	99.55%	0.40%	4	2x	8
3	99.95%	99.65%	0.30%	3	4x	12
4	99.95%	99.75%	0.20%	2	4x	8

14.6 DIRECT DAMAGES

In addition to the monthly Invoice Adjustment based on accrual of non-compliance points, the Contractor may also be charged with direct damages related to Performance Requirement failures as defined in the Liquidated Damages section of the Terms and Conditions.

14.7 NON-CHARGEABLE AND CHARGEABLE FAILURES AND DOWNTIME

For the purposes of calculating compliance of KPIs the following terms are defined:

a) Non-Chargeable Failures are those failures that are identified in the following section 11.10.

b) Chargeable Failures are any failures not specifically identified as non-chargeable.

c) Chargeable Downtime is downtime which is accrued during Chargeable Failures or during periods of corrective Maintenance activities.

d) Non-Chargeable Downtime is downtime which is accrued during:

i. Non-Chargeable Failures; or
ii. Approved and scheduled (preventive, pervasive, or predictive) Maintenance activities.

During the total_time of a performance reporting period (i.e., a calendar month), all time is either Uptime or Downtime.
Equation 1 Total_time = Uptime + Downtime.
Downtime is further characterized as Chargeable Downtime or Non-Chargeable Downtime.
Equation 2 Downtime = Chargeable Downtime + Non-Chargeable Downtime.
And
Equation 3 Chargeable Downtime = Downtime – Non-Chargeable Downtime

14.8 NON-CHARGEABLE FAILURES

ID#	REQUIREMENT
1303	Non-chargeable failures shall include:
	a) Force Majeure, as defined in the Contract Documents;
	b) vandalism;
	c) failure of a test facility or test instrumentation, with the exception of the Test Toll Zone;

ID#	REQUIREMENT
	d) RTCS component failures caused by environmental or operating conditions outside of the Requirements of this SOW and Requirements;
	e) normal operating adjustments as allowed in the MTP or System Maintenance Plan, as applicable;
	f) failures where the Authority has Approved to waive a chargeable failure in advance; and
	g) failures that are customer or Authority user induced or are caused by a third-party service provider not under the Contractor's control as determined by the Authority.

14.9 CHARGEABLE FAILURES

ID#	REQUIREMENT
1304	Chargeable failures shall include any failures not specifically identified as non-chargeable.

14.10 PERFORMANCE REPORTING

The Contractor will provide the Authority a monthly RTCS performance report package that includes the Contractor's performance reports and monthly scorecard. The Contractor's performance report package will include a series of reports detailing the Contractor's performance against each Performance Requirement and details related to the failure events that resulted in the non-compliance. The Contractor's performance report package will contain all information necessary for the Authority to verify the Contractor's performance as reported by the Contractor.

ID#	REQUIREMENT
1305	The Contractor shall describe in detail how the performance against each Requirement shall be tracked, tested, and reported, identifying specific reports and data elements. In the case of a KPI which cannot be tracked by the RTCS, the form of manual tracking or testing must be described and included in the KPI Guidebook.
1306	The Contractor shall prepare and submit to the Authority the performance report package by the 15th of each month.
1307	The performance report package shall include a performance scorecard calculating the non-compliance points assessed that month, if applicable, a series of reports, one (1) per Performance Requirement detailing the Contractor's performance against the Requirement that month supporting the scorecard for each KPI and a historical report detailing the Contractor's performance against each Requirement for the most recent twelve (12) months. See the Section titled "Performance Measurement" for details on these reports. Copies of all CAPs related to critical failures for that month must be Approved and included.
1308	The Contractor shall provide the required performance report package to the Authority before an invoice is considered for payment.
1309	Performance reporting by the Contractor and any associated adjustments related to Performance Requirements shall begin for the period beginning on the first Day of the Operations and Maintenance Phase and shall continue for the duration of the Contract.

15 END OF CONTRACT TRANSITION

The Contractor acknowledges that the Services it provides under the terms of the Contract are vital to the successful operation of the System and that said Services must continue without interruption. Upon end of the Contract for whatever reason, a successor (the Authority or a new contractor) may be responsible for providing these Services. The Contractor agrees to exercise its best efforts and cooperation to affect an orderly and efficient transition to a successor in accordance with the Contract and these Requirements.

ID#	REQUIREMENT
1310	Upon the Authority's written Notice, the Contractor shall furnish transition Services during the last ninety (90) Calendar Days prior to the end of the Contract Term as part of the Maintenance Services at no additional cost to the Authority.
1311	The Contractor shall fully cooperate with the successor contractor or Authority staff and support all pertinent activities in accordance with the successor contractor's Contract Transition Plan.
1312	The Contractor shall provide sufficient Roadside System and RSS technical and Software support personnel in each division of Work during the entire transition period to ensure that the quality of Services is maintained at the levels required by this Contract.
1313	The Contractor shall provide sufficient staff to help the successor maintain the continuity and consistency of the Services required by the Contract. The Contractor shall allow the successor to conduct on-site interviews with the employees.
1314	The Contractor shall provide the necessary Software, and systems support Services to assist the successor contractor in setting up the successor contractor's systems, complete transfer of appropriate licenses and third-party Software, and support transition of all data required to sustain uninterrupted service as directed by the Authority.
1315	The Contractor shall make all necessary provisions for transferring any leases or sub-leases held by the Contractor to the Authority, including without limitation, all keys, security codes, and other codes and other facility access information or devices.
1316	The Contractor shall make all other records, documents, data, and Software which is licensed to the Authority and pertaining to the Services rendered for this Contract available within thirty (30) Calendar Days upon written Notice or as otherwise provided in the executed License agreement.
1317	The Contractor shall make all Operational records, documents, data, systems, specialty tools and Equipment, and facilities required to support and maintain day-to-day Services being rendered under this Contract available before the date of such termination, suspension, or expiration.

16 OPTION SERVICES TO BE EXECUTED AT THE AUTHORITY'S DISCRETION

The following describes the Services to be executed at the sole discretion of the Authority.

16.1 RTCS BUSINESS CONTINUITY SOLUTION

ID#	REQUIREMENT
1318	The Contractor shall provide a RTCS Business Continuity Solution as part of the Design.

ID#	REQUIREMENT
1319	The RTCS Business Continuity Solution shall consist of a portable equipment mounting device and necessary Hardware to provide for the temporary use of cameras, AVI equipment, and other associated equipment related to a Toll Zone in the case of catastrophic damage to the toll gantry at that site.
1320	The RTCS Business Continuity Solution shall be able to collect sufficient level of transaction information to maintain the revenue stream from the impacted Toll Zone for a single lane.
1321	The RTCS Business Continuity Solution shall support the following assumptions and Requirements:
	a) if the permanent lane Equipment is used, the solution shall be implemented with only minor, reversible modifications to the permanent lane Equipment;
	b) the solution shall consist of all cabling, cabinetry, fasteners, etc. to readily accept Existing Toll Zone equipment from spare stock or functional equipment removed from the damaged toll gantry;
	c) the solution shall include a generator to provide power;
	d) the solution shall include a UPS with the capability to power the solution for two (2) hours and all solution Equipment shall be powered through the UPS to provide clean, constant power;
	e) the solution shall include a cellular modem or other portable means of communication which allow the Business Continuity Solution to be deployed remotely from existing RTCS network equipment;
	f) the solution shall include the capability to be connected to the Roadside network through the existing switches in Toll Zone cabinet;
	g) the Business Continuity Solution shall be capable of being deployed by the Contractor within forty-eight (48) hours of Notification from the Authority and within twenty-four (24) hours of securing proper MOT for the affected Toll Zone area;
	h) only rear plates shall be captured by the Business Continuity Solution;
	i) existing in-pavement loops or detection equipment (if functional) shall be used for triggering and performing axle classification with the temporarily mounted equipment if the RTCS ordinarily uses this in-pavement equipment. The Contractor shall propose alternate methods if detection equipment is not functional;
	j) the equipment for the Business Continuity Solution shall be taken from spares as applicable;
	k) the current KPIs related to Lane performance will be waived for the impacted site until the site is returned to the original Design configuration;
	l) the solution and surrounding equipment will be subject to same preventive Maintenance schedule that the fixed toll gantry receives; and
	m) the goal of the Business Continuity Solution is to be capable of capturing sufficient data for revenue collection on ninety percent (90%) of all traffic that passes through the tolling point.

16.2 ALL-OVERHEAD AVDC SOLUTION

ID#	REQUIREMENT
1322	The Contractor shall provide an all-overhead (no in-pavement equipment allowed) AVDC solution that meets the Scope of Work and Requirements, including Performance Requirements.
1323	The Roadside System shall report the width and height for each vehicle associated with a toll transaction.

16.3 THIRD-PARTY IMAGE REVIEW SERVICE INTERFACE

If the Authority determines that the Contractor is failing to meet the image review Services related performance standards established in the Contract, the Authority may elect to take over responsibility for image review Services. In support of this option, the RTCS will interface with a third-party image review Service. The Contractor will not be compensated for image review Services in the event that the Authority takes over the image review Services.

ID#	REQUIREMENT
1324	In the event that the Authority assumes responsibility for image review Services, the RTCS shall implement an interface with a third-party image review Service.
1325	In the event that the Authority assumes responsibility for image review Services, the RTCS shall provide IBT data, including images to a third party designated by the Authority via the third-party image review Service interface.
1326	In the event that the Authority assumes responsibility for image review Services, the Contractor shall cooperate with the Authority, the third party designated by the Authority, and other Authority-Designated Representatives in the Design, Documentation, and integration of the third-party image review Service interface.
1327	In the event that the Authority assumes responsibility for image review Services, the details of the third-party image review Service interface, including designating server/client relationship, transport mechanism, transfer mechanism for images, acknowledgment mechanism, and other details, shall be identified during this Design process.
1328	In the event that the Authority assumes responsibility for image review Services, the third-party image review Service interface shall be capable of providing one hundred percent (100%) throughput of IBTs from the RTCS without compromising Performance of the RTCS.