



## **ADDENDUM #2**

The attention of bidders is called to the following changes and/or additions/deletions to the original Request for Proposals (RFP) 21-08 document which shall be taken into account in preparing the Proposal and shall be part of Contract 21-08.

### **ADDITIONAL INFORMATION AND ADDITIONS/DELETIONS**

Please refer to the following attachments for additional information and additions/deletions to RFP 21-08: RITBA AET SYSTEM RFP.

1. RITBA RFP 21-08 revised Sections 3.1, 4.2, 4.2.2, 5.1 and 6.9 with additions/deletions pertaining to Disadvantaged Business Enterprise (DBE) participation requirements. Section 4.2.2.7 has been deleted, and Section 4.2.4 has been added.
2. New Attachment E – MBE, WBE and/or DBE Plan Form.
3. Attachment A – Requirements Conformance Matrix (RCM) in Excel and PDF formats.
  - a. Includes additional RFP revisions. Revisions are marked in accordance with the RCM Instructions.

### **3. PROPOSAL SUBMISSION PROCESS**

The Authority will accept Proposals responding to this RFP until the hour and date specified on the cover page of the RFP. To respond to this RFP, please provide a complete response to the Authority at the address listed below.

#### **3.1. Means for Submitting**

Respondents shall simultaneously submit a three-part Proposal, with each part submitted in separately sealed packages:

**PART I – TECHNICAL PROPOSAL:** An original written and printed response, marked as “**original**”, five (5) paper copies, one (1) Portable Document Format (PDF) electronic copy saved on a USB Flash Drive, one (1) Microsoft Excel version of the Requirements Conformance Matrix on the USB Flash Drive, one (1) redacted paper copy and one (1) redacted PDF electronic copy (any information deemed as “Confidential” shall be redacted) shall be returned in a sealed package or envelope bearing the name and address of the respondent, and be labeled “**TECHNICAL PROPOSAL TO DESIGN, INSTALL AND MAINTAIN A NEW ALL-ELECTRONIC TOLLING SYSTEM FOR THE CLAIBORNE PELL BRIDGE**”.

**PART II – PRICING PROPOSAL:** An original written and printed response, marked as “**original**”, five (5) paper copies, one (1) Portable Document Format (PDF) electronic copy and one (1) Microsoft Excel electronic copy saved on a USB Flash Drive shall be returned in a sealed package or envelope bearing the name and address of the respondent, and be labeled “**PRICING PROPOSAL TO DESIGN, INSTALL AND MAINTAIN A NEW ALL-ELECTRONIC TOLLING SYSTEM FOR THE CLAIBORNE PELL BRIDGE**”.

**PART III – MBE, WBE AND/OR DBE PLAN:** A completed “MBE, WBE and/or DBE Plan Form” (discussed in Section 6.9 of this RFP) shall be returned in a sealed envelope bearing the name and address of the respondent, and be labeled “**MBE, WBE AND/OR DBE PLAN FOR THE DESIGN, INSTALLATION AND MAINTENANCE OF A NEW ALL-ELECTRONIC TOLLING SYSTEM FOR THE CLAIBORNE PELL BRIDGE**”.

Your RFP responses may be mailed, or hand delivered, and must be received prior to the deadline specified on the cover page of the RFP to:

**Office of Procurement  
Rhode Island Turnpike and Bridge Authority  
1 East Shore Road  
P.O. Box 437  
Jamestown, RI 02835**

#### **RESPONSES MAY NOT BE SUBMITTED ELECTRONICALLY.**

Respondents are advised that if they are hand delivering proposals to the Authority offices, access requires the wearing of a face mask which covers the nose and mouth in accordance with the Governor’s Executive Order(s) and Rhode Island Department of Health Emergency regulations.

Late submissions will **not** be accepted. The Authority accepts deliveries during normal business hours Monday through Friday 8:30am to 4:00pm EDT excluding national and local state holidays. It is the sole responsibility of the responding firm to ensure delivery of its proposal on or before the due date/time as the Authority will not accept any proposals that are received after the due date/time. To control the dissemination of information regarding this RFP, firms interested in submitting proposals shall not make personal contact with any member of Authority staff and/or Board of Directors.

**SEALED TECHNICAL PROPOSAL**  
**RFP #: 21-08**  
**SUBMITTAL DATE: December 3, 2021**  
**SUBMITTAL TIME: 3:00 P.M. EST**  
**DESCRIPTION: *DESIGN, INSTALL AND MAINTAIN A***  
***NEW ALL-ELECTRONIC TOLLING SYSTEM***  
***FOR THE CLAIBORNE PELL BRIDGE***  
**DATED MATERIAL DELIVER IMMEDIATELY**

**SEALED PRICING PROPOSAL**  
**RFP #: 21-08**  
**SUBMITTAL DATE: December 3, 2021**  
**SUBMITTAL TIME: 3:00 P.M. EST**  
**DESCRIPTION: *DESIGN, INSTALL AND MAINTAIN A***  
***NEW ALL-ELECTRONIC TOLLING SYSTEM***  
***FOR THE CLAIBORNE PELL BRIDGE***  
**DATED MATERIAL DELIVER IMMEDIATELY**

**SEALED MBE, WBE AND/OR DBE PLAN**  
**RFP #: 21-08**  
**SUBMITTAL DATE: December 3, 2021**  
**SUBMITTAL TIME: 3:00 P.M. EST**  
**DESCRIPTION: *DESIGN, INSTALL AND MAINTAIN A***  
***NEW ALL-ELECTRONIC TOLLING SYSTEM***  
***FOR THE CLAIBORNE PELL BRIDGE***  
**DATED MATERIAL DELIVER IMMEDIATELY**

PLEASE PREPARE AND AFFIX THE LABELS SHOWN ABOVE TO THE OUTERMOST PACKAGE/ENVELOPE OF YOUR TECHNICAL PROPOSAL; PRICING PROPOSAL; AND MBE, WBE AND/OR DBE PLAN FORM TO HELP ENSURE PROPER DELIVERY.

**RETURN ADDRESS LABEL**

**VENDOR NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**CITY/STATE/ZIP:** \_\_\_\_\_

PLEASE PREPARE AND AFFIX THE LABEL SHOWN ABOVE TO THE TOP LEFT CORNER OF YOUR PACKAGE/ENVELOPE OF YOUR TECHNICAL PROPOSAL; PRICING PROPOSAL; AND MBE, WBE AND/OR DBE PLAN FORM TO HELP IDENTIFY THE VENDOR SUBMITTING THE BID.

## **4. PROPOSAL CONTENT REQUIREMENTS**

Proposals will contain the substance described in this section, and Respondents shall limit the volume of its Proposal to that which is necessary to clearly and concisely fulfill these requirements.

### **4.1. Proposal Format**

The Proposal shall contain concise written material and accompanying information to enable a clear understanding and evaluation of both the capabilities of the Respondent and the characteristics and benefits of the Proposal. Legibility, clarity and completeness of the Proposal are essential. The Proposal shall consist of text, drawings, graphs, photographs and tables, as needed, to clearly describe the Respondent's approach. An 8-1/2" x 11" single-spaced, 11-point font format is required for typed submissions for the Proposal and an 11" x 17" format is permitted for graphics, drawings, and schematics unless otherwise specified in these documents. Respondents are permitted to use a smaller font, no less than 10-point, for headers and footers, requirement text, exhibits, figures, graphics and tables to ensure readability. Pre-printed materials are exempt from the 12-point font format provided they are legible.

### **4.2. Proposal Contents**

The Respondent is solely responsible to see that its Proposal is received as required. Proposals received after the date and time provided on the cover page of the RFP may be rejected without consideration or evaluation.

The term "Proposal" means a Respondent's complete response to the RFP, including the Technical Proposal and the Pricing Proposal. Respondents will simultaneously submit a three-part Proposal as described below, with each part submitted in separately sealed packages:

**PART I – TECHNICAL PROPOSAL** –The electronic version of the Technical Proposals shall be submitted in Adobe PDF (searchable text) on USB Flash Drive clearly labeled as directed in Section 3.1 of this RFP. Electronic Technical Proposal submissions shall include the following in the filename: "Technical Proposal Submission".

**PART II – PRICING PROPOSAL** –The electronic version of the Pricing Proposals shall be submitted in native Microsoft Excel format and Adobe PDF (searchable text) on USB Flash Drive clearly labeled as directed in Section 3.1 of this RFP. Electronic Pricing Proposal submissions shall include the following in the filename: "Pricing Proposal Submission."

**PART III – MBE, WBE AND/OR DBE PLAN** –The electronic version of the completed "MBE, WBE and/or DBE Plan Form" shall be submitted in Adobe PDF (searchable text) on USB Flash Drive clearly labeled as directed in Section 3.1 of this RFP. Electronic MBE, WBE and/or DBE Plan submissions shall include the following in the filename: "MBE, WBE and/or DBE Plan Submission."

#### **4.2.1. Proposal Organization**

To assist Respondents in preparing Proposals, the required contents, as well as any supplied forms, are listed in the following subsections. The Proposal contents shall be organized in the order listed herein and shall be clearly indexed to facilitate review of the Proposals. Each component shall be clearly titled and identified.

Proposals shall adhere to the outlines shown in Table 4-1: Technical Proposal Organization and Table 4-2: Pricing Proposal Organization. Technical Proposals shall not exceed a total page limit of 50 pages and should include only the items identified in the outline shown below. Respondents are permitted to use binder tabs and divider sheets which are excluded from the Technical Proposal page count limits. Respondents are also permitted to use a single Title Page for Trade Secret, Proprietary & Confidential disclaimers and Copyright language which is excluded from the Technical Proposal page count limits. No page limit is specified for Pricing Proposals.

**4.2.2. Technical Proposal Contents**

**Table 4-1: Technical Proposal Organization**

Technical Proposal Outline Section	Page Limit Applies? (Yes/No)
Cover Letter	Yes
Table of Contents	No
Section I: Executive Summary	Yes
Section II: Conformance with RFP Requirements	No
Section III: Narrative Responses 1. Project Team, Experience and Past Performance 2. SYSTEM Design and Technical Approach 3. Project Implementation, Project Schedule and Transition 4. Operations and Maintenance Support Approach	Yes (excluding resumes)
Section IV: Corporate and Financial Information	No
Section V: Current Workload	No

No dollar amounts shall be included in the Technical Proposal.

**4.2.2.1. Cover Letter**

A Cover Letter must accompany each response signed by an owner, officer, or other authorized agent of the Respondent. The Cover Letter shall be limited to 2 pages and shall identify the point of contact for the Respondent, including their name, mailing address, email address, and phone number.

**4.2.2.2. Section I – Executive Summary**

Each Respondent shall submit an executive summary with its Technical Proposal. The executive summary shall be written in a non-technical style and shall contain sufficient information for reviewers with both technical and non-technical backgrounds to become familiar with the Proposal and its ability to satisfy the Requirements of this RFP.

- (10) Performance Guarantee. Respondents must submit documentation evidencing their ability to obtain a performance guarantee (performance bond or letter of credit) in a form, substance and amount, from a Surety satisfactory to the Authority that would be required under the Contract pursuant this RFP; and provide an affirmative statement that if awarded the Contract, Respondent will enter into the Contract and furnish a required performance guarantee of 100 percent of the SYSTEM Implementation cost. Only those sureties listed in the US Department of Treasury's Listing of Approved Sureties (Department Circular 570) and are authorized to do business in the State of Rhode Island are acceptable to the Authority. In their technical proposal, the Respondent shall state whether they are providing a performance bond or a letter of credit, as well as provide all the necessary supporting documentation.
- (11) Maintenance Bond. Respondents must submit documentation evidencing their ability to obtain a maintenance bond in a form, substance and amount, from a Surety satisfactory to the Authority that would be required under the Contract pursuant this RFP. Only those sureties listed in the US Department of Treasury's Listing of Approved Sureties (Department Circular 570) are acceptable to the Authority. Respondents shall provide an affirmative statement that if awarded the Contract, Respondent will enter into the Contract and furnish a required guarantee of 100 percent of the SYSTEM maintenance cost (initial term only). An annually renewable maintenance bond based on the value of each year of maintenance service is acceptable.
- (12) Exceptions to Financial, Commercial and Legal Requirements. Describe and explain any exceptions, concerns or requested adjustments related to the financial, commercial, and legal requirements set forth in this RFP and proposed Contract.
- (13) Financial Profile. If a Respondent experiences a material change in financial condition, or if the Contractor experiences a material change in financial condition during the term of a Contract with the Authority, the Respondent must notify the Authority in writing at the time the change occurs or is identified.

4.2.2.6. *Section V: Current and Anticipated Workload*

Respondents, including subcontractors, shall disclose their workload on current tolling projects or tolling projects that they are about to engage in by providing a list of clients, scope of work, budget, completion status, contact information, etc. Respondents shall explain how their project team will be able to dedicate sufficient resources both in manpower and capital to implement, operate and maintain this project. Respondents shall also disclose whether key personnel proposed for the project are supporting other current projects (personnel name, availability, commitment to other projects, etc.).

4.2.3. **Pricing Proposal Contents**

**Table 4-2: Pricing Proposal Organization**

Pricing Proposal Outline Section	Page Limit Applies? (Yes/No)
Pricing Proposal Form  (In the form of APPENDIX C – PRICING PROPOSAL TEMPLATES)	No  (Excel / PDF Sheets Excluded)

Respondents shall complete the Price Proposal in accordance with the following instructions:

- (1) Respondents shall submit their Pricing Proposals in the format provided in the Pricing Proposal Templates included in the RFP as APPENDIX C – PRICING PROPOSAL TEMPLATES. The Pricing Proposal Templates contain formulas and other calculated cells. These cells shall not be modified or altered by the Respondent.
- (2) The Pricing Proposal Templates must be completed in their entirety. The Respondent shall only enter values for lump sum cost items, unit costs and labor rates. However, Respondents may propose alternative pricing schemes as appropriate for their solution in addition to the form required under APPENDIX C.
- (3) The Respondent’s completed and submitted Pricing Proposal Templates shall constitute an offer as full and complete compensation, including expenses or other reimbursables, to perform the Respondent’s obligations under this Project.
- (4) The Excel file is provided merely as an electronic aid, and the Respondent shall verify that the formulas and calculations used in the Excel form provided are performing correctly and check each of the completed Pricing Proposal Templates for correctness and accuracy.
- (5) Upon completion of all sheets, an officer or an individual otherwise authorized in writing by an officer of the Respondent to sign the Contract must sign and date each Pricing Proposal Form Sheet in the appropriately provided signature line. The Signatures shall indicate approval and commitment for the entire completed Pricing Proposal Form. Electronic signature is acceptable.
- (6) The Respondent shall submit in both the original Microsoft Excel and PDF (searchable text) formats.

1. The Pricing Proposal Templates for the Project are as follows:

- a. Sheet 1 – SYSTEM Cost Summary

Sheet 1 contains a summary of the total AET SYSTEM project cost. Items 1 through 5 are derived by formula from Sheet 2, Sheet 3, Sheet 4, Sheet 5 and Sheet 6. The Respondent shall not directly enter any values on Sheet 1 for Items 1 through 5.

Once the form as been completed, the Respondent shall sign and date at the bottom of Sheet 1 in the indicated area.



Base Period: December 1977=100

[https://www.bls.gov/regions/mid-atlantic/news-release/consumerpriceindex\\_northeast.htm](https://www.bls.gov/regions/mid-atlantic/news-release/consumerpriceindex_northeast.htm)

Once the form has been completed, the Respondent shall sign and date at the bottom of Sheet 7 in the indicated area.

The Authority reserves the right to reject the submittal if it is not completed in accordance with the instructions set forth herein.

If the Authority has the ability to procure any direct cost items (i.e., hardware, software) through any State terms, cooperative or joint purchasing contract at lower pricing than the Respondent, the Authority shall have the option to directly supply those items according to the Respondent's specifications.

Throughout the Contract term the Authority may choose to implement changes to the AET SYSTEM. These changes may include the addition or reduction in functionality, technology, equipment, operations services, etc. In the event any such changes introduce a materially significant change in maintenance efforts, the Authority reserves the right to adjust the selected Respondent's maintenance fee based on mutually agreeable terms.

The TSI shall not mark up any direct cost items (hardware or software) by more than 10 percent of the manufacturer's price. The cost for repairs performed by a third party shall be a pass-through cost to the Authority without additional mark up costs.

All third-party vendor costs shall be passed through to the Authority with no markup or upward adjustment. This may include but is not limited to penetration testing costs.

#### **4.2.4. MBE, WBE and/or DBE Plan Contents**

Respondents shall discuss whether any proposed subcontractors are certified as a Disadvantaged Business Enterprise (DBE) in the State of Rhode Island in a "MBE, WBE and/or DBE Plan Form", described in Section 6.9. Respondents shall submit a completed "MBE, WBE and/or DBE Plan Form" to the Authority as Part III of their Proposal.

## **5. PROPOSAL EVALUATION AND SELECTION PROCESS**

### **5.1. Proposal Evaluation Overview**

The Authority will conduct an evaluation process to recommend and select the Respondent proposing the best value to the Authority. The evaluation will analyze each Respondent's Proposal based on the scoring shown in Table 5-1: Proposal Evaluation Scoring. The selection process will consist of multiple steps under which the Authority (1) will evaluate and score the Proposals; (2) may eliminate Respondents that fail to score among the top tier or within a competitive range of the top-ranked Respondents; (3) may interview the top-ranked Respondent(s); and (4) may request Best and Final Offers (BAFO). The Authority reserves the right to omit any planned evaluation step if, in the Authority's view, the step is not needed, and may reasonably interpret and make logical inferences with respect to submitted proposals to facilitate the evaluation process.

The Authority will evaluate the Proposal Part I: Technical Proposals and Part III: MBE, WBE and/or DBE Plans, including Corporate and Financial Data, based on the criteria set forth in Table 5-1: Proposal Evaluation Scoring and on the merits of the responses to this RFP.

Proposal evaluations will be based upon the numerical weighting set forth in Table 5-1. The Technical Proposal will have a weighting of seventy percent (70%) of the total score and the Cost Proposal will have a weighting of thirty percent (30%) of the total score.

**Table 5-1: Proposal Evaluation Scoring**

<b>EVALUATION CRITERIA</b>	<b>POINTS</b>
<b>TECHNICAL PROPOSAL</b>	<b>70</b>
<i>Capabilities, Experience and Past Performance</i>	<i>10</i>
<i>Design and Technical Approach</i>	<i>25</i>
<i>Project Implementation, Project Schedule, Transition and Testing</i>	<i>20</i>
<i>Maintenance Support Services Approach</i>	<i>15</i>
<b>PRICING PROPOSAL</b>	<b>30</b>
<b>TOTAL POTENTIAL MAXIMUM POINTS AWARDED</b>	<b>100</b>
<b>MBE, WBE and/or DBE Plan</b>	<b>Up to 6 bonus points</b>

### **5.2. Technical Proposal Evaluation**

#### **5.2.1. Interview List**

Initial Technical Review will result in potential further shortlisting (i.e., narrowing the list of Respondents down to those within a competitive range) to determine Respondents that will be invited to interviews. The Authority may elect, after preliminary evaluation of Technical Proposals, to establish a competitive range to determine the most highly rated Respondents who would be eligible to further proceed in the evaluation process.

## 6.9. MBE, WBE and/or DBE Participation

The firm must indicate that it will comply with all applicable Federal, State and Local regulations and laws, including Affirmative Action and the Disadvantaged Business Enterprise (DBE) programs. In accordance with R.I. Gen. Laws §§ 37-14.1-1 and 37-2.2-1 it is the policy of the State of Rhode Island to support the fullest possible participation of firms owned and controlled by minorities (MBEs) and women (WBEs) and to support the fullest possible participation of small disadvantaged businesses owned and controlled by persons with disabilities (Disability Business Enterprises, a/k/a “DisBE”), (collectively, MBEs, WBEs, and DisBEs are referred to herein as ISBEs) in the performance of State procurements and projects.

As part of the evaluation process, vendors will be scored and receive points based upon their proposed ISBE utilization rate in accordance with 220-RICR-80-10-2 “Regulations Governing Participation by Small Business Enterprises in State Purchase of Goods and Services and in Public Works Projects”. As a condition of contract award vendors shall agree to meet or exceed their proposed ISBE utilization rate and that the rate shall apply to the total contract price, inclusive of all modifications and amendments. Vendors shall submit their ISBE participation rate on the enclosed form entitled, “MBE, WBE and/or DBE Plan Form” (provided as Attachment E to this RFP), which shall be submitted in a separate, sealed envelope as part of the Proposal. ISBE participation credit will only be granted for ISBEs that are duly certified as MBEs or WBEs by the State of Rhode Island, Department of Administration, Office of Diversity, Equity and Opportunity, or firms certified as DisBEs by the Governor’s Commission on Disabilities. The current directory of firms certified as MBEs or WBEs may be accessed at <http://odeo.ri.gov/offices/mbeco/mbe-wbe.php>. Information regarding DisBEs may be accessed at [www.gcd.ri.gov](http://www.gcd.ri.gov).

For further information, visit the Office of Diversity, Equity and Opportunity’s website at <http://odeo.ri.gov/> and see R.I. Gen. Laws 37-14.1, R.I. Gen Laws Ch. 37-2.2, and 220-RICR-80-10-2.

## 6.10. Campaign Finance Compliance

Every person or business entity providing goods or services at a cost of \$5,000 cumulated value is required to file an affidavit regarding political campaign contributions with the RI State Board of Elections even if no reportable contributions have been made. R.I.G.L. § 17-27 Forms may be obtained at Board of Elections, Campaign Finance Division, website at <https://elections.ri.gov/finance/index.php>. Please call (401) 222-2345 or e-mail [campaign.finance@elections.ri.gov](mailto:campaign.finance@elections.ri.gov) with any questions or concerns. For the purposes of this RFP the Authority asks that firm's commit to properly filing all appropriate documentation prior to any contract being signed.

## 6.11. Major State Decision-Maker

Does any Rhode Island “Major State Decision-Maker”, as defined below, or the spouse or dependent child of such person, hold (i) a ten percent or greater equity interest, or (ii) a \$5,000 or greater cash interest in this business?

For purposes of this question, “Major State Decision-Maker” means:



## **ATTACHMENT E**

### **MBE, WBE AND/OR DBE PLAN FORM**



**STATE OF RHODE ISLAND  
DEPARTMENT OF ADMINISTRATION  
ONE CAPITOL HILL  
PROVIDENCE, RHODE ISLAND 02908**

**MBE, WBE, and/or DISABILITY BUSINESS ENTERPRISE PARTICIPATION PLAN**

Bidder's Name:

Bidder's Address:

Point of Contact:

Telephone:

Email:

Solicitation No.:

Project Name:

This form is intended to capture commitments between the prime contractor/vendor and MBE/WBE and/or Disability Business Enterprise subcontractors and suppliers, including a description of the work to be performed and the percentage of the work as submitted to the prime contractor/vendor. Please note that all MBE/WBE subcontractors/suppliers must be certified by the Office of Diversity, Equity and Opportunity MBE Compliance Office and all Disability Business Enterprises must be certified by the Governor's Commission on Disabilities at time of bid, and that MBE/WBE and Disability Business Enterprise subcontractors must self-perform 100% of the work or subcontract to another RI certified MBE in order to receive participation credit. Vendors may count 60% of expenditures for materials and supplies obtained from an MBE certified as a regular dealer/supplier, and 100% of such expenditures obtained from an MBE certified as a manufacturer. This form must be completed in its entirety and submitted at time of bid. **Please complete separate forms for each MBE/WBE or Disability Business Enterprise subcontractor/supplier to be utilized on the solicitation.**

Name of Subcontractor/Supplier:				
Type of RI Certification:	<input type="checkbox"/> MBE <input type="checkbox"/> WBE <input type="checkbox"/> Disability Business Enterprise			
Address:				
Point of Contact:				
Telephone:				
Email:				
Detailed Description of Work To Be Performed by Subcontractor or Materials to be Supplied by Supplier:				
Total Contact Value (\$)		Subcontract Value (\$)		ISBE Participation Rate (%)
Anticipated Date of Performance:				

I certify under penalty of perjury that the forgoing statements are true and correct.

<b>Prime Contractor/Vendor Signature</b>	<b>Title</b>	<b>Date</b>
<b>Subcontractor/Supplier Signature</b>	<b>Title</b>	<b>Date</b>



## **ATTACHMENT A**

# **REQUIREMENTS CONFORMANCE MATRIX**

**Attachment A - Requirements Conformance Matrix**



**Rhode Island Turnpike and Bridge Authority  
NEW ALL-ELECTRONIC TOLLING SYSTEM  
Requirements Conformance Matrix  
Instructions**

Column and Column Header		Instructions
B	RFP Requirement #	Numbering of Requirements specific to the Requirements Conformance Matrix.
C	RFP Section #	The section of the AET SYSTEM RFP (RFP 21-08) in which the Requirement can be found.
D	Requirement	Describes the Requirement from the AET SYSTEM RFP (RFP 21-08).
E	Modified Language Compared to RFP Language?	<p>If "Yes", indicates that the Requirement language has been modified since the AET SYSTEM RFP (RFP 21-08) was issued on October 15, 2021. The language modification will be denoted by strikethrough font if the language is being redacted and <b>blue-colored bold font</b> if the language is being added. Rows with "Yes" indicated in Column E will also be highlighted light orange.</p> <p>If no modification to the Requirement language, the Column E cell will be blank.</p>
F	Respondent Response Required?	Indicates whether a response from the Respondent regarding Compliance Status is required for the Requirement. See the Compliance Status column instructions below. If "Yes", a response from the Respondent is required. If "N/A", a response from the Respondent is not required. Rows with "N/A" indicated in Column F will also be highlighted gray.
G	Compliance Status	<p>If the "Respondent Response Required?" column (Column F) indicates "Yes", the Respondent must select one of four codes ("1", "2", "3", and "4"), which are provided in a drop down list in each Column G cell. The Compliance Statuses associated with each Compliance Status Code are detailed below:</p>
		1 Compliant: Core Solution Fully Complies with the Requirement.
		2 Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).
		3 Non-compliant: Exception to the Requirement (Comment Required).
		4 Non-compliant: Not Available. The Requirement will Not be Met (Comment Required).
H	Proposal Reference(s) (Section #)	The Respondent shall provide in this column the reference(s) to the specific Proposal section(s) and subsection(s) in which the Requirement is addressed.
I	Comments	This field must be completed for any Requirement which contains a Compliance Status Code of "3" or "4" in order to explain why the Respondent has exception(s) with the Requirement or why the Respondent will not comply with the Requirement, respectively.
J-P	Sorting Columns	Hidden columns which may be used for sorting purposes.

**Note:** The Requirements Conformance Matrix (RCM) is provided for the Authority's convenience only. Compliance is still required for any Requirement set forth in the AET SYSTEM RFP (RFP 21-08) that is not shown in the RCM.

Attachment A - Requirements Conformance Matrix

RFP Requirement #	RFP Section #	Requirement	Modified Language Compared to RFP Language?	Respondent Response Required?	Compliance Status		Proposal Reference(s) (Section #)	Comments
					1) Compliant: Core Solution Fully Complies with the Requirement.	2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).		
1	1	<b>General Purpose</b>			N/A			
2	1.1.	<b>Project Overview</b>			N/A			
3	1.1.1.	<b>The Rhode Island Turnpike and Bridge Authority</b>			N/A			
4	1.1.2.	<b>Current Toll Collection System</b>			N/A			
5	1.1.3.	<b>Future All-Electronic Toll Collection System</b>			N/A			
6	1.1.3.	The new AET SYSTEM shall conform to the roadway configuration specifications defined in Table 1-3 below (two (2) travel lanes and one (1) shoulder eastbound and two (2) travel lanes and one (1) shoulder westbound).		Yes				
7	1.1.3.	All travel lanes and shoulders in each toll zone shall be fully instrumented.		Yes				
8	1.1.3.	Vehicle classification will be axle-based and weight-based; vehicles will be tolled at a standard rate of <del>\$2.00</del> \$3.00 per axle per crossing and will require a permit above certain weight limits (overweight and overweight vehicle restrictions can be found at the following link: <a href="http://www.ritba.org/overweight-overwidth/">http://www.ritba.org/overweight-overwidth/</a> ).	Yes	N/A				
9	1.1.3.	The electronic toll system shall be compatible with E-ZPass and shall be capable of reading three standard transponder protocols (E-ZPass TDM, ISO 18000-6C and SeGo).		Yes				
10	1.1.4.	<b>RITBA E-ZPass Implementation</b>			N/A			
11	1.1.5.	<b>Current RITBA Back Office System Context</b>			N/A			
12	1.1.5.	The new AET SYSTEM shall interface with the new BOS.		Yes				
13	1.2.	<b>Project Objectives</b>			N/A			
14	1.2.	The objectives of this solicitation are to obtain the services of a Toll System Integrator (TSI) that will result in: (1) A SYSTEM that accurately captures and reports lane transactions, provides tools for audit, maintenance, and reconciliation, and is reliable and maintainable.		Yes				
15	1.2.	The objectives of this solicitation are to obtain the services of a Toll System Integrator (TSI) that will result in: (2) A TSI and project team with a proven track record of successful AET toll implementation and maintenance support.	Yes	Yes				
16	1.2.	The objectives of this solicitation are to obtain the services of a Toll System Integrator (TSI) that will result in: (3) A SYSTEM that facilitates the delivery of quality Customer Service to our customers and to the Authority.		Yes				
17	1.2.	The objectives of this solicitation are to obtain the services of a Toll System Integrator (TSI) that will result in: (4) A partner who will maintain a collaborative relationship with the Authority and all other stakeholders.		Yes				
18	1.3.	<b>Tolling Systems Overview</b>			N/A			
19	1.3.	The SYSTEM required by this project shall include the following elements and the major functions they will perform: A TCS that shall include zone-based toll collection equipment that will create Automatic Vehicle Identification (AVI) and Image-Based Toll (IBT) transactions and forward them to the TCS Host for further processing.		Yes				
20		The SYSTEM required by this project shall include the following elements and the major functions they will perform: A TCS that shall include a TCS Host that will accumulate the transactions, forward them on to the BOS for further processing, posting, billing, reciprocity, etc.; and perform reconciliation of all transactions based on initial data from the zone controllers (and feedback from the BOS as to the receipt and disposition of the transactions).		Yes				
21	1.3.	The SYSTEM required by this project shall include the following elements and the major functions they will perform: A TCS that shall include reporting of lane-level (unaudited) traffic data.		Yes				
22	1.3.	The SYSTEM required by this project shall include the following elements and the major functions they will perform: Further Subsystems to perform additional tasks including a Digital Video Audit System (DVAS) to facilitate video-based audit of lane operations including ability to playback all lane activity (24 hours a day) synchronized with other SYSTEM data in order to test, audit, and troubleshoot SYSTEM operation and performance.		Yes				
23	1.3.	The SYSTEM required by this project shall include the following elements and the major functions they will perform: Further Subsystems to perform additional tasks including a Maintenance Management System (MMS) to identify, track and report on SYSTEM issues and manage all maintenance activities including generating work orders, recording of all maintenance work performed, spare parts inventory, SYSTEM downtime, etc.		Yes				
24	1.3.1.	<b>General Tolling Concepts</b>			N/A			
25	1.3.1.	The TCS shall generate all lane transactions, store them in the TCS Host and forward them to the BOS. All transmission of lane transactions, within the SYSTEM will be batch processed in accordance with an approved RITBA TCS-BOS ICD that will be developed between the TSI and the selected BOS Integrator.		Yes				
26	1.3.1.	All transponder and image based transactions will be stored in the SYSTEM together with associated image(s) based on Authority Business Rules.		Yes				
27	1.3.1.	The TSI shall be responsible for lane transaction accuracy and/or other Quality Assurance/Quality Control (QA/QC) reviews.		Yes				
28	1.3.1.	The TSI shall be responsible for all SYSTEM operations and maintenance support as defined herein, starting at the successful commissioning and SYSTEM Go-Live.		Yes				
29	1.3.1.	Onsite field maintenance will continue to be performed by local in-house Authority technicians.		Yes				
30	1.3.2.	<b>Automatic Vehicle Identification (AVI)</b>			N/A			
31	1.3.2.	The TCS shall record lane transactions with transponder read data and then forward the data to the TCS Host.		Yes				
32	1.3.2.	The TCS shall detect if a transponder is registered to a discount plan and flag those vehicles whose vehicle classification does not match the allowed vehicle classification for that discount plan.		Yes				
33	1.3.2.	The TCS shall include a real-time interface to enable authorized users to conduct reviews and disposition of AVI lane transactions.		Yes				
34	1.3.3.	<b>Image Based Tolling</b>			N/A			
35	1.3.3.	The TCS shall capture license plate images for every vehicle passing through any toll zone. Automatic License Plate Recognition (ALPR) processing shall be performed for every captured image. The ALPR can be performed at the roadside (i.e., the zone controller) or after transmission to the TCS Host. If ALPR is performed at the roadside, the TCS shall include the license plate data as part of the lane transaction message sent to the TCS Host.		Yes				



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36	1.3.3.	For image based transactions (i.e., vehicles without a valid transponder), the TSI shall correctly identify all legible license plates, as identified in the key performance indicator (KPI) requirements (see Section 8.9). The identification of license plates shall include the plate numbering/lettering, the jurisdiction issuing the plate, and any state assigned plate type.		Yes				
37	1.3.3.	Authority staff will be able to use the SYSTEM to audit all automated license plate reads.		Yes				
38	1.3.4.	<b>SYSTEM Administration and Operations</b>		N/A				
39	1.3.4.	The TSI shall administer, manage, back up, restore, maintain, repair, and operate the SYSTEM in accordance with the requirements of this RFP (also referred to herein as "Requirements", defined as a statement of the functional, technical, operational, and performance requirements that the SYSTEM shall have to meet).		Yes				
40	1.3.4.	The TSI shall be responsible for reviews and checks of lane transaction data to meet accuracy requirements.		Yes				
41	1.3.4.	The SYSTEM shall retain all transaction records for purposes of posting collected tolls, tracking transponder disposition, and financial reporting.		Yes				
42	1.3.4.	Authority staff shall be provided continuous real-time access to the SYSTEM for oversight and monitoring activities which will include dashboard viewing and reporting on SYSTEM activity, availability, functional and performance reporting, as well as non-SYSTEM functions such as traffic data queries.		Yes				
43	1.3.4.	Authority staff shall be provided access to all TSI-provided systems, subsystems, components and networked elements for their review and monitoring, as well as ongoing QA/QC reviews of pre- and post-review lane transactions and images.		Yes				
44	2	<b>Scope of Work Summary</b>		N/A				
45	2.1.	<b>SOW Tasks by Category</b>		N/A				
46	2.1.	Manage Project Management, System Administration, Documentation, Training for Authority staff, Provisions for Disaster Recovery, Status Reporting.		Yes				
47	2.1.	Conduct all activities necessary to collaboratively design and document the SYSTEM.		Yes				
48	2.1.	Provide any and all necessary services, equipment, and software that are required to render the SYSTEM complete and fully operational as described herein.		Yes				
49	2.1.	Install all components of the SYSTEM.		Yes				
50	2.1.	Fully test all components of the SYSTEM individually and as a whole.		Yes				
51	2.1.	Commission the SYSTEM and place it into revenue service.		Yes				
52	2.1.	Monitoring of SYSTEM operations to ensure efficient and accurate tolling.		Yes				
53	2.1.	Warranting the SYSTEM for a period of 12 months after system acceptance.		Yes				
54	2.1.	Provide 24/7 SYSTEM maintenance support as defined herein for the life of the Contract period.		Yes				
55	2.2.	<b>Project Phases</b>		N/A				
56	2.2.1.	<b>Phase I – Design, Manufacturing, Factory Acceptance Test</b>		N/A				
57	2.2.1.	The FAT shall be performed by the TSI under the supervision of, and with the participation of the Authority and its representatives.		Yes				
58	2.2.1.	The Phase I Entry Criteria shall be Notice to Proceed (NTP).  Phase I shall include the following Primary Activities: - Submittal of the Program Management/QA Plan, the Maintenance/Training Plan, the Back-Up and Disaster Recovery Plan, Business Rules Document, Detailed Design Document, Installation/Test Plan, and Factory Acceptance Test Report. - Reviews/Workshops such as a Business Rules Workshop and a Detailed Design Review.  The Phase I Exit Criteria shall include approvals of the Program Management/QA Plan, Maintenance/Training Plan, Back-Up and Disaster Recovery Plan, Business Rules Document, Detailed Design Document, Installation/Test Plan, and Factory Acceptance Test Report.		Yes				
59	2.2.2.	<b>Phase II – Installation, Testing, Commissioning, and Go Live</b>		N/A				
60	2.2.2.	The Phase II Entry Criteria shall be completion of all Phase I Exit Criteria.  Phase II shall include the following Primary Activities: - Installation and successful testing of all Systems/Equipment. - SYSTEM Commissioning. - Go-Live Operations Activities.  The Phase II Exit Criteria shall be commencement of toll revenue collection (Go-Live Operations).		Yes				
61	2.2.3.	<b>Phase III – Operation, System Acceptance, Maintenance Support and Warranty Period</b>		N/A				
62	2.2.3.	After Go-Live, once the SYSTEM is in full revenue operation, stable, and shown to be meeting all KPIs, the System Acceptance Test will commence. This phase will conclude once the SYSTEM has been fully installed and tested, is stable, a clearly defined and tested financial reconciliation and audit trail is established, and the System Acceptance Test (SAT) has been conducted, passed, and documented.		Yes				
63	2.2.3.	During this phase, beginning at Go-Live and extending for 12 months after System Acceptance, the TSI shall provide full SYSTEM warranty and maintenance support services as defined herein, correct all problems identified during live operations, and fully report on performance requirements each month.		Yes				
64	2.2.3.	During this period, the TSI shall provide all required parts needed to provide maintenance support of the SYSTEM and maintain the agreed upon spare parts inventory. All spares used during this phase shall be replenished by the TSI at no cost to the Authority.		Yes				

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65	2.2.3.	The Phase III Entry Criteria shall be completion of all Phase II Exit Criteria.  Phase III shall include the following Primary Activities: - System Acceptance Test. - Operations Monitoring Tasks. - Maintenance Support Services. - Warranty.  The Phase III Exit Criteria shall include approval of the SAT Test Report and completion of all Warranty, Operations and Maintenance Support requirements during the Phase III period.		Yes				
66	2.2.4.	<b>Phase IV – Operation and Maintenance Support Period</b>		N/A				
67	2.2.4.	This phase shall commence at the end of Phase III and continue until the end of the 5-Year Initial Maintenance Support Services Term.		Yes				
68	2.2.4.	The TSI shall provide full SYSTEM operations and maintenance support services as defined herein during this phase, correcting any problems identified during live operations.		Yes				
69	2.2.4.	During this phase the TSI shall replace or have repaired all parts necessary to maintain the SYSTEM in compliance with the Project KPIs. The TSI shall prepare an annual cost forecast of the estimated parts requiring replacement or repair, prior to beginning each fiscal year for Authority budgeting purposes. The cost of replacement or repair shall be invoiced monthly to the Authority for reimbursement after approval by the Authority Project Manager.		Yes				
70	2.2.4.	The Phase IV Entry Criteria shall be completion of all Phase III Exit Criteria.  Phase IV shall include the following Primary Activities: - Maintenance Support Services. - Operational Monitoring Activities. - Spare Parts Supply and Management.  The Phase IV Exit Criteria shall be completion of all Operations and Maintenance Support requirements for the duration of the initial 5-year Maintenance Support Services term.		Yes				
71	2.2.5.	<b>SYSTEM Phase V – Up to Three Optional 2-Year Extensions (Operations and Maintenance Support)</b>		N/A				
72	2.2.5.	During this phase, the TSI shall continue to provide the identical services from Phase IV.		Yes				
73	2.2.5.	The Phase V Entry Criteria shall include completion of all Phase IV Exit Criteria and Authority approval of optional years of operations and maintenance support.  Phase V shall include the following Primary Activities: - Maintenance Support Services. - Operational Monitoring Activities. - Spare Parts Supply and Management.  The Phase V Exit Criteria shall be completion of all Operations and Maintenance Support requirements for the duration of the Contract extension(s).		Yes				
74	2.3.	<b>Project Deliverables</b>		N/A				
75	2.3.	Appendix B lists the deliverables that the TSI is required to prepare and submit during the course of the Project, including the required submission date and duration of review period by the Authority.		Yes				
76	2.4.	<b>Contract Term</b>		N/A				
77	2.4.	The Contract Term shall consist of the Implementation Term (TBD based on the TSI's Proposal and Authority agreement), an Initial 5-Year Initial Operations and Maintenance Support Services Term and three 2-year options to extend operations and maintenance support services. The award of any optional term for extended operations and maintenance support services shall be at the Authority's sole discretion.		Yes				
78	3	<b>Proposal Submission Process</b>		N/A				
79	4	<b>Proposal Content Requirements</b>		N/A				
80	5	<b>Proposal Evaluation and Selection Process</b>		N/A				
81	6	<b>General Terms and Conditions</b>		N/A				
82	7	<b>Payment Milestones</b>		N/A				
83	7	Compensation for this project shall be as follows: <b>SYSTEM Hardware</b> The Authority will reimburse the Contractor for 80% of hardware costs (based upon the Contractor's Pricing Proposal) upon proof of purchase (manufacturer's invoice, receipt, etc.) by the Contractor. These costs shall be invoiced no more often than once per month. The remaining 20% will be paid upon approval of the System Acceptance Test Report. The prices for hardware must match the pricing in the Contractor's Bill of Materials. <b>Warranty</b> The Authority will pay the Contractor 25% of the Hardware and Software Warranty costs after successful Go-Live, and the remaining 75% shall be paid monthly after System Acceptance over a 12-month period. <b>Operations and Maintenance Support</b> The Authority will pay monthly fees to the Contractor for Maintenance Support Services tasks (Phases IV and V (if exercised)). <b>Other Costs</b> All remaining contractually obligated costs (design, implementation, testing, transition, commissioning, etc.) during Phases I and II will be paid on a milestone basis according to the schedule in Table 7-1.		Yes				
84	7	The Authority Project Manager may authorize payment if a milestone is delayed due to circumstances beyond the Contractor's control.		N/A				
85	7	All billings for services must be directed to the Authority's <b>Project Manager/Chief Financial Officer (CFO)</b> .	Yes	Yes				
86	7	Payment to the Contractor for Services rendered shall not exceed the maximum amount unless an increase is approved in accordance with the Contract. Typically, invoices must be submitted within 60 days after the completion of services being invoiced. The final invoice must be received within 60 days of the completion of services.		Yes				

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87	8	<b>Detailed Scope of Work</b>		N/A				
88	8.1.	<b>AET SYSTEM Requirements</b>		N/A				
89	8.1.1.	<b>General Requirements</b>		N/A				
90	8.1.1.	The TSI shall be responsible for developing, designing, furnishing, installing, testing, and providing maintenance support for a fully functional new AET SYSTEM at the Claiborne Pell Bridge.	Yes	Yes				
91	8.1.1.	The SYSTEM shall have an expected life cycle of no less than 10 years.		Yes				
92	8.1.1.	The SYSTEM shall accurately create and process unique lane transactions, either a transponder or image based toll as applicable, for every vehicle that uses the facility.		Yes				
93	8.1.1.	The SYSTEM shall support the latest advances in Electronic Toll Collection (ETC) technology as described within this RFP.		Yes				
94	8.1.1.	The SYSTEM shall utilize: all new 1) multi-protocol ETC readers approved for use by the E-ZPass Group; and 2) license-plate image capture technology.		Yes				
95	8.1.1.	The TCS shall create toll lane transaction records in a single Uniform Transaction Message (UTM) format for all toll transaction types.		Yes				
96	8.1.1.	The unaudited, "raw" data created in the toll lanes and toll zones shall be stored, backed up, and reported on, at the TCS Host.		Yes				
97	8.1.1.	The SYSTEM shall capture images of all license plates on each vehicle passing through the toll zone, regardless of whether or not the vehicle has a transponder and associate those images with the unique lane transaction for that vehicle.		Yes				
98	8.1.1.	The TSI shall be responsible for providing all activity and performance reporting and record-keeping of the SYSTEM.		Yes				
99	8.1.1.	The SYSTEM shall support at least 15 concurrent and simultaneous users accessing the SYSTEM and/or generating reports while meeting the performance requirements.		Yes				
100	8.1.1.	The TSI shall provide all SYSTEM functions as indicated herein including all required systems, subsystems, components and elements necessary to meet the functional, technical, and performance Requirements of this RFP.		Yes				
101	8.1.1.	The SYSTEM shall include automated functions and capabilities for transaction creation, processing, ALPR, and audit, to ensure lane transaction accuracy before any lane transactions are sent to the BOS for processing.		Yes				
102	8.1.1.	The SYSTEM shall be capable of processing and creating transactions for up to 2,000 vehicles per hour per travel lane or travel shoulder, with no loss of data.		Yes				
103	8.1.1.	The TSI shall procure, furnish, deliver, install, calibrate, and test all SYSTEM materials, equipment, and software. No equipment shall impede operation of the toll lanes, interfere with vehicle travel, or interfere with toll zone maintenance operations such as snow removal.		Yes				
104	8.1.1.	TCS 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. All materials, equipment and software installed shall be new.		Yes				
105	8.1.1.	The Authority will provide the gantry(s), conduits and concrete bases for roadside enclosures at the AET toll zones.		N/A				
106	8.1.1.	The TSI shall provide all roadside enclosures, as well as the cabling between the roadside enclosures and the equipment installed in the AET toll zones.		Yes				
107	8.1.1.	The TSI shall provide all the infrastructure required to install the toll equipment in the AET toll zones including mounting brackets and junction boxes.		Yes				
108	8.1.1.	The TSI shall provide, install, monitor and maintain Heating, Ventilation and Air Conditioning (HVAC) equipment necessary for SYSTEM components installed in roadside enclosures.		Yes				
109	8.1.1.	The Authority will provide and maintain the fiber optic WAN between the AET toll zones and other Authority facilities, as well as communication circuit terminations, bridges/routers, and related networking gear.		N/A				
110	8.1.1.	The Authority will provide network termination at the toll zone. The TSI is responsible for integrating the toll zone to the TCS Host. The termination will be determined in the design phase with the selected TSI.		Yes				
111	8.1.1.1.	<b>All-Electronic Tolling (AET) Facilities and Configurations</b>		N/A				
112	8.1.1.1.	The SYSTEM shall support all-electronic tolling (AET) in all travel lanes and shoulders.		Yes				
113	8.1.1.1.	The Authority will make toll gantries available for the TCS. The TSI shall provide their toll gantry requirements (including number and spacing of gantries, gantry design specifications, equipment mounting support details, roadside enclosure mounting infrastructure and number and size of conduits required). The Authority will not provide more than two gantries. However, if the TSI requires any changes to the design of the gantries after award, the TSI shall be responsible for all costs associated with the changes. All civil or structural work, whether new or for modifications, must be approved by the Authority, and all costs associated with the design and construction of these modifications or replacements are solely at the cost of the TSI. The Authority will provide and maintain the fiber optic WAN between the AET toll zones and the Authority's Data Center where the TCS Reports Server shall be located. The Authority will provide the toll gantry(s), conduit and supporting infrastructure.		Yes				
114	8.1.1.1.	The TSI will provide all necessary cabinets and enclosures for all SYSTEM equipment installed at or near the toll zones.		Yes				
115	8.1.1.1.	The TSI shall ensure that all infrastructure adheres to Authority structural and aesthetic requirements.		Yes				
116	8.1.1.2.	<b>TCS Host</b>		N/A				
117	8.1.1.2.	The TCS Host collects all data from the travel lanes and shoulders. The TCS Host shall be sized to accommodate the Authority's projected traffic and functions and be expandable to accommodate potential SYSTEM changes through the life of the Contract. Projected traffic can be found in Section 1.1.2.		Yes				
118	8.1.1.2.	The Authority will provide power and data connection points to the Authority's WAN based on the TSI's design. Should the TCS Host require additional environmental control the TSI shall be responsible for providing it and all costs associated with procuring and installing it must be included in the Respondent's Pricing Proposal.		Yes				
119	8.1.2.	<b>TCS Business Rules</b>		N/A				

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120	8.1.2.	The TCS functionality shall be developed to meet all the TCS Business Rules established by the Authority for the Claiborne Pell Bridge project described in APPENDIX A – TCS BUSINESS RULES.		Yes				
121	8.1.3.	<b>TCS Functional Requirements</b>		N/A				
122	8.1.3.1.	<b>Lane Transactions</b>		N/A				
123	8.1.3.1.	The TSI shall be responsible for the design of the UTM format, which shall be completed during detailed design.		Yes				
124	8.1.3.1.	The TCS shall create one and only one UTM for every vehicle that passes through a toll zone regardless of vehicle type, payment type or non-payment, transponder status, or other conditions.		Yes				
125	8.1.3.1.	The UTM shall be created using an open standard format. Extensible Markup Language (XML) shall be an acceptable transaction format (e.g., JSON).		Yes				
126	8.1.3.1.	The TCS shall create a UTM that includes all relevant lane transaction information.		Yes				
127	8.1.3.1.	The following data list is provided as an example, but the TSI shall be responsible for final lane transaction format and fields during detailed design:		Yes				
128	8.1.3.1.	a. A unique lane transaction number that is sequential;		Yes				
129	8.1.3.1.	b. Date;		Yes				
130	8.1.3.1.	c. Time (to the 1/100 of a second), including transaction time as well as transponder read time;	Yes	Yes				
131	8.1.3.1.	d. Plaza/AET toll zone;		Yes				
132	8.1.3.1.	e. Lane number;		Yes				
133	8.1.3.1.	f. Transponder number (up to three if multiple transponders are present);		Yes				
134	8.1.3.1.	g. Transponder status (up to three if multiple transponders are present);		Yes				
135	8.1.3.1.	h. Automated Read license plate alphanumeric characters – front plate (if present);		Yes				
136	8.1.3.1.	i. Automated Read license plate jurisdiction of origin – front plate (if present);		Yes				
137	8.1.3.1.	j. Automated Read license plate type – front type (if present);		Yes				
138	8.1.3.1.	k. Automated Read license plate alphanumeric characters – rear plate (if present);		Yes				
139	8.1.3.1.	l. Automated Read license plate jurisdiction of origin – rear plate (if present);		Yes				
140	8.1.3.1.	m. Automated Read license plate type – rear plate (if present);		Yes				
141	8.1.3.1.	n. Automatic Number Plate Recognition (ALPR) confidence level;		Yes				
142	8.1.3.1.	o. Vehicle classification from the transponder (if present);		Yes				
143	8.1.3.1.	p. Vehicle classification from the Automatic Vehicle Classification (AVC) Subsystem;		Yes				
144	8.1.3.1.	q. Audit Reviewer ID entering vehicle classification amendments (if present);		Yes				
145	8.1.3.1.	r. Vehicle axles/number of axles;		Yes				
146	8.1.3.1.	s. Expected AVI revenue for this toll point and time;		Yes				
147	8.1.3.1.	t. Expected image based toll revenue for this toll point and time;		Yes				
148	8.1.3.1.	u. Lane operational state;		Yes				
149	8.1.3.1.	v. Lane equipment status;		Yes				
150	8.1.3.1.	w. Maintenance Management System (MMS) lane status; and		Yes				
151	8.1.3.1.	x. Payment type (AVI or image based), speed, vehicle dimensions (such as length, width, and height), and additional fields for future data to be defined.	Yes	Yes				
152	8.1.3.1.	The TCS shall create UTM's with all available data, even when the available data is inadequate to create a billable toll transaction, for example if no vehicle was detected by the AVC Subsystem, or if no transponder was detected or if no license plate data was available to be entered in the lane transaction.		Yes				
153	8.1.3.1.	The TCS shall prevent the deletion of any information included in the lane transaction. Data in the lane transaction can only be created and amended by the system or authorized personnel.		Yes				
154	8.1.3.1.	The TCS shall have the capability to flag all lane transactions with vehicle classification mismatch between two sources (e.g., AVI class and AVC class) in the lane transaction for human audit.		Yes				
155	8.1.3.1.	The TCS shall support human audit and manual amendments to lane transactions. Authorized Authority users shall be able to audit and amend lane transactions. Data in the lane transactions can only be amended by authorized users. The SYSTEM shall not allow auditors to delete any information included in the lane transaction.		Yes				
156	8.1.3.1.	The TCS shall process image based toll lane transactions on a first-in, first-out basis.		Yes				
157	8.1.3.2.	<b>Toll Rates</b>		N/A				
158	8.1.3.2.	Toll rates shall be set through the SYSTEM according to the current Authority toll rates. The SYSTEM shall:		Yes				
159	8.1.3.2.	- Control the implementation of toll rates.		Yes				
160	8.1.3.2.	- Determine the toll for all transactions using the toll rates and schedules established based on vehicle classification, payment method, and rate plan by hour of day for a defined beginning and ending effective date range.		Yes				
161	8.1.3.2.	- The SYSTEM shall be designed to apply user configurable Business Rules to determine the appropriate toll rate to be applied.		Yes				
162	8.1.3.2.	- Be user configurable for up to 10 toll rate schedules and shall have a simple interface to enable authorized users to modify toll rate schedules.		Yes				
163	8.1.3.3.	<b>Lane Modes of Operation</b>		N/A				
164	8.1.3.3.	The SYSTEM shall allow toll lanes operational modes to be changed by authorized users only based on their specific defined roles.		Yes				
165	8.1.3.3.	Operational modes must include open, closed, and maintenance modes.	Yes	Yes				
166	8.1.3.3.	The SYSTEM shall not allow a lane to be closed by an authorized user without a secondary authorization by a separate authorized user.		Yes				
167	8.1.3.3.	The SYSTEM will not be required to display tolls due or messages in AET lanes as the Authority will install static roadway signs to display the toll rates.		N/A				
168	8.1.3.4.	<b>Automatic Vehicle Identification (AVI)</b>		N/A				
169	8.1.3.4.	The TCS shall:						
170	8.1.3.4.	- Read all approved transponder types in vehicles (when present and properly mounted) that pass through the toll zone, including vehicles within travel lanes, within shoulders, straddling travel lanes, or straddling a travel lane and shoulder, without degradation or interference at speeds ranging from stop-and-go to 100 mph.		Yes				

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171	8.1.3.4.	Account for every lane transaction that is the result of a buffered transponder read for tracking and disposition which shall be reported to and auditable by the Authority. Transponder reads buffered during lane degradation where no other information or images are captured shall be sent to the BOS for processing as a transaction at the lowest toll class (Class 1). Complete lane transactions buffered in the lane when communications are lost shall be forwarded to the BOS when communications are restored.		Yes				
172	8.1.3.4.	Include an E-ZPass Group-approved multi-protocol RFID reader capable of reading three standard protocols (E-ZPass TDM, ISO 18000-6C and SeGo).		Yes				
173	8.1.3.4.	When multiple transponders are detected within a vehicle the TCS shall record up to three transponders and include them in the same transaction record. The TCS shall prioritize the RITBA E-ZPass as the primary transponder (if more than 1 RITBA E-ZPass is detected, prioritize the earliest RITBA transponder read), followed by the New England E-ZPass agency transponder (Massachusetts, New Hampshire, Maine), then other E-ZPass agency transponders, then ISO 18000 6C transponders, and finally SeGo transponders. The lane transaction shall indicate which transponder is assumed to be the valid transponder for processing by the BOS but shall also include the other transponders in the lane transaction message. The final priority of assigning the primary and secondary transponder(s) to the transaction shall be determined with the Authority during the SYSTEM design phase.		Yes				
174	8.1.3.4.	The AVI Subsystem design shall minimize the need for lane closures after initial installation and ensure that no equipment shall interfere with traffic operations.		Yes				
175	8.1.3.5.	<b>Automatic Vehicle Classification (AVC)</b>		N/A				
176	8.1.3.5.	The TCS shall:						
177	8.1.3.5.	Detect all vehicles that pass-through toll lanes and toll zones, including vehicles within travel lanes, or straddling lanes, without degradation or interference and provide sufficient information to allow the TCS to create one (1) and only one (1) UTM per vehicle.		Yes				
178	8.1.3.5.	Classify every vehicle that passes through a toll lane or toll zone based on a user configurable set of axle-based parameters.		Yes				
179	8.1.3.5.	Correctly separate vehicles moving below 30 miles per hour within 2 feet distance measured front to rear, and above 30 miles per hour within 5 feet distance measured front to rear, to ensure that multiple vehicles are not identified as a single vehicle.		Yes				
180	8.1.3.5.	Correctly associate multi-unit vehicles (e.g., a vehicle towing a trailer) using a minimum 2-inch tow bar (measured perpendicular to the lane direction of travel) to ensure that the multi-unit vehicle is identified as a single vehicle with multiple axles.		Yes				
181	8.1.3.5.	Allow authorized users to set whether the AVC classification or the vehicle classification on the transponder is used to determine the toll rate for AVI lane transactions created in all toll lanes.		Yes				
182	8.1.3.5.	Allow authorized users to amend TCS-assigned vehicle classifications for each lane transaction.		Yes				
183	8.1.3.5.	Receive vehicle classification determinations from: a. AVI transponders (if present), b. AVC Subsystem.		Yes				
184	8.1.3.5.	Be designed to minimize the need for lane closures after initial installation and ensure that no AVC equipment shall interfere with traffic operations.		Yes				
185	8.1.3.5.	Identify oversized vehicles based on vehicle dimension parameters to be defined with the Authority.		Yes				
186	8.1.3.6.	<b>Image Capture</b>		N/A				
187	8.1.3.6.	The TCS shall:						
188	8.1.3.6.	In all lighting and weather conditions, capture at least one Human Readable front and one Human Readable rear full color image of the license plates of every vehicle that passes through a toll lane or toll zone, as well as an overview image of the vehicle. All images captured shall be associated with the correct lane transaction and have sufficient sharpness to determine vehicle make, model, color and to read state jurisdiction.		Yes				
189	8.1.3.6.	Upload images to the BOS FTP server and the associated audit metadata for every image, including toll zone, lane, date, time, and image number. The information shall be legible as part of the image included in a toll invoice.		Yes				
190	8.1.3.6.	Create a region of interest image from the image used to determine the license plate data showing an enlarged view of the license plate with the license plate data clearly readable to the unaided eye.		Yes				
191	8.1.3.6.	Provide supplemental illumination (if needed) that does not interfere with vehicle travel or distract drivers and shall not cause light pollution to areas adjacent to the roadway. Visible light levels shall not be increased at any toll zones.		Yes				
192	8.1.3.6.	Allow for the image capture and storage function to be turned on or off by lane, toll zone, lane transaction type, AVC classification, transponder class, or any combination of these. The default is for images to be captured for all vehicles, for all lane transaction types, and in all lanes.		Yes				
193	8.1.3.6.	Machine-read images and identify license plate information, including license plate type, alphanumeric characters, and jurisdiction of origin, to be included in the lane transaction message. The lane transaction message shall also include the automated ALPR processing confidence levels.		Yes				
194	8.1.3.6.	Flag all images which should be queued for human review, by user configurable parameters, including: a.ALPR confidence level, b.License plates/vehicles that have not been previously recorded by the SYSTEM, c.Random generation based on selected sample sizes, d.Other unusual occurrences such as vehicle classification mismatches, e.Any other parameter required for the TSI's QA/QC process for images to achieve the performance requirements.		Yes				

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					1) Compliant: Core Solution Fully Complies with the Requirement.	2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).		
195	8.1.3.6.	The design shall minimize the need for lane closures after initial installation and ensure that no equipment shall interfere with traffic operations.		Yes				
196	8.1.3.7.	<b>Digital Video Audit System (DVAS)</b>		N/A				
197	8.1.3.7.	The TCS shall record color video at a minimum rate of 10 frames per second (fps) for each direction of every toll lane and toll zone that allows for the visual identification of the vehicle (vehicle type, number of axles, etc.) at all times of the day and under all environmental and lighting conditions.		Yes				
198	8.1.3.7.	The TCS shall record continuously 24 hours a day, seven days a week, regardless of whether or not there is a vehicle in the toll lane. DVAS video shall be retained for up to 90 days.		Yes				
199	8.1.3.7.	The TCS shall provide an interface for authorized users to view real-time and recorded DVAS video and video clips from up to five (5) Authority workstations concurrently. Interfaces shall allow authorized users to quickly search by various query criteria, including: a. Lane transaction number, b. Specific time and time range, c. Facility, d. Lane/toll zone, e.Class mismatch, and f. Any combination of these parameters.		Yes				
200	8.1.3.7.	The TCS shall associate a segment of DVAS video with every lane transaction. The segment of DVAS video associated with the lane transaction shall start a configurable number of seconds before the lane transaction begins and end a configurable number of seconds after the lane transaction ends.		Yes				
201	8.1.3.7.	The TSC shall include the associated zone/lane controller lane transaction/event messages (such as when a transponder is read, axle is detected, images are captured, etc.) in a viewable format, synchronized to the video clip, during viewing of any DVAS video.		Yes				
202	8.1.3.7.	The TCS shall allow authorized users to record, store, and export video clips from the DVAS locally at any time. Video clips, when recorded by the DVAS, shall have the following data imbedded at the bottom of the images so that it is visible when they are played back: a.Date, b.Time (to 1/100 of a second), c.Plaza/AET toll zone, and d.Lane.		Yes				
203	8.1.3.7.	The TCS shall Synchronize all components of the DVAS Subsystem to the SYSTEM Host to within 1/100 of a second.		Yes				
204	8.1.3.7.	The TCS shall Monitor and report on the status of all DVAS Subsystem elements.		Yes				
205	8.1.3.7.	The DVAS Subsystem design shall minimize the need for lane closures after initial installation and ensure that no equipment shall interfere with traffic operations.		Yes				
206	8.1.3.7.	The TSI shall provide user training on the DVAS playback application.		Yes				
207	8.1.3.8.	<b>Toll Zone Controller</b>		N/A				
208	8.1.3.8.	The functionality of the toll zone controller includes, but is not limited to the following:						
209	8.1.3.8.	The zone controller shall generate one, and only one, UTM for every vehicle passage through the toll zone.		Yes				
210	8.1.3.8.	The zone controller shall transmit the UTM with the vehicle detection data, classification data, transponder data, license plate data (if applicable), and all other pertinent information regarding the vehicle to the Toll Host.		Yes				
211	8.1.3.8.	The zone controller shall accept without interruption in operations, data downloads from the Toll Host, or remote network devices that have appropriate security privileges.		Yes				
212	8.1.3.8.	The zone controller shall read data from and write data to portable storage media devices.		Yes				
213	8.1.3.8.	The TSI shall design the zone controller to be capable of manually exporting all data recorded on the zone controller onto a standard portable storage device such as a USB flash drive or USB external hard drive.		Yes				
214	8.1.3.8.	The zone controller shall have the ability to remotely download updates to its configuration tables via a network and via a local service TCP/IP port by authorized personnel.		Yes				
215	8.1.3.8.	The zone controller shall record the version and identifier of the data downloads and the user that initiated the download, including date timestamps (beginning and ending of the download).		Yes				
216	8.1.3.8.	The zone controller shall be externally controlled from authenticated nodes on the network such as the Toll Host.		Yes				
217	8.1.3.8.	The zone controller shall be capable of comparing the vehicle class measured by AVC equipment to any vehicle class programmed on the transponder.		Yes				
218	8.1.3.8.	The zone controller shall be capable of processing UTM volumes of at least 2,000 vehicles per travel lane or travel shoulder per hour.		Yes				
219	8.1.3.8.	The zone controller shall determine when a second appearance of a transponder is seen within "X" number of transactions and/or "Y" amount of time from the first appearance and disregard that transaction or flag it. Parameters "X" and "Y" shall be configurable. The TSI may choose to perform this functionality at the TCS Host as well.		Yes				
220	8.1.3.8.	The zone controller shall read ETC transponder information indicated in the interface specifications provided by the AVI equipment provider.		Yes				
221	8.1.3.8.	The zone controller shall report all events and messages created regardless of the status or operational mode of the lane.		Yes				
222	8.1.3.8.	Application of appropriate zone controller settings and/or configurations shall be updated, logged and tracked with an automatic process and documented in the MMS.		Yes				
223	8.1.3.8.	The zone controller shall have sufficient performance capability to handle all Lane processes without degradation.		Yes				
224	8.1.3.8.	The zone controller shall support future upgrades to processors, memory, storage and operating system.		Yes				

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					3) Non-compliant: Exception to the Requirement (Comment Required).			
					4) Non-compliant: Not Available. The Requirement will Not be Met (Comment Required).			
225	8.1.3.8.	The zone controller shall provide the ability to remotely download updates to its operating software via a network and via a local service TCP/IP port by authorized personnel.		Yes				
226	8.1.3.8.	The zone controller shall provide for remote or local retrieval of raw data via an external storage device or by an authorized user on the network.		Yes				
227	8.1.3.8.	The zone controller shall provide sufficient data storage to meet all operational requirements.		Yes				
228	8.1.3.8.	The zone controller shall contain the latest generation of compatible processors at the time of Detailed Design Document approval.		Yes				
229	8.1.3.8.	Zone controllers shall incorporate redundancy with auto-failover capability for critical hardware components. The zone controller failover system shall ensure no loss of transaction records or revenue due to a single zone controller failure.		Yes				
230	8.1.3.8.	The zone controller shall transmit all transactions, images, diagnostic messages or other maintenance information via a secure port and network connection.		Yes				
231	8.1.3.8.	All zone controllers shall use TCP/IP, or approved equivalent.		Yes				
232	8.1.3.8.	All inbound and outbound transmissions to and from the zone controller shall use a guaranteed message protocol that uses open standards at the application layer.		Yes				
233	8.1.3.8.	The SYSTEM shall not overwrite or move any data from the zone controller when it is retrieved manually or automatically and shall make a local copy of all transactions prior to moving data to another authorized device.		Yes				
<b>234</b>	<b>8.1.3.9.</b>	<b>General TCS Operations</b>		<b>N/A</b>				
235	8.1.3.9.	The SYSTEM shall generally, operate unattended. However, the requirements in this section shall allow authorized remote operators to perform certain functions.		Yes				
236	8.1.3.9.	The SYSTEM shall allow remote operators to review in real-time the most recent 100 transactions for each lane and travel shoulder.		Yes				
237	8.1.3.9.	Lane Transaction information shall include lane number, lane transaction number, lane transaction time, lane operational mode, lane state, vehicle classification (from the AVC Subsystem and Transponder if present), vehicle speed, payment type, full fare, applied fare, discount plan, transponder number, and MMS status of the lane.		Yes				
238	8.1.3.9.	The SYSTEM shall allow remote operators to monitor/view historical activities for each lane; activities include opening/closing lanes, equipment health/status messages, MMS status, and operating mode changes.		Yes				
239	8.1.3.9.	The SYSTEM shall allow remote operators to view the images associated with the most recent 100 lane transactions for each lane and travel shoulder.		Yes				
240	8.1.3.9.	The SYSTEM shall produce a traffic trend report and graphs using current traffic volume information, by direction, at each AET zone. Volumes used for the report and graph shall be by direction and by payment method (AVI, image based toll). Reports shall be by hour (available every hour) and by 15 minutes (available every 15 minutes).		Yes				
<b>241</b>	<b>8.1.3.10.</b>	<b>License Plate Image Review</b>		<b>N/A</b>				
242	8.1.3.10.	The TSI shall monitor and report on the quality of images received from the toll lanes in a manner which allows for the quick escalation of in-lane camera issues, ALPR issues, or vehicle framing issues.		Yes				
243	8.1.3.10.	The TSI shall flag license plates for which processing problems have been previously identified by the Authority or the BOS (e.g., registered owner errors with DMV, plate type issues, jurisdictions issues, issues/errors with specific characters, etc.).		Yes				
244	8.1.3.10.	The TCS shall store images in their native format (as received) as well as any ALPR information and transaction data provided by the zone controller.		Yes				
245	8.1.3.10.	It is estimated that there will be approximately 11.4 million annual transactions during the year of Go-Live (2023). Projected traffic estimates can be found in Section 1.1.2.		N/A				
246	8.1.3.10.	It is estimated that 85 to 90 percent of transactions will be electronic transponder-based and 10 to 15 percent of transactions will be license plate image-based.		N/A				
<b>247</b>	<b>8.1.3.11.</b>	<b>TCS Host</b>		<b>N/A</b>				
<b>248</b>	<b>8.1.3.11.1.</b>	<b>Host Functionality</b>		<b>N/A</b>				
249	8.1.3.11.1.	The TSI shall provide a new TCS Host that shall receive, aggregate, process, and report on all toll transactions from vehicles that travel through the toll lanes.		Yes				
250	8.1.3.11.1.	The TSI shall provide the software, hardware, and personnel needed to support the TCS Host requirements specified herein.		Yes				
251	8.1.3.11.1.	All transactions, images and messages transferred between all subsystems shall have the required data validation controls to confirm the complete, accurate, and timely data transfer. This includes verification that image files sent to the BOS contain content (image files exceed a configurable size).		Yes				
252	8.1.3.11.1.	The TCS Host shall maintain the Toll Rate Schedule and determine the toll rate to be charged to each transaction.		Yes				
253	8.1.3.11.1.	Access controls shall be administered and controlled by a TCS Host that performs the functions detailed in the following sections.		Yes				
254	8.1.3.11.1.	The interaction and common architecture between applications should be flexible, agile, scalable and robust. The interaction between applications and system components shall be based on an open architecture that is decoupled, flexible, agile, scalable and robust.		Yes				
255	8.1.3.11.1.	It is preferred that the TCS Host software uses non-proprietary open-standard Application Programming Interfaces (APIs) that are maintained by the TSI and enables use of or includes an industry standard Enterprise Service Bus.		Yes				
<b>256</b>	<b>8.1.3.11.2.</b>	<b>User Access Management</b>		<b>N/A</b>				
257	8.1.3.11.2.	The TCS Host shall provide User Access Management controls to manage and configure application access.		Yes				
258	8.1.3.11.2.	The TCS Host shall support the following controls and configurations: • Add/Delete/Modify User Profile and User Groups		Yes				
259	8.1.3.11.2.	The TCS Host shall support the following controls and configurations: • Add/Delete/Modify Host User Access		Yes				
260	8.1.3.11.2.	The TCS Host shall support the following controls and configurations: • Add/Delete/Modify AET Toll Zone User Access		Yes				
261	8.1.3.11.2.	The TCS Host shall support the following controls and configurations: • Administrative and User Password Management		Yes				
262	8.1.3.11.2.	The TCS Host shall support the following controls and configurations: • Logging of all system access and modification of access.		Yes				
<b>263</b>	<b>8.1.3.11.3.</b>	<b>Transponder Status File Management</b>		<b>N/A</b>				
264	8.1.3.11.3.	The TCS Host shall maintain up-to-date transponder status information used to validate the status of each ETC transponder read received from the toll zone controllers.		Yes				

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265	8.1.3.11.3.	The TCS Host shall receive the transponder status file from the Authority's BOS and process in accordance with a future defined RITBA TCS-BOS ICD.		Yes				
266	8.1.3.11.4.	<b>Toll Rate Management</b>		N/A				
267	8.1.3.11.4.	The TCS Host shall support and define the toll rate schedule.		Yes				
268	8.1.3.11.4.	The TCS Host shall support user configurable differential toll rate schedule(s) for: • Transponder and image based transactions.		Yes				
269	8.1.3.11.4.	The TCS Host shall support user configurable differential toll rate schedule(s) for: • Discount plans of the Authority.		Yes				
270	8.1.3.11.4.	The TCS Host shall assign toll rates prior to sending the transactions over to the BOS.		Yes				
271	8.1.3.11.4.	Only authorized users shall create or modify the toll rate schedule in the TCS Host.		Yes				
272	8.1.3.11.4.	Each toll rate schedule shall have an effective begin and end date.		Yes				
273	8.1.3.11.4.	Only one toll rate schedule shall be in effect at any point in time. The TCS Host shall implement controls preventing more than one toll rate schedule from being in effect.		Yes				
274	8.1.3.11.4.	A new toll rate schedule shall be in effect when its "begin date" is greater than or equal to the "current date" and its "end date" is less than the "current date".		Yes				
275	8.1.3.11.5.	<b>Toll Rate Schedule</b>		N/A				
276	8.1.3.11.5.	The Claiborne Pell Bridge's Toll Rate Schedule is referenced in Table 1-4 in Section 1.1.4.		N/A				
277	8.1.3.11.5.	Valid ETC transponders shall be charged in accordance with the Authority's TCS Business Rules (see Appendix A).		Yes				
278	8.1.3.11.5.	Image based tolls shall be charged in accordance with the Authority's TCS Business Rules (see Appendix A).		Yes				
279	8.1.3.11.5.	Valid transponders on Authority discount plans shall be charged in accordance with the Authority's TCS Business Rules (see Appendix A).		Yes				
280	8.1.3.11.5.	The Toll Rate Schedule shall be stored so that the Authority can easily modify changes to the existing Toll Rate Schedule.		Yes				
281	8.1.3.11.5.	The TCS Host shall be capable of accepting or being configured to accommodate changes or additions to the Authority's discount plans.		Yes				
282	8.1.3.11.6.	<b>Transponder Transaction Processing</b>		N/A				
283	8.1.3.11.6.	The TCS Host shall send all ETC transponder-based transactions to the BOS for processing.		Yes				
284	8.1.3.11.6.	The TCS Host shall determine the vehicle class for each transaction in accordance with the Authority's TCS Business Rules (see Appendix A).		Yes				
285	8.1.3.11.6.	The TCS Host shall determine when a second appearance of a transponder is seen within "X" number of transactions and/or "Y" amount of time from the first appearance and disregard that transaction or flag it. The parameters "X" and "Y" shall be configurable. This functionality may be provided in the toll zone controller instead.		Yes				
286	8.1.3.11.6.	The transaction status for each transaction shall be included in the transaction record in the TCS Host due to incorporating feedback received in the reconciliation file from the BOS.		Yes				
287	8.1.3.11.6.	The Authority also maintains several discount rate plans specific to Authority-issued transponders that require pre-registration in the BOS.		N/A				
288	8.1.3.11.6.	Eligible Authority-issued transponders are assigned discount plan codes by the Authority's CSC. The Authority's BOS performs a tag file provisioning where the standard E-ZPass Group tag status file is modified to include the discount plan for each Authority-issued transponder prior to being sent to the TCS.		N/A				
289	8.1.3.11.6.	Based on the discount plan code, the TCS Host shall assign the corresponding toll rate to the transaction. Specific details to the Authority's E-ZPass discount plans are provided in Table 1-4, as well as at <a href="https://www.ezpassri.com/StaticContent/Page?viewName=PlanInfo">https://www.ezpassri.com/StaticContent/Page?viewName=PlanInfo</a> .		Yes				
290	8.1.3.11.6.	The TCS shall flag transactions on discount plan accounts where the vehicle class is greater than that allowed for the discount plan. The flag will be populated in the Tag Transaction File sent to the BOS for transaction processing.		Yes				
291	8.1.3.11.6.	The TCS shall flag transactions where vehicle speed exceeds a configurable threshold established by the Authority. The flag will be populated in the Tag Transaction File sent to the BOS for transaction processing.		Yes				
292	8.1.3.11.6.	The TCS shall flag oversize vehicles where dimension limitations are exceeded. Refer to the linked restrictions. <a href="#">Overweight &amp; Overwide   Rhode Island Turnpike and Bridge Authority (ritba.org)</a> . The flag will be populated in the Tag Transaction File sent to the BOS for transaction processing.		Yes				
293	8.1.3.11.6.	The TCS Host shall assign a primary and secondary transponder(s) to the transaction when two or more transponders are read.		Yes				
294	8.1.3.11.6.	The order of priority is as follows: 1 – RITBA E-ZPass Transponder(s) (Agency 032) in ascending order by transponder read date/time 2 – New England Region E-ZPass Transponder(s) in ascending order by transponder read date/time from: a) Massachusetts DOT (Agency 021) b) New Hampshire DOT (Agency 026) c) Maine Turnpike Authority (Agency 028) 3 – E-ZPass Transponder in ascending order by transponder read date/time 4 – ISO 18000 6C Transponder in ascending order by transponder read date/time 5 – SeGo Transponder in ascending order by transponder read date/time		Yes				
295	8.1.3.11.6.	The tag priority rules will be finalized during the SYSTEM design phase with the TSI.		Yes				
296	8.1.3.11.7.	<b>Host Administration Functions</b>		N/A				
297	8.1.3.11.7.	The TCS Host shall include a web-based UI that will enable the Authority and the TSI personnel to manage the operations of the TCS.		Yes				
298	8.1.3.11.7.	The TCS Host administration system controls and configurations shall be available from any authorized workstation connected to the TCS Network.		Yes				
299	8.1.3.11.7.	The TCS Host administration system controls and configurations shall require a secure login and provide role-based access to different levels and features.		Yes				
300	8.1.3.11.7.	The TCS Host shall support the following administrative functions: • Real-time Monitoring		Yes				
301	8.1.3.11.7.	The TCS Host shall support the following administrative functions: • Remote Lane Management		Yes				



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302	8.1.3.11.7.	The TCS Host shall support the following administrative functions: • TCS Controls and Configuration Management		Yes				
303	8.1.3.11.7.	All administrator functions may be performed by the Authority and the TSI in accordance with the Authority's technology access and security policies.		Yes				
304	8.1.3.11.8.	<b>Real-Time Monitoring</b>		N/A				
305	8.1.3.11.8.	The TCS Host's real-time monitoring shall provide the ability to simultaneously display real-time status and activity of the Claiborne Pell Bridge including the ability to monitor the status of all AET zones, all lanes, subsystems and TCS Host peripheral devices.		Yes				
306	8.1.3.11.8.	This functionality shall be available from any workstation that connects to the TCS network.		Yes				
307	8.1.3.11.8.	Monitoring shall indicate lane status for all toll lanes.		Yes				
308	8.1.3.11.8.	The TCS shall display all toll transaction activities in all lanes for the Claiborne Pell Bridge, by directional toll zone, or by individual toll lane.		Yes				
309	8.1.3.11.8.	The TCS shall display a dashboard view of the violation rate for each lane, sorted from high to low, or above a certain threshold.		Yes				
310	8.1.3.11.8.	The overall design and layout of the real-time monitoring screen shall be designed with ease of use and simplicity in mind.		Yes				
311	8.1.3.11.8.	Summary data by payment type for the Toll Bridge shall be displayed.		Yes				
312	8.1.3.11.8.	Users shall have the ability to drill down to the details of the lane level or to individual transactions.		Yes				
313	8.1.3.11.8.	Users shall be able to easily identify problems (traffic or equipment) in the toll lanes.		Yes				
314	8.1.3.11.8.	In addition, the real-time monitoring shall provide detailed information about the performance of the various TCS subsystems, hardware components, and communications systems to assist in diagnosing and investigating problems.		Yes				
315	8.1.3.11.8.	Data pertinent to traffic monitoring and maintenance shall be displayed in real-time.		Yes				
316	8.1.3.11.8.	In addition to the varying levels of monitoring, the real-time monitor shall allow for the real-time overview of lane activity.		Yes				
317	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Unique transaction ID;		Yes				
318	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Lane ID;		Yes				
319	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Lane Status (open/closed/degraded);		Yes				
320	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Previous Vehicle Classification;		Yes				
321	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Previous Vehicle Fare;		Yes				
322	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Current Vehicle Classification;		Yes				
323	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Transponder ID;		Yes				
324	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Transponder Status;		Yes				
325	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Current Vehicle Fare		Yes				
326	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Vehicle Speed		Yes				
327	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Oversize Vehicle Flag; and		Yes				
328	8.1.3.11.8.	The real-time overview should provide the following on-screen information: • Unusual Occurrence.		Yes				
329	8.1.3.11.9.	<b>Remote Lane Management</b>		N/A				
330	8.1.3.11.9.	The TCS Host shall provide functionality to remotely operate and manage devices in the toll lanes.		Yes				
331	8.1.3.11.9.	Remote Lane Management shall be available to any authorized user from any workstation that is allowed access to the TCS Network.		Yes				
332	8.1.3.11.9.	The Remote Lane Management functions in the TCS Host shall be user friendly and intuitive.		Yes				
333	8.1.3.11.10.	<b>Image Based Toll Transaction Handling</b>		N/A				
334	8.1.3.11.10.	The TCS Host shall provide a mechanism to uniquely identify each image based toll transaction so that subsequent transaction processing in the BOS may be easily matched and reconciled.		Yes				
335	8.1.3.11.10.	The transaction status for each image based transaction shall be included in the transaction record in the TCS Host due to incorporating feedback received in the reconciliation file from the BOS.		Yes				
336	8.1.3.11.10.	The TCS shall flag transactions where vehicle speed exceeds a configurable threshold established by the Authority. The flag will be populated in the Transaction File sent to the BOS for transaction processing.		Yes				
337	8.1.3.11.10.	The TCS shall flag oversize vehicles where dimension limitations are exceeded. Refer to the linked restrictions. <a href="#">Overweight &amp; Overwide   Rhode Island Turnpike and Bridge Authority (ritba.org)</a> . The flag will be populated in the Transaction File sent to the BOS for transaction processing.		Yes				
338	8.1.3.11.11.	<b>Audit and Reconciliation</b>		N/A				
339	8.1.3.11.11.	The TCS Host shall keep an audit trail for all the toll transactions, maintenance transactions and messages received from the toll lanes and external systems integrated to the TCS.		Yes				
340	8.1.3.11.11.	Transaction statuses as to the receipt and processing of each transaction by the BOS shall be included in the transaction record in the TCS Host.		Yes				
341	8.1.3.11.11.	Based on this audit trail, the TCS Host shall provide periodic (daily, weekly, monthly, yearly) reconciliation for the transactions and messages received from the lanes.		Yes				
342	8.1.3.11.11.	For external system interfaces, other than the interface between the TCS Host and the BOS, the TSI shall develop and maintain specific Interface Control Documents (ICDs) for each interface.		Yes				

Attachment A - Requirements Conformance Matrix

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343	8.1.3.11.11.	The TSI shall provide the details on reconciliation of data transmitted across each external system interface with the TCS Host.		Yes	1) Compliant: Core Solution Fully Complies with the Requirement.		
344	8.1.3.11.11.	The TSI shall work with the Authority to assure that all audit requirements are addressed.		Yes	2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).		
345	8.1.3.11.11.	As part of this, the proposed TCS Host shall provide an audit tool to allow for: • Verification that a toll revenue transaction is captured for every vehicle traveling the Claiborne Pell Bridge; and		Yes	3) Non-compliant: Exception to the Requirement (Comment Required).		
346	8.1.3.11.11.	As part of this, the proposed TCS Host shall provide an audit tool to allow for: • Efficient tracking of any given toll transaction from the applicable toll lane to receipt of transaction status from the BOS.		Yes	4) Non-compliant: Not Available. The Requirement will Not be Met (Comment Required).		
347	8.1.3.11.12.	<b>TCS to BOS Reconciliation</b>		N/A			
348	8.1.3.11.12.	The TCS Host shall record and reconcile all transactions and expected revenue captured in the lanes and recorded in the TCS Host to the transaction status of each transaction in the BOS.		Yes			
349	8.1.3.11.13.	<b>Audit Trends</b>		N/A			
350	8.1.3.11.13.	The TCS Host shall provide user-defined trend reporting information to identify patterns that could be indicators of equipment or operational problems.		Yes			
351	8.1.3.11.14.	<b>TCS to BOS Interface</b>		N/A			
352	8.1.3.11.14.	The TCS Host shall send all toll transactions to the BOS within 24 hours or less (to be determined during System Design between the TSI and the selected BOS Integrator), receive transaction statuses to all toll transactions, and receive daily Tag Validation Files from the BOS.		Yes			
353	8.1.3.11.14.	The TCS Host shall transmit license plate images and ALPR data associated with each image for all transactions (i.e., all vehicles traveling on the Claiborne Pell Bridge) to the BOS within 24 hours or less for processing.		Yes			
354	8.1.3.11.14.	During the design phase, TSI shall work with the selected BOS Integrator to develop the TCS-BOS ICD for interfacing the TCS Host to the BOS that builds off the existing RITBA TCS-BOS ICD (see Appendix D). The Authority is receptive of changes to the existing TCS-BOS ICD that enhance the complete, accurate, and timely processing and reporting of transactions. A list of proposed changes to the existing RITBA ICD is included in Attachment C.		Yes			
355	8.1.3.11.15.	<b>TCS Host Reports</b>		N/A			
356	8.1.3.11.15.	The TCS Host shall include the ability to produce a variety of scheduled and ad-hoc operational reports in Adobe PDF and Microsoft Excel format as well as provide a tool for the Authority to perform special inquiries and export the results to Microsoft Excel format.		Yes			
357	8.1.3.11.15.	Specific reports will be determined during the SYSTEM design workshops with the TSI.		Yes			
358	8.1.3.11.15.	These reports should allow users to have different selection, filtering, and sort criteria such as date/time, direction, lane, specific E-ZPass agency transponders, transponder status, license plate number, plate type, plate jurisdiction, vehicle speed flag, oversize vehicle flag, and discount plan class mismatch flag for analysis purposes.		Yes			
359	8.1.3.11.15.	The location selection criteria shall include plaza, lane, and direction of travel.		Yes			
360	8.1.3.11.15.	The date selection criteria shall include but are not limited to the ability to generate the same report by minute, hour, day, date range, weekly, monthly, yearly, and year-to-date.		Yes			
361	8.1.3.11.15.	Users shall have the ability to sort the data by any field type and apply filters to select specific field types to display.		Yes			
362	8.1.3.11.15.	Data shall be presented as an accumulation or individually for the selected criteria. This capability shall be user configurable and applicable to individual lanes, directions, and different transaction types.		Yes			
363	8.1.3.11.15.	The TSI shall provide the Authority with the capability to manipulate the report data to perform comparative analysis and statistical calculations.		Yes			
364	8.1.3.11.15.	The TSI shall provide the Authority with a complete documented data dictionary and database access to support data mining activities by the Authority's staff.		Yes			
365	8.1.3.11.15.	The TSI shall provide the Authority with ad-hoc reporting tools. These ad-hoc reporting tools shall accommodate the need for specialized system analytics and business intelligence processes to further support the on-going operations and planning for the Authority.		Yes			
366	8.1.3.11.15.	Ad-hoc report templates created by authorized users shall be made available to all authorized users.		Yes			
367	8.1.3.11.15.	All reports shall include individual totals, sub-totals, and grand-totals as appropriate.		Yes			
368	8.1.3.11.15.	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 drive folder according to a routine or custom-specific interval.		Yes			
369	8.1.3.11.15.	The SYSTEM shall have the ability to drill down all high-level reports to the next level of detail and to details as required.		Yes			
370	8.1.3.11.15.	Additionally, the user shall have the ability to display and review the violation/transaction images and event details associated with the selected transaction from the drilled down details.		Yes			
371	8.1.3.11.15.	The TCS Host shall have ability to schedule trending reports for various transaction types, unusual occurrence items and system alerts.		Yes			

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372	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Transaction Report</u> The TCS shall produce a Transaction Report that displays the fields defined below for selected user parameters: <ul style="list-style-type: none"> <li>• Transaction serial number</li> <li>• Transaction date</li> <li>• Transaction type (transponder, image based, or discount plan)</li> <li>• AET toll zone/lane (possibly both separately)</li> <li>• AVC vehicle class</li> <li>• Full fare</li> <li>• Applied fare</li> <li>• Transponder agency</li> <li>• Transponder serial number</li> <li>• Transponder status</li> <li>• Transponder class</li> <li>• License plate image serial number</li> <li>• License plate state</li> <li>• License plate number</li> <li>• License plate type</li> </ul>		Yes	1) Compliant: Core Solution Fully Complies with the Requirement. 2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required). 3) Non-compliant: Exception to the Requirement (Comment Required). 4) Non-compliant: Not Available. The Requirement will Not be Met (Comment Required).		
373	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Traffic and Revenue Report</u> The Traffic and Revenue Report shall present a summary of all transactions and expected revenue for a specific time frame. Each Traffic and Revenue Report shall include total transactions and expected revenue by plaza, lane, directional toll zone, vehicle class, payment type, subtotals for all vehicle classes.		Yes			
374	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>E-ZPass Usage Report (single transponder)</u> The E-ZPass Usage Report (single transponder) shall present the total transaction usage for a specific transponder. Each E-ZPass Usage Report (single transponder) shall include transponder number, plaza, lane, directional toll zone, transaction date/time, transaction transponder status and expected revenue.		Yes			
375	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>E-ZPass Class Mismatch Report</u> The E-ZPass Class Mismatch Report shall present a summary of all E-ZPass transactions where the E-ZPass transponder class did not match the AVC class. The report shall be generated based on user selectable criteria including date/time, location, transponder number, etc.		Yes			
376	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>E-ZPass By Authority Discount Plan Report</u> The E-ZPass by Authority Discount Plan Report shall present a summary of all E-ZPass transactions where the E-ZPass transponder was associated with one of the various RITBA discount plans. The report shall be generated based on user selectable criteria including date/time, location, transponder number, plan number, etc.		Yes			
377	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Hourly Method of Payment Report</u> The Hourly Method of Payment Report shall present a summary of all lane transactions for each hour of a specified time frame. Each Hourly Method of Payment Report shall include plaza, lane, directional toll zone, E-ZPass transactions by class, non-revenue transactions by class, image based transactions by class and total transactions.		Yes			
378	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Hourly Traffic Report</u> The Hourly Traffic Report shall present a summary of all transactions for each hour of a specified time frame. Each Hourly Traffic Report shall include plaza, lane, directional toll zone and vehicle class and hourly breakout and totals.		Yes			
379	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Daily Traffic Overview Report</u> The Daily Traffic Overview Report shall present a summary of all transactions for a plaza. The report shall include plaza, by passenger car E-ZPass, total passenger cars, %E-ZPass for passenger, trucks E-ZPass, total trucks, %E-ZPass for trucks, non-revenue vehicles, break out of all image based transactions (total image based, % breakout of all types of image based transactions, and total traffic.		Yes			
380	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Unusual Occurrence Report</u> The Unusual Occurrence Report shall present a summary of all unusual occurrences within a specified time frame. Each Unusual Occurrence Report shall include plaza, lane, directional toll zone, date of occurrence, payment method, description, expected revenue, actual revenue and total unusual occurrences.		Yes			
381	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Traffic and Revenue Report</u> The Traffic and Revenue Report shall present a summary comparison of transactions and revenue between the previous fiscal month/year and the current fiscal month/year. The report shall include plazas traffic by class, previous and current month, previous and current year, and the difference between the two and percentage and revenue (E-ZPass and image based) by month for each fiscal year selected, revenue difference and percent difference.		Yes			
382	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Events Report</u> Chronological list of operational events and messages, by plaza, lane directional toll zone for selected date range.		Yes			

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383	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Transactions Detail Report</u> The Transaction Detail Report shall present a chronological list of operational events and transactions, by plaza, lane, directional toll zone for selected date range including transaction number, lane, transaction date and time, transaction type, degraded reason, AVI class, AVC class, class mismatch, vehicle speed, tag agency/number/status, full fare and applied fare.		Yes				
384	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Transaction Transmission Reconciliation Report</u> The Transaction Transmission Reconciliation Report shall show transponder based and image based transaction transmission reconciliation with the BOS for a given time period (daily, weekly, monthly, annual). These reports shall validate that all of the transponder based and image based transactions received from the lanes were transmitted to the TCS Host System and the BOS. Reports shall be available by revenue day and transmit day and transmit day reports shall show the files transmitted and acknowledged by the receiving system.		Yes				
385	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Transponder Status File Transmission Report</u> The Transponder Status File Transmission reports shall show the status of the Transponder Status File transmissions to the TCS Host. Time of receipt from the BOS, and the status of the TCS Host processing shall be displayed.		Yes				
386	8.1.3.11.15.	The TCS Host shall provide the following key reports at a minimum: <u>Vehicle Speed Report</u> The Vehicle Speed Report shall show transaction serial number, transaction date and time, plaza, lane, directional toll zone vehicle speed, transponder agency, transponder number, license plate jurisdiction, license plate number, and license plate type for vehicle's traveling over a configurable speed limit, grouped by configurable over speed limit ranges (such as 5mph – 10mph over limit, 11mph – 20mph over limit, 21mph – 30 mph over limit, over 30mph over limit).		Yes				
387	8.1.3.11.15.	After SYSTEM Go-Live, the TSI shall be responsible for designing, developing, implementing and testing up to fifteen (15) new reports for the Authority at no additional cost to the Authority beyond the costs indicated in the TSI's base Pricing Proposal for this procurement. The purpose of this requirement is to engage the TSI in accommodating additional Authority reporting needs that become apparent subsequent to the actual deployment of the SYSTEM.		Yes				
388	8.1.3.11.16.	<b>Standalone Capabilities</b>		N/A				
389	8.1.3.11.16.	The TCS Host shall be capable of standalone operation if communication is lost with any of the TCS subsystems or the BOS is degraded or lost.		Yes				
390	8.1.3.11.16.	Upon restoration of communications, the TCS Host shall send and receive all buffered data to/from the BOS.		Yes				
391	8.1.3.11.16.	The TCS Host shall generate a report to track/audit what stored transaction and image data was sent.		Yes				
392	8.1.3.11.17.	<b>TCS Host Hardware, Software, and Infrastructure Requirements</b>		N/A				
393	8.1.3.11.17.	The TSI shall provide all the hardware, software and network specifications to support the TCS Host and its required functionality.		Yes				
394	8.1.3.11.17.	The TCS Host shall be a clustered system resource with high availability that avoids single points of failure.		Yes				
395	8.1.3.11.17.	The TSI shall furnish and install complete production and disaster recovery (DR) TCS Host servers and supporting infrastructure including data storage, data back-up, network communications and other hardware as needed to support the Requirements of this RFP.		Yes				
396	8.1.3.11.17.	The TCS Host configuration shall include all cabinets and ancillary equipment to provide a complete, secure and reliable system.		Yes				
397	8.1.3.11.17.	The server configurations shall have redundancy to support the TCS's availability requirements.		Yes				
398	8.1.3.11.17.	Servers shall be specified, designed and configured to support DR procedures and ensure data security.		Yes				
399	8.1.3.11.17.	All TCS servers, including all major hardware elements, shall be of the latest design and shall incorporate standard commercial products currently in production.		Yes				
400	8.1.3.11.17.	All TCS equipment shall be new.		Yes				
401	8.1.3.11.17.	The TSI shall use proven server configurations that support future upgrades to processors, memory, storage, operating system, database, etc.		Yes				
402	8.1.3.11.17.	All equipment, database software, operating system(s) and TCS client application(s) shall be supported by the TSI during any warranty and maintenance period.		Yes				
403	8.1.3.11.17.	Server virtualization is encouraged to leverage and achieve fault tolerance, redundancy and fast recovery during failures.		Yes				
404	8.1.3.11.18.	<b>TCS Host Operating System</b>		N/A				
405	8.1.3.11.18.	The operating system(s) for the TCS shall consist of a multi-user, multi-tasking operating system.		Yes				
406	8.1.3.11.18.	The operating system shall support all peripherals defined in these requirements.		Yes				
407	8.1.3.11.18.	The operating system shall also support the proposed communications architecture, redundant configuration, database software, and TSI's application software.		Yes				
408	8.1.3.11.18.	The TSI shall obtain all licenses required in the name of the Authority.		Yes				
409	8.1.3.11.18.	All licenses shall be provided to the Authority for all off-the-shelf operating system software, in addition to original software installation titles and media.		Yes				
410	8.1.3.11.18.	The TSI shall retain authorized copies (back-ups) for all software media to use for periodic system maintenance, upgrades, or restore, as required by the Authority.		Yes				
411	8.1.3.11.18.	Any operating system(s) shall have a planned upgrade path throughout the life of the Contract.		Yes				
412	8.1.3.11.18.	The proposed operating system(s) shall be covered under warranty during the Warranty Period.		Yes				
413	8.1.3.11.18.	The operating system shall be a proven system, used widely throughout the United States for intensive database operations, and should be compatible with the database and other web-based tools.		Yes				
414	8.1.3.11.19.	<b>TCS Host System Database</b>		N/A				
415	8.1.3.11.19.	The TCS Host System is a critical system that is directly linked to financial viability of the Toll Bridge and its operations.		N/A				

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416	8.1.3.11.19.	The Authority requires a high level of reliability and security from the database used for the storage of transaction data, violation data, and all other data, as applicable, for the TCS.		Yes				
417	8.1.3.11.19.	The TSI shall use an industry standard, robust, highly available Relational Database Management System (RDBMS) that is field proven in toll collection environments.		Yes				
418	8.1.3.11.19.	The Host System database shall provide the common functionality, elements and capabilities encountered in commercially available relational databases.		Yes				
<b>419</b>	<b>8.1.3.11.20.</b>	<b>TCS Host Security Requirements</b>		<b>N/A</b>				
420	8.1.3.11.20.	The TSI shall adhere to the following security requirements at a minimum related to the TCS Host: <ul style="list-style-type: none"> <li>The TSI shall employ security measures ensuring that all application(s) and data are protected;</li> </ul>		Yes				
421	8.1.3.11.20.	The TSI shall adhere to the following security requirements at a minimum related to the TCS Host: <ul style="list-style-type: none"> <li>All servers and devices must have currently supported and hardened operating systems with the latest anti-viral, anti-hacker, anti-spam, anti-spyware, and anti-malware utilities. The whole environment shall have aggressive intrusion-detection and firewall protection; and</li> </ul>		Yes				
422	8.1.3.11.20.	The TSI shall adhere to the following security requirements at a minimum related to the TCS Host: <ul style="list-style-type: none"> <li>All components of the infrastructure shall be reviewed and tested to ensure they protect the Authority's hardware, software, and its related data assets. Tests shall focus on the technical, administrative and physical security controls that have been designed into the TCS architecture to provide confidentiality, integrity and availability.</li> </ul>		Yes				
423	8.1.3.11.20.	The TSI shall adhere to the following security requirements at a minimum related to the TCS Host: <ul style="list-style-type: none"> <li>The TSI shall comply with the cybersecurity requirements set forth by the U.S. Department of Commerce National Institute of Standards and Technology (<a href="https://www.nist.gov/cyberframework">https://www.nist.gov/cyberframework</a>) as well as the U.S. Department of Homeland Security Transportation Systems Subsector (<a href="https://www.cisa.gov/sites/default/files/publications/tss-cybersecurity-framework-implementation-guide-2016-508v2_0.pdf">https://www.cisa.gov/sites/default/files/publications/tss-cybersecurity-framework-implementation-guide-2016-508v2_0.pdf</a>)</li> </ul>		Yes				
<b>424</b>	<b>8.1.3.12.</b>	<b>FCC Licensing</b>		<b>N/A</b>				
425	8.1.3.12.	The TSI shall conduct a radio frequency (RF) site survey at the toll zones to ensure that no significant local signals will have an impact on SYSTEM function and/or performance.		Yes				
426	8.1.3.12.	The TSI shall prepare, and timely submit, Federal Communication Commission (FCC) required transmitter technical and location information needed to obtain an FCC license for the operation of the SYSTEM.		Yes				
<b>427</b>	<b>8.1.3.13.</b>	<b>Maintenance Management System (MMS)</b>		<b>N/A</b>				
428	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Monitor and collect data on SYSTEM and equipment statuses continually (24 hours a day, 7 days a week).</li> </ul>		Yes				
429	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Monitor, log, and report on communication between the SYSTEM and the BOS, including successful file and transaction transmissions; periodic file transmissions that are overdue or occurring too often; serialized file transmissions with missing or out of sequence data; file contents indicating network communication or data generation issues; and other communications faults and anomalies.</li> </ul>		Yes				
430	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Be designed so that SYSTEM data shall not be able to be deleted or modified, only appended and/or corrected with an identification as to what was appended/corrected, who caused the appending and/or correcting, and when the data was appended/corrected.</li> </ul>		Yes				
431	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Automatically generate and track work orders for preventative maintenance, corrective maintenance, and emergency maintenance. Work orders are to be completed and closed out by the TSI.</li> </ul>		Yes				
432	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Support the generation of ad-hoc work orders by authorized users. Work orders are to be completed and closed out by the TSI.</li> </ul>		Yes				
433	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Provide all screens and tools for authorized users to identify issues/problems; access and view related issues/problems automatically identified by the SYSTEM; log or provide additional detail on each issue/problem and transmit notification of the same to maintenance personnel and other MMS users.</li> </ul>		Yes				
434	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Automatically alert maintenance staff once a work order has been generated.</li> </ul>		Yes				
435	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Support the assignment of maintenance priority levels based on the SYSTEM configurable combination of severity level, facility, day and time.</li> </ul>		Yes				
436	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Track mean time between failures (MTBF) for all SYSTEM elements.</li> </ul>		Yes				
437	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Track component failure rates with error logs, historical tracking of errors, and repair histories for all TSI-provided equipment.</li> </ul>		Yes				
438	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Allow authorized users access to the MMS from Authority workstations.</li> </ul>		Yes				
439	8.1.3.13.	The MMS shall: <ul style="list-style-type: none"> <li>Track spares and inventory levels including serial numbers and associated warranty information for installed equipment and inventoried equipment.</li> </ul>		Yes				
<b>440</b>	<b>8.1.3.14.</b>	<b>Communications</b>		<b>N/A</b>				
441	8.1.3.14.	The TSI shall follow the Authority's requirements for all equipment and systems connected to the Authority's Enterprise Network.		Yes				

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					1) Compliant: Core Solution Fully Complies with the Requirement.	2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).		
442	8.1.3.14.	The Authority will provide and maintain firewalls at every SYSTEM connection point into the Authority's WAN.		N/A				
443	8.1.3.14.	The TSI/SYSTEM shall: • Provide and maintain a firewall/switches at every connection point into the Authority's WAN and (if applicable) the TSI's corporate network to ensure isolation of the Authority's network and the SYSTEM network and (if applicable) from the SYSTEM network and the TSI's corporate network. The TSI-provided Authority interfacing equipment will need to be configured in coordination with the Authority's Information Technology Department.		Yes				
444	8.1.3.14.	The TSI/SYSTEM shall: • Provide, manage, and maintain all SYSTEM network equipment within the SYSTEM network including servers, switches, routers, and firewalls, and all network cabling.		Yes				
445	8.1.3.14.	The TSI/SYSTEM shall: • Monitor and manage equipment and Systems using a Simple Network Management Protocol (SNMP) monitoring tool.		Yes				
446	8.1.3.14.	• The SYSTEM shall operate with no loss of data.		Yes				
447	8.1.3.14.	• All toll lanes and toll zones shall be capable of operating without any communications for up to 30 days while storing all lane transactions to be processed when communications are restored.		Yes				
448	8.1.3.14.	• In the event of a failure of the Authority's WAN, the TSI shall provide a System that can operate indefinitely without Authority-provided communications through manual field retrieval and redundant storage of data.		Yes				
449	8.1.3.15.	<b>Roadside Equipment Enclosures</b>		N/A				
450	8.1.3.15.	The Authority will provide the concrete base for roadside equipment enclosures which will house the SYSTEM equipment installed at or near the toll zones.		N/A				
451	8.1.3.15.	The TSI shall provide, install, monitor and maintain the roadside equipment enclosures, in addition to the Heating, Ventilation and Air Conditioning (HVAC) equipment for all roadside equipment enclosures.		Yes				
452	8.1.3.15.	The TSI shall provide the specifications for the Authority to construct the supporting infrastructure to mount the roadside enclosures (such as concrete bases) as well as the supporting infrastructure between the roadside equipment enclosures and the toll gantries (such as conduits).		Yes				
453	8.1.3.16.	<b>Data Storage</b>		N/A				
454	8.1.3.16.	The SYSTEM shall: • Store lane transactions at the toll zone for a minimum of 9030 days and at the TCS Host in accordance with the Authority's data retention schedule.	Yes	Yes				
455	8.1.3.16.	The SYSTEM shall: • Store images at the lanes and toll zones for a user configurable period of time ranging from 0 seconds (immediate deletion) to 9030 days. Store images at the TCS Host in accordance with the Authority's data retention schedule.	Yes	Yes				
456	8.1.3.16.	The SYSTEM shall: • Digitally store (continuous) DVAS raw video for up to 90 days (configurable). DVAS video shall be deleted after 90 days, unless the video is evidence of an investigation or the Authority has requested the video to be maintained, in which case the TSI will support the exporting and external saving of such video for the Authority's use.	Yes	Yes				
457	8.1.3.16.	The SYSTEM shall: • Digitally store DVAS video clips associated with lane transactions and/or copied from the DVAS as part of an investigation and linked to an investigation file in accordance with the Authority's data retention schedule.		Yes				
458	8.1.3.17.	<b>Reporting Server</b>		N/A				
459	8.1.3.17.	In addition to the production and DR TCS Hosts, the TSI shall provide, install, and integrate a separate reporting server which shall house a copy of the TCS Host database.		Yes				
460	8.1.3.17.	This "Reporting Server" shall be kept synchronized with the TCS Host database using software replication techniques no less than every 24 hours.		Yes				
461	8.1.3.17.	This server is not to be proposed as a disaster recovery site.		Yes				
462	8.1.3.17.	All reports provided by the TSI to run on the Host shall also be installed and operate on the Reporting Server.		Yes				
463	8.1.3.17.	To limit bandwidth utilization, the Reporting Server shall be located with the TCS Host.		Yes				
464	8.1.3.18.	<b>Data Security and Accountability</b>		N/A				
465	8.1.3.18.	Only authorized personnel will have access to information on the SYSTEM computers and network.		Yes				
466	8.1.3.18.	Access to any system, sub-system, function or directory requires a valid user account with assigned access privileges and controls.		Yes				
467	8.1.3.18.	A user account is locked if the number of failed login attempts exceeds a configurable account lock threshold.		Yes				
468	8.1.3.18.	Pre-defined "roles" shall have varying levels of access to selected applications, screens, forms, files, and directories.		Yes				
469	8.1.3.18.	Only certain "roles" shall have the ability to change access levels for "roles" and individuals.		Yes				
470	8.1.3.18.	Only authorized personnel with appropriate system privileges can change or override toll rates.		Yes				
471	8.1.3.18.	The SYSTEM will not allow any data to be deleted from a SYSTEM record.		Yes				
472	8.1.4.	<b>TCS Technical Requirements</b>		N/A				
473	8.1.4.	The Authority is providing the TSI substantial latitude in providing the equipment and Systems necessary to meet the functional and performance specifications included in this RFP. However, all equipment installed on Authority property shall be capable of operating within the environments typical of Rhode Island climate.		Yes				
474	8.1.4.	The Authority reserves the right to purchase any hardware or Commercial Off-The-Shelf (COTS) software outside of this Contract and provide it to the TSI. To ensure hardware and software compatibility with the SYSTEM, the TSI shall provide all specifications for required hardware and software if the Authority exercises this right.		Yes				
475	8.1.4.1.	<b>Physical Environmental Conditions</b>		N/A				
476	8.1.4.1.	The SYSTEM components will be installed in three physical environments: a. <b>Exterior.</b> All locations outside of environmentally controlled buildings. b. <b>Roadside Enclosures.</b> Inside of enclosures located at the toll zones. c. <b>Building Interiors.</b> Inside environmentally controlled buildings.		Yes				

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477	8.1.4.1.	For these environments, SYSTEM equipment and Systems shall be able to operate within and withstand the conditions within Table 8-1. Refer to Table 8-1.		Yes				
478	8.1.4.2.	<b>Hardware</b>		N/A				
479	8.1.4.2.	The TSI shall follow Authority requirements for all hardware installed on Authority property.		Yes				
480	8.1.4.2.	The TSI shall: <ul style="list-style-type: none"> <li>• Provide equipment and work in conformance with the current applicable codes, standards, and guidelines including: <ul style="list-style-type: none"> <li>a. National Electrical Code (NEC);</li> <li>b. National Electrical Contractors Association (NECA) codes and standards;</li> <li>c. Occupational Safety and Health Act (OSHA) standards;</li> <li>d. National Fire Protection Association (NFPA) codes and standards;</li> <li>e. National Electrical Manufacturers Association (NEMA) standards;</li> <li>f. American Society for Testing and Materials (ASTM) International standards;</li> <li>g. Institute of Electrical and Electronics Engineers (IEEE) standards, including National Electrical Safety Code (NESC);</li> <li>h. Electronic Industries Association (EIA) standards for interface and intercommunication;</li> <li>i. Underwriters Laboratories (UL) standards; and</li> <li>j. State of Rhode Island standards.</li> </ul> </li> </ul>		Yes				
481	8.1.4.2.	The TSI shall: <ul style="list-style-type: none"> <li>• Secure all equipment mounted over or adjacent to the roadway in such a manner that it cannot fall into a travel lane or shoulder due to any single failure of connection/mounting devices.</li> </ul>		Yes				
482	8.1.4.2.	The TSI shall: <ul style="list-style-type: none"> <li>• Mount and secure all equipment in such a manner that it does not require frequent adjustments which necessitate lane or shoulder closures. Adjustment to or replacement of equipment shall be conducted in such a manner that it minimizes the duration of any lane or shoulder closures. Frequent adjustments are those considered to be necessary outside of approved SYSTEM downtime periods.</li> </ul>		Yes				
483	8.1.4.2.	The TSI shall: <ul style="list-style-type: none"> <li>• Provide locking mechanisms for all exterior cabinets or buildings used to house SYSTEM equipment. The TSI shall be responsible for replacement and repair of equipment resulting from unauthorized access and vandalism to SYSTEM equipment by any TSI or subcontractor staff.</li> </ul>		Yes				
484	8.1.4.2.	The TSI shall: <ul style="list-style-type: none"> <li>• Meet the industry standards currently being used for similar SYSTEM, ITS, and IT Projects for interchangeability, accessibility, test points, electronic components, plugs, connectors, terminal blocks, wires and cables, insulation, circuit protection, housings and cabinets, and fabrication, in addition to meeting applicable codes, standards, and guidelines throughout the life of the Contract.</li> </ul>		Yes				
485	8.1.4.2.	The TSI shall: <ul style="list-style-type: none"> <li>• Provide electrical power Systems and data transmission Systems in accordance with NEC and Authority standards. The Authority will be responsible for bringing power and communications to the roadside enclosures, but electrical work on the gantry is the responsibility of the TSI.</li> </ul>		Yes				
486	8.1.4.2.	The TSI shall: <ul style="list-style-type: none"> <li>• Install and maintain equipment in accordance with all applicable NEC, IEEE, State and Local codes and standards. Cable runs shall be horizontal or vertical, clearly labeled on both ends and neatly dressed. Diagonal cable runs are not acceptable and when needed strain relief must be provided, it is unacceptable to have any connector supporting a cable. The connector on the end of the cable should match the terminal where it is terminating without an adapter.</li> </ul>		Yes				
487	8.1.4.2.	The TSI shall: <ul style="list-style-type: none"> <li>• Provide grounding Systems in accordance with NEC requirements.</li> </ul>		Yes				
488	8.1.4.2.	The TSI shall: <ul style="list-style-type: none"> <li>• Provide surge and lightning protection in accordance with applicable NEC, Authority, UL, and NFPA specifications and standards.</li> </ul>		Yes				
489	8.1.4.3.	<b>Software</b>		N/A				
490	8.1.4.3.	The Authority requires that all third-party software used in the SYSTEM be maintained and supported by the TSI throughout the term of the Contract.		Yes				
491	8.1.4.3.	The Authority prefers that software products be the newest commercially available of their type which are currently being used by toll facility operators and can be updated throughout the term of the Contract as newer versions become available.		Yes				
492	8.1.4.3.	The Authority prefers software based on open source/open architecture.		Yes				
493	8.1.4.3.	The Authority prefers the use of COTS software to the maximum extent possible.		Yes				
494	8.2.	<b>Communications and Network Equipment</b>		N/A				
495	8.2.	The TSI shall provide and install the communications network routers, switches, firewalls and other communications infrastructure that is required to support the SYSTEM.		Yes				
496	8.2.	The TSI shall describe their approach towards providing and maintaining the communication network under an Authority Hosted, a TSI Hosted or a Cloud Hosted solution. The Authority will provide the communications link from the toll zone to the TSI Hosted or Cloud Hosted data center. The Authority will allow the TSI to access their Metro-E network for an Authority Hosted data center.		Yes				
497	8.2.	At the minimum, the TSI shall be responsible for the following: (1) Providing and maintaining all network communications with the SYSTEM.		Yes				
498	8.2.	At the minimum, the TSI shall be responsible for the following: (2) Remote connectivity via the Internet and all associated security appliances and firewall software and/or hardware to protect and secure the SYSTEM.		Yes				
499	8.2.	At the minimum, the TSI shall be responsible for the following: (3) All WAN connectivity to external interfaces that include the Back-Up or Disaster Recovery Site.		Yes				

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500	8.2.	At the minimum, the TSI shall be responsible for the following: (4) Establishing, operating, monitoring, and maintaining communication connections for the SYSTEM including the BOS and other applicable third-party systems.		Yes				
501	8.2.	At the minimum, the TSI shall be responsible for the following: (5) Monitoring the SYSTEM network, servers, and its components to respond to any fault or problem with minimum down time as defined in this RFP.		Yes				
502	8.2.	At the minimum, the TSI shall be responsible for the following: (6) Notifying and coordinating with the Authority regarding any network outages, latency, maintenance-related activity, connectivity, changes, or deactivation of elements connected to the Authority's communications network backbone.		Yes				
503	8.2.	At the minimum, the TSI shall be responsible for the following: (7) Monitoring the SYSTEM's WAN/LAN as well as external interfaces (through the MMS) continually throughout each day to verify optimal performance and full operations.		Yes				
504	8.2.	At the minimum, the TSI shall be responsible for the following: (8) Performing network monitoring and verification of connectivity to various devices within the SYSTEM on a continuous basis.		Yes				
505	8.2.	At the minimum, the TSI shall be responsible for the following: (9) Providing network design and services related to SYSTEM security apparatus and firewalls as well as connectivity to the BOS.		Yes				
506	8.3.	<b>Back-Up Power</b>		N/A				
507	8.3.	The Authority will provide a generator to operate the roadside TCS equipment installed at the AET toll zones as backup to power loss.		N/A				
508	8.3.	The TSI shall be responsible for providing and installing an Uninterruptible Power Supply (UPS) at the toll zone, sized to maintain operations for up to 30 minutes in the event of a power loss to bridge the gap between the power loss and the generator startup.		Yes				
509	8.3.	The Authority will provide a UPS for an onsite Toll Host (located in the Authority's data center), sized to maintain operations for up to 30 minutes in the event of a power loss.		Yes				
510	8.4.	<b>Data Center</b>		N/A				
511	8.4.	Except in the case of a Cloud Hosted solution, the TSI shall provide all the hardware, software and network specifications to support the SYSTEM implementation.		Yes				
512	8.4.	The production and DR SYSTEM hardware and software shall be hosted in a cloud in the USA, hosted offsite at TSI's provided facility in the USA, or hosted at the Authority's data centers (production site in Jamestown, RI, DR site in Warwick, RI).		Yes				
513	8.4.	Any cloud hosting solution provided by the TSI shall be of a government cloud nature. Due to the dynamic nature of cloud-based computing, the Cloud Hosted option should include a description of how additional resources are assigned as well as the enhanced security measures that will be implemented. The Cloud Hosted solution shall also provide details on how the SYSTEM shall be provisioned and configured to support both the production and disaster recovery (DR) sites and the reporting server.		Yes				
514	8.4.	For a Cloud Hosted solution or TSI Hosted solution, the production and DR data centers shall be at least 200 miles apart, preferably on separate power grids with redundant network access.		Yes				
515	8.4.	For the TSI Hosted off-site solution or the Authority Hosted solution, the TSI shall procure and install all the hardware and software dedicated to support the SYSTEM implementation including both the production and DR sites and the reporting server.		Yes				
516	8.4.	To assist with the Authority Hosted solution, a drawing showing the rack space currently available for additional equipment in the Authority's primary data center is provided as Attachment D. The drawing shows a redundant M1000E Blade chassis with 20 empty Blade server bays available. The Respondent shall propose solutions that utilize the currently available Blade System (at least as a first consideration) prior to including the additional rack available in the proposed design. The Authority will give the TSI full autonomous access to the Blade server bays if the TSI chooses the Authority Hosted solution.		Yes				
517	8.4.	For the TSI Hosted off-site solution, the use of shared resources within the TSI's data center (i.e., with other clients of the TSI) shall be approved by the Authority.		Yes				
518	8.4.	The Authority shall provide adequate network access (bandwidth) to a proposed Cloud Hosted or TSI Hosted off-site system for SYSTEM operations, to the BOS, and to the TSI's and the Authority's staff to use the system effectively and efficiently.		N/A				
519	8.4.	The TSI shall work with the Authority to size the bandwidth required to meet the SYSTEM performance requirements.		Yes				
520	8.4.	The TSI must ensure that the SYSTEM complies with all industry accepted security practices.		Yes				
521	8.5.	<b>Data Management, Storage, and Retention</b>		N/A				
522	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <b>Back-up:</b> • Make back-up copies of production and DR SYSTEM data, replicated at 3 separate locations, to facilitate a restoration of the data in the event of data loss or SYSTEM failure.		Yes				
523	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <b>Back-up:</b> • Adhere to a defined and documented back-up schedule and procedure (to be approved by the Authority) and complete scheduled back-ups of all data regularly.		Yes				
524	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <b>Back-up:</b> • At a minimum, data shall be backed up nightly, with one daily for differential, and one weekly for full data back-up.		Yes				



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525	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Back-up</u> • Where data is personally identifiable, data must be encrypted according to current best practice standards such as with Advanced Encryption Standard (AES). For transmission of sensitive data utilizing Public Key Infrastructure (PKI), only cipher suites deploying what is considered best practice should be utilized. Private keys should be managed according to industry best practices.		Yes				
526	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Back-up</u> • The SYSTEM shall be backed up without requiring manual intervention and shall include the status of all back-ups in the Monthly SYSTEM Operations Report.		Yes				
527	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Storage</u> • The TSI shall specifically provision for the back-up of DR SYSTEM data. This shall be separate from the DR replication activities and should not be considered as part of DR data replication.		Yes				
528	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Storage</u> • Back-up media for each period shall be stored in a secure location for data recovery in the event of disaster.		Yes				
529	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Storage</u> • For the TSI provided off-site facility, the TSI shall use either a disk back-up mechanism or online cloud-based back-up solution.		Yes				
530	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Storage</u> • For the Authority's existing data center, the TSI shall use a disk back-up mechanism.		Yes				
531	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Storage</u> • The TSI shall be responsible for handling the secure transfer and storage of back-up media.		Yes				
532	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Retention</u> • The TSI shall follow the Authority's Information Technology Department Data Retention Policy to retain the data both online and offline.		Yes				
533	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Retention</u> • Based on the Retention policies, the data shall be archived and stored for future use and shall be purged from the current system for normal operations. Respondents may assume their solution will incorporate the following data retention schedules: a. Detailed toll transactional data – Retain online in the TCS Host for at least 3 years then archive to long term storage for at least 6 years.		Yes				
534	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Retention</u> • Based on the Retention policies, the data shall be archived and stored for future use and shall be purged from the current system for normal operations. Respondents may assume their solution will incorporate the following data retention schedules: b. Summary level toll data – Retain online in the TCS Host for at least 10 years.		Yes				
535	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Retention</u> • Based on the Retention policies, the data shall be archived and stored for future use and shall be purged from the current system for normal operations. Respondents may assume their solution will incorporate the following data retention schedules: c. License Plate Images: i. AVI Transactions: Retain online in the TCS for a minimum of 3 years then archive to long term storage for at least 6 years.	Yes	Yes				
536	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Retention</u> • Based on the Retention policies, the data shall be archived and stored for future use and shall be purged from the current system for normal operations. Respondents may assume their solution will incorporate the following data retention schedules: c. License Plate Images: ii. Image Based Toll Transactions: Retain online in the TCS for a minimum of 3 years then archive to long term storage for at least 6 years.	Yes	Yes				

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537	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Retention</u> • Based on the Retention policies, the data shall be archived and stored for future use and shall be purged from the current system for normal operations. Respondents may assume their solution will incorporate the following data retention schedules:  d. System Logs – Retain Online in the TCS Host for at least 120 days then archive to long term storage for at least 6 years.		Yes				
538	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: <u>Retention</u> • Based on the Retention policies, the data shall be archived and stored for future use and shall be purged from the current system for normal operations. Respondents may assume their solution will incorporate the following data retention schedules:  e. All Other data – Retain online in the TCS Host for at least 3 years then archive to long term storage for at least 6 years.		Yes				
539	8.6.	<b>Data Security and Accountability</b>		N/A				
540	8.6.	The SYSTEM shall include features to assure the security and integrity of all data collected and processed by the SYSTEM.		Yes				
541	8.6.	The SYSTEM shall employ redundancy as needed to meet the required availability and functionality requirements and to protect against data loss and data corruption.		Yes				
542	8.6.	Communication transmissions to and from the SYSTEM shall employ a reliable means of confirming sent data is accurately sent and received.		Yes				
543	8.6.	The SYSTEM shall protect against data loss caused by equipment malfunction and failure, inadequate data storage capacity, communication loss, power outage, voltage drop or surges, extreme temperatures, deletion by users or other forms of human error, and cyber-attacks (i.e., rogue users/hackers, virus attacks, etc.).		Yes				
544	8.6.	Throughout all levels of the SYSTEM the TSI shall employ an integrated and comprehensive anti-spam and anti-virus protection system that is approved by the Authority's Information Technology Department.		Yes				
545	8.6.	The TSI shall provide a secure firewall that is approved by the Authority's Information Technology Department that protects all aspects of the SYSTEM.		Yes				
546	8.6.	The SYSTEM shall provide varying user-access levels that are assigned by a qualified and experienced system administrator.		Yes				
547	8.6.	Any modifications to data (records) and all databases shall be recorded to a retrievable chronological log that includes notations to support SYSTEM audits.		Yes				
548	8.6.	The TSI shall not disclose, distribute or make available to any third party the names, addresses, or any other personally identifiable information of customers without their express consent except as required to comply with laws or legal processes served on the Authority.		Yes				
549	8.6.	The TSI is responsible for providing for quarterly independent third-party security scans and penetration tests for off-site TCS hosted solutions and present the results to the Authority. Security scans and penetration tests for on-site TCS hosted solutions can be coordinated with the Authority under the scope of the Authority's current vendor. The TSI shall perform penetration and degradation testing as well as security scans following any changes made to the SYSTEM for a TSI Hosted or Cloud Hosted solution.		Yes				
550	8.6.	Any vulnerabilities shall be immediately reported to the Authority along with any recommended patches, upgrades and enhancements to the SYSTEM.		Yes				
551	8.6.	The TSI shall perform periodic cyber security testing and vulnerability assessments to be planned and coordinated with the Authority.		Yes				
552	8.6.	The period shall vary from daily to weekly to monthly depending upon current cyber threat advisory level as indicated by the Center for Internet Security (CIS) Multi-State Information Sharing and Analysis Center® (MS-ISAC®).		Yes				
553	8.7.	<b>Maintenance</b>		N/A				
554	8.7.	Once the SYSTEM is placed into revenue collection, the TSI shall provide support and maintenance services for the SYSTEM to continue its operations with no degradation in the performance in accordance with the standards set forth in this RFP and the provisions in this section throughout the contract term as defined in Section 2.4.		Yes				
555	8.7.	The Authority intends to provide the primary maintenance and on-going daily support of the SYSTEM and its supporting subsystems defined as Tier 1 and Tier 2 support below. The TSI shall provide for maintenance coverage during vacations and absences of the Authority's maintenance staff.		Yes				
556	8.7.	The TSI will be responsible for the training of Authority staff and supporting the Authority with Tier 1 and Tier 2 maintenance activities, and for directly providing Tier 3 and Tier 4 support.		Yes				
557	8.7.	Until System Acceptance the TSI shall have personnel on site during all normal business hours.		Yes				
558	8.7.	After System Acceptance, the TSI will not be required to have continuous onsite presence but shall provide 24/7/365 technical support to Authority staff in the event the Authority cannot resolve an issue or failure on its own.		Yes				
559	8.7.1.	<b>Maintenance Support Services</b>		N/A				
560	8.7.1.	To better delineate the roles and responsibilities of maintenance of the SYSTEM and supporting subsystems, the following maintenance service levels (tiers) have been established: • <b>Tier 1 – On-Site Support:</b> Tier 1 support shall be provided by trained Authority staff. Tier 1 support shall include such events such as component failure detection, field replacement, basic troubleshooting and or remote diagnostics. Tier 1 support staff shall be capable of performing all preventative (scheduled) maintenance of the SYSTEM.		Yes				

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					1) Compliant: Core Solution Fully Complies with the Requirement.	2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).		
561	8.7.1.	To better delineate the roles and responsibilities of maintenance of the SYSTEM and supporting subsystems, the following maintenance service levels (tiers) have been established: <ul style="list-style-type: none"> <li><b>Tier 2 – Local Support:</b> Tier 2 support shall be provided by trained Authority staff. Support for Tier 2 shall include troubleshooting and diagnostics of events which cannot be resolved by Tier 1 staff. Tier 2 support staff shall be trained by the TSI at a comprehensive level. The intention of the Tier 2 staff is to be capable of performing all diagnostics, determination of fault severity, corrective action necessary and determination of escalation to Tier 3 support. Tier 2 staff shall be capable of installing firmware updates, patches, and other similar updates. Tier 2 staff shall be capable of training Tier 1 staff.</li> <li>Tier 2 staff shall be trained with the intention to be capable of performing complete installation and configuration of all SYSTEM components (hardware and software). This shall involve both complete replacement of existing (failed) equipment and installation of new equipment.</li> </ul>		Yes				
562	8.7.1.	To better delineate the roles and responsibilities of maintenance of the SYSTEM and supporting subsystems, the following maintenance service levels (tiers) have been established: <ul style="list-style-type: none"> <li><b>Tier 3 – Off-Site TSI Support:</b> Tier 3 support shall be provided by the TSI throughout the entire term of the contract and any subsequent optional extensions. Tier 3 support shall provide support to Tier 2 staff (or Tier 1 as designated by Tier 2) with remote technical services when local Tier 2 staff cannot successfully resolve an issue. Tier 3 shall be responsible for communicating any system changes; software/firmware updates, patches, fixes; changes to documentation or manuals; or other similar updates to the Tier 2 staff. Tier 3 support shall be allowed remote access to the SYSTEM on a case-by-case basis per request and subsequent approval from Authority Tier 2 staff. Tier 3 support shall not implement or execute any changes without the request and subsequent approval from Tier 2 staff.</li> </ul>		Yes				
563	8.7.1.	To better delineate the roles and responsibilities of maintenance of the SYSTEM and supporting subsystems, the following maintenance service levels (tiers) have been established: <ul style="list-style-type: none"> <li><b>Tier 4 – On-Site TSI Support:</b> Tier 4 support shall be provided the TSI. Tier 4 Support shall serve as a final escalation of support whereby the TSI may be required to provide direct on-site field support. Tier 4 Support shall be utilized when the TSI's Tier 3 support cannot resolve an issue and/or the TSI feels that direct on-site interaction is required. Tier 4 support shall be reimbursable to the TSI on a time and materials (T&amp;M) basis. Any Tier 4 support shall be approved by the Authority for consideration of reimbursement. Tier 4 support is not intended to cover malfunctions or defects related to SYSTEM design issues as these should be considered in achieving SYSTEM availability and at the TSI's obligation to maintain.</li> </ul>		Yes				
<b>564</b>	<b>8.7.2.</b>	<b>Maintenance Plan</b>		<b>N/A</b>				
565	8.7.2.	At least 30 days prior to the beginning of SYSTEM installation, the TSI shall submit a Maintenance Plan identifying all aspects of the maintenance program and services.		Yes				
566	8.7.2.	The Maintenance Plan shall address both Hardware, Software and Network maintenance and scheduled routine maintenance processes (including all preventive and corrective maintenance activities for the inspections, repairs, upgrades, and replacement of parts and components) as needed to keep the SYSTEM running effectively and efficiently at or above required performance.		Yes				
567	8.7.2.	The Maintenance Plan shall provide details on each routine maintenance activity including its scope, frequency, and anticipated duration for completion.		Yes				
568	8.7.2.	The Maintenance Plan shall describe how the functionality of the MMS is used to identify, dispatch, respond, restore, and record an incident or service event.		Yes				
569	8.7.2.	Maintenance response times shall be as specified by the response and repair times in Section 8.10.10.2.1, and the Plan shall communicate the TSI's processes to meet these response times.		Yes				
570	8.7.2.	Spare parts inventory management shall also be addressed.		Yes				
<b>571</b>	<b>8.7.3.</b>	<b>General Maintenance Requirements</b>		<b>N/A</b>				
572	8.7.3.	To every extent possible, performance of maintenance activities shall be completed in a manner that does not disrupt or degrade SYSTEM operations.		Yes				
573	8.7.3.	All software and firmware updates shall be applied within 30 calendar days of release by the software's manufacturer and shall be scheduled and planned with the Authority. Any such efforts shall be clearly documented in advance for Authority concurrence.		Yes				
574	8.7.3.	The TSI shall establish and staff a Help Desk function that shall include a toll-free telephone; a person shall be available at that number to report confirmation of reduced SYSTEM performance, outages and problems or to troubleshoot and resolve a request for maintenance twenty-four (24) hours a day, seven (7) days a week, 365 days a year.		Yes				
575	8.7.3.	The TSI shall provide the required system security level access, software tools, training and any other materials required to maintain the SYSTEM to the performance levels specified herein and in the Contract.		Yes				
<b>576</b>	<b>8.7.4.</b>	<b>Software and Firmware Maintenance</b>		<b>N/A</b>				
577	8.7.4.	The TSI shall provide software maintenance which shall include ongoing SYSTEM administration, updates and patches to the operating system(s), database(s), antivirus, firmware, middleware and external interfaces, licenses renewal, and any other activities needed to maintain the performance standards set forth in this RFP.		Yes				
578	8.7.4.	The TSI shall keep all software instances (development, test, disaster recovery and production) at the same configuration and patch level.		Yes				
579	8.7.4.	As is standard practice when repairing deficiencies and releasing SYSTEM fixes or upgrades, the TSI shall prepare and run Regression Testing scripts to test each build that is delivered to the test environment to ensure that no regression problems have surfaced.		Yes				
580	8.7.4.	The TSI shall provide the Authority with the most current release of all SYSTEM software, including third-party software, available on the date of delivery to maintain optimum performance.		Yes				

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					1) Compliant: Core Solution Fully Complies with the Requirement.	2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).		
581	8.7.4.	All changes to the system, of any kind, shall be approved by the Authority prior to implementation.		Yes				
582	8.7.4.	Software changes shall not be implemented until the TSI has prepared and submitted complete release notes for the release package, and those notes have been reviewed and approved by the Authority.		Yes				
583	8.7.5.	<b>Software Upgrades and Enhancements</b>		N/A				
584	8.7.5.	Upgrades or Enhancements that shall not be paid for by the Authority include Software modifications that are required to maintain and support the SYSTEM as a part of the normal course of business such as version changes, configuration or parameter changes, or minor changes to software or code; and changes that improve the TSI's ability to maintain and support the SYSTEM.		Yes				
585	8.7.5.	Upgrades and Enhancements required for reasons such as to meet major changes to standards, statutes, or interoperability requirements (including the addition of new functionality) or, to provide the Authority with a demonstrable benefit in performance, costs or productivity, shall be proposed by the TSI in accordance with the requirements of the Authority's Change Request process and coordinated through the Authority's Information Technology Department.		Yes				
586	8.7.6.	<b>Hardware Maintenance</b>		N/A				
587	8.7.6.	The TSI shall directly maintain, or support the Authority's efforts to maintain, all SYSTEM hardware components, devices and elements used in the SYSTEM. Hardware maintenance shall include repair and replacement (or any other activities of any SYSTEM device or component provided by the TSI and specialized technology) to ensure the normal function necessary to maintain the performance standards set forth in this RFP.		Yes				
588	8.7.6.	The TSI shall submit a detailed annual report on the status of the SYSTEM which shall discuss the status of each major component, expected remaining life, and any planned/suggested improvements or replacements.		Yes				
589	8.7.6.	The TSI shall develop a forecast of replacement parts, spare parts inventory and associated costs for each fiscal year for Authority budgeting purposes.		Yes				
590	8.7.6.	The TSI shall not mark up the cost of any replacement spare parts item by more than 10 percent over the manufacturer's price.		Yes				
591	8.7.7.	<b>Preventive Maintenance</b>		N/A				
592	8.7.7.	The TSI shall provide a schedule for all preventive maintenance on all SYSTEM hardware, software and firmware.		Yes				
593	8.7.7.	The TSI shall identify system components that will undergo preventative maintenance and utilize MMS to create a preventative maintenance schedule which will automatically issue work orders to the field technicians.		Yes				
594	8.7.8.	<b>Network Equipment and Electronic Communications Maintenance</b>		N/A				
595	8.7.8.	The TSI shall directly maintain or support the Authority in maintaining the electronic communications and network equipment required to support the SYSTEM and ensure that it meets the performance requirements of the Contract. The TSI shall be responsible for maintenance of all network communications equipment and communications components that make up the SYSTEM.		Yes				
596	8.7.8.	The TSI shall be responsible for remote connectivity to the TCS via the Internet and all associated security appliances and firewalls. The TSI shall be responsible for all WAN connectivity to external interfaces of the TCS that include the designated disaster recovery site. The TSI shall establish, operate, monitor and maintain communication connections for the SYSTEM including connections to the BOS, Back-Up or Disaster Recovery Site and other third-party systems.		Yes				
597	8.7.8.	The TSI shall monitor the SYSTEM network, servers, and its components to respond to any fault or problem within the applicable response times.		Yes				
598	8.7.8.	The TSI shall maintain all SYSTEM network routers, switches, firewalls and other signal directing appliances including load balancing required due to web traffic.		Yes				
599	8.7.8.	The TSI's network maintenance activities shall not interfere with or hinder the performance of other users of the Authority network infrastructure. The TSI shall notify and coordinate with the Authority regarding any network outages, latency, maintenance-related activity, connectivity, changes, or deactivation of elements connected to the Authority's communications network backbone.		Yes				
600	8.7.9.	<b>Emergency Maintenance Support</b>		N/A				
601	8.7.9.	The SYSTEM monitoring functions should automatically identify any issues related to SYSTEM hardware, software, network communications, and other SYSTEM components.		Yes				
602	8.7.9.	The TSI shall provide a 24x7x365 Help Desk to identify and resolve emergency requests for SYSTEM maintenance.		Yes				
603	8.7.9.	TSI shall prioritize all SYSTEM maintenance events based on the potential impact to SYSTEM performance, operations, and the ability to collect revenue.		Yes				
604	8.7.9.	If any problem is determined by the Authority to be a pervasive defect, the TSI shall replace and repair the problem equipment or software at no additional charge to the Authority.		Yes				
605	8.7.10.	<b>Operations Support</b>		N/A				
606	8.7.10.	The TSI shall respond to data analysis requests as directed by the Authority. Anticipated activities may include, but are not limited to transaction queries and analysis, license plate queries and analysis.		Yes				
607	8.7.11.	<b>Spare and Asset Management</b>		N/A				
608	8.7.11.	The TSI, working with the Authority staff, shall develop a forecast of replacement parts, spare parts inventory and associated costs for each fiscal year for Authority budgeting purposes.		Yes				

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					1) Compliant: Core Solution Fully Complies with the Requirement.	2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).		
609	8.7.11.	The Authority will make available space to house spare parts. This shall serve as the primary location for warehouse/storage of any spare parts, consumables, tools, test equipment, repair parts, documentation and personnel needed to manage and support the System. Should the TSI require additional space than what is provided at the Authority's warehouse, the TSI shall provide that space at no additional cost to the Authority.		Yes				
610	8.7.11.	TSI shall perform a full physical inventory audit annually to verify consistency between MMS inventory management system and the actual count.		Yes				
611	8.7.11.	TSI shall be responsible for the proper disposal of any parts and equipment removed from service in accordance with Authority requirements. TSI shall obtain approval from the Authority prior to the disposal of any parts or equipment owned by the Authority. TSI shall coordinate and document any equipment disposals with the Authority.		Yes				
<b>612</b>	<b>8.7.12.</b>	<b>Monthly Maintenance Report</b>		<b>N/A</b>				
613	8.7.12.	Beginning at the end of the first full month after Go-Live, TSI shall submit a Monthly Maintenance Report (MMR) for Authority review. MMRs shall include, but are not limited to the following data: (1) Monthly performance measurements for all measured KPIs		Yes				
614	8.7.12.	Beginning at the end of the first full month after Go-Live, TSI shall submit a Monthly Maintenance Report (MMR) for Authority review. MMRs shall include, but are not limited to the following data: (2) Mean time to respond and repair (MTTRR) calculations, including exceptions and justifications		Yes				
615	8.7.12.	Beginning at the end of the first full month after Go-Live, TSI shall submit a Monthly Maintenance Report (MMR) for Authority review. MMRs shall include, but are not limited to the following data: (3) Access to all reports/data used by the TSI in support of the MMR		Yes				
616	8.7.12.	Beginning at the end of the first full month after Go-Live, TSI shall submit a Monthly Maintenance Report (MMR) for Authority review. MMRs shall include, but are not limited to the following data: (4) Preventive and predictive maintenance activities performed each month		Yes				
617	8.7.12.	Beginning at the end of the first full month after Go-Live, TSI shall submit a Monthly Maintenance Report (MMR) for Authority review. MMRs shall include, but are not limited to the following data: (5) Work orders, including the assigned technicians and associated repair times		Yes				
618	8.7.12.	Beginning at the end of the first full month after Go-Live, TSI shall submit a Monthly Maintenance Report (MMR) for Authority review. MMRs shall include, but are not limited to the following data: (6) Work plan for the following month		Yes				
619	8.7.12.	Beginning at the end of the first full month after Go-Live, TSI shall submit a Monthly Maintenance Report (MMR) for Authority review. MMRs shall include, but are not limited to the following data: (7) Status of spare parts inventory		Yes				
620	8.7.12.	The Authority must approve format and content of the MMR prior to first submittal.		Yes				
<b>621</b>	<b>8.8.</b>	<b>System Release Notes</b>		<b>N/A</b>				
622	8.8.	Within 30 days after Go-Live, the TSI shall provide a set of System Release Notes fully updated to reflect the software which was transitioned to production status.		Yes				
623	8.8.	An updated set of System Release Notes shall also be provided for any SYSTEM updates during the Warranty and Maintenance phases.		Yes				
624	8.8.	The TSI shall follow the System Release Notes Review Guidelines established by the Authority and provide the release notes to the Authority at least 15 days ahead of a planned release for review and approval (and before final scheduling of the actual deployment of the release).		Yes				
625	8.8.	The release notes shall accompany the test results for the Authority's review depending on the type of changes planned for release.		Yes				
626	8.8.	Once the release notes are approved, the TSI shall schedule the release and notify the concerned parties, including the Authority, of the release deployment both prior to and after the release.		Yes				
<b>627</b>	<b>8.9.</b>	<b>Key Performance Indicators (KPI)</b>		<b>N/A</b>				
628	8.9.	The TSI and the SYSTEM shall meet or exceed all of the Key Performance Indicators (KPIs) as described in this section of this RFP. The KPIs are organized into four categories: (1) Milestone Conformance, (2) Availability, (3) Accuracy, and (4) Timeliness.		Yes				
629	8.9.	The Milestone Conformance KPIs are single occurrence requirements. The TSI shall meet certain milestones by certain dates in order to meet these requirements.		Yes				
630	8.9.	The Availability, Accuracy, and Timeliness KPI are recurring (typically monthly) or as-needed requirements that must be met during Phases II, III, IV, and V.		Yes				
631	8.9.	The TSI shall measure and report on each KPI following each measurement period. The Authority encourages the TSI to integrate automated and auditable tools within the SYSTEM to measure system performance, thus avoiding onerous manual actions to measure the KPI's on a monthly basis. The methodology for all KPI measurements shall be defined by the Respondent and approved by the Authority.		Yes				
632	8.9.	The results shall be contained in a written report and be based on SYSTEM-generated reports as much as possible. The report shall be submitted to the Authority within 10 Business Days of the end of the measurement period.		Yes				
633	8.9.	If one individual SYSTEM component failure results in more than one KPI to be missed, only one of the applicable KPIs shall be utilized to calculate penalties. The KPI that results in the largest total penalty shall apply.		Yes				
634	8.9.	KPIs shall be measured on the basis of a statistically significant sample size. A sample size shall be selected such that there is at least 80% confidence in the observed accuracy or error rate.		Yes				

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635	8.9.	Calculation of the percentage based KPI shall be: Performance Percentage (%)=100x[Numerator/Denominator] where "Numerator" and "Denominator" are defined in the tables in each subsection below.		Yes	1) Compliant: Core Solution Fully Complies with the Requirement.		
636	8.9.	The Total Expected Operations hours included within an Availability Performance calculation does not include planned system outages. A planned or scheduled outage is an activity that is done as a result of preventive maintenance and is scheduled and approved by the Authority ahead of the activity.		N/A	2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).		
637	8.9.	SYSTEM availability shall be captured within the MMS application. Within the work order management procedures, the TSI is responsible for documenting specific timestamps during the various stages of problem resolution.		Yes	3) Non-compliant: Exception to the Requirement (Comment Required).		
638	8.9.	Since the TSI will be responsible for accurate capture of this information within their MMS solution, the TSI shall provide reports of all system availability exceptions to the Authority via an agreed upon schedule.		Yes	4) Non-compliant: Not Available. The Requirement will Not be Met (Comment Required).		
639	8.9.	For KPIs that consider damages and coverage of lost revenue, the lost revenue shall be calculated according to the following steps: <ul style="list-style-type: none"> <li>• Collect historical data <ul style="list-style-type: none"> <li>a. "Expected Revenue" is defined as the income that the Authority would expect to realize, calculated for this application of damages by using the conditions in the below process: <ul style="list-style-type: none"> <li>i. Select four (4) recent days with similar traffic patterns on the same day of the week. Days to be selected are to be agreed upon by both the TSI and the Authority.</li> <li>ii. Extract exact period that conforms to system loss-of-revenue period</li> </ul> </li> </ul> </li> <li>• Average collected data <ul style="list-style-type: none"> <li>a. Add individual daily historical revenue amounts that conform to the collected historical data requirements above</li> <li>b. Divide by four (4), the number of days for which historical data is selected (see above)</li> <li>c. The resulting average is Expected Revenue as defined above, and shall be considered lost revenue for this application of damages</li> </ul> </li> </ul>		Yes			
640	8.9.	Over the course of the SYSTEM design and test planning, the TSI may define methods and reports that provide a more efficient and/or precise means of measuring the KPIs.		Yes			
641	8.9.	The TSI will discuss with the Authority during the design and test planning stages of the project the possible use of such methods and SYSTEM-generated reports.		Yes			
642	8.9.	Any resulting modifications to the KPIs would be subject to approval by the Authority.		Yes			
643	8.9.1.	<b>KPIs – Milestone Conformance</b>		N/A			
644	8.9.1.	Refer to Table 8-2.		Yes			
645	8.9.2.	<b>KPIs – Availability</b>		N/A			
646	8.9.	Refer to Table 8-3.		Yes			
647	8.9.3.	<b>KPIs – Accuracy</b>		N/A			
648	8.9.3.	Refer to Table 8-4.	Yes	Yes			
649	8.9.4.	<b>KPIs – Timeliness</b>		N/A			
650	8.9.4.	Refer to Table 8-5		Yes			
651	8.9.5.	<b>KPI Liquidated Damages Example Calculations</b>		N/A			
652	8.10.	<b>Project Execution Requirements</b>		N/A			
653	8.10.1.	<b>Project Management Plan</b>		N/A			
654	8.10.1.	A Program Management Plan shall be submitted to the Authority which shall reflect knowledge of the process and tools consistent with the Project Management Institute Guidelines and Standards. The Plan shall include a description of the management techniques to be used during all phases of the Project.		Yes			
655	8.10.1.1.	<b>Program Management Plan</b>		N/A			
656	8.10.1.1.	The TSI shall demonstrate a thorough understanding of the Project phases and key knowledge areas for project management identified by the Project Management Institute. It shall be explained how the TSI's use of these techniques will lead toward a successful Project implementation.		Yes			
657	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: <ul style="list-style-type: none"> <li>• Project Communication;</li> </ul>		Yes			
658	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: <ul style="list-style-type: none"> <li>• Primary Project Responsibility;</li> </ul>		Yes			
659	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: <ul style="list-style-type: none"> <li>• A Risk Register that identifies all risks and details how the risks will be managed and mitigated;</li> </ul>		Yes			
660	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: <ul style="list-style-type: none"> <li>• Subcontractor Management and Coordination;</li> </ul>		Yes			
661	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: <ul style="list-style-type: none"> <li>• Progress Scheduling (Critical Path Method [CPM] based);</li> </ul>		Yes			
662	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: <ul style="list-style-type: none"> <li>• Progress Reporting and Coordination with the Authority;</li> </ul>		Yes			
663	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: <ul style="list-style-type: none"> <li>• Testing;</li> </ul>		Yes			
664	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: <ul style="list-style-type: none"> <li>• Design and Design Reviews;</li> </ul>		Yes			
665	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: <ul style="list-style-type: none"> <li>• On-Site Installation; and</li> </ul>		Yes			

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666	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: • Record keeping, including generating all meeting agendas and minutes.		Yes				
667	8.10.1.2.	<b>Responsibilities Matrix</b>		N/A				
668	8.10.1.2.	The Program Management Plan shall include a Responsibilities Matrix which shall document the roles and responsibilities of all parties involved with the design, construction, installation, testing, commissioning, operation, and maintenance of the SYSTEM being procured under this RFP.		Yes				
669	8.10.1.2.	The primary parties involved with this Project include, but are not limited to, the Authority and the TSI and its subcontractors and vendors. The TSI shall identify and include all other primary parties involved with its Work.		Yes				
670	8.10.1.2.	All work shall be broken down to element, task and component within the Subsystems, with responsibility assigned to one of the parties as taking a lead role. Any support and/or coordination activities shall also be identified and assigned.		Yes				
671	8.10.2.	<b>Configuration Management Plan</b>		N/A				
672	8.10.2.	The TSI shall develop and provide a Configuration Management Plan for review and acceptance by the Authority to be adhered to throughout the duration of this Project.		Yes				
673	8.10.2.	Configuration Management shall be utilized in order to efficiently and accurately track and monitor the progress and changes that occur in all areas of this Project, including hardware, firmware, software, and documentation.		Yes				
674	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • The TSI shall demonstrate a thorough understanding of the Project phases and key knowledge areas for project management identified by the Project Management Institute.		Yes				
675	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • It shall be explained how the TSI's use of these techniques will lead toward a successful Project implementation.		Yes				
676	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • The Management Plan shall address how the TSI shall manage the following elements of project: o Project Communication;		Yes				
677	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • The Management Plan shall address how the TSI shall manage the following elements of project: o Primary Project Responsibilities;		Yes				
678	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • The Management Plan shall address how the TSI shall manage the following elements of project: o A Risk Register that identifies all risks and details how the risks will be managed and mitigated;		Yes				
679	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • The Management Plan shall address how the TSI shall manage the following elements of project: o Subcontractor Management and Coordination;		Yes				
680	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • The Management Plan shall address how the TSI shall manage the following elements of project: o Progress Scheduling (CPM based);		Yes				
681	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • The Management Plan shall address how the TSI shall manage the following elements of project: o Progress Reporting and Coordination with the Authority;		Yes				
682	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • The Management Plan shall address how the TSI shall manage the following elements of project: o Testing;		Yes				
683	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • The Management Plan shall address how the TSI shall manage the following elements of project: o Design and Design Reviews;		Yes				
684	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • The Management Plan shall address how the TSI shall manage the following elements of project: o On-Site Installation;		Yes				

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					1) Compliant: Core Solution Fully Complies with the Requirement.	2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).		
685	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control</u> ; • The Management Plan shall address how the TSI shall manage the following elements of project: o Record keeping, including generating all meeting agendas and minutes.		Yes				
686	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control</u> ; • Requirements Management;		Yes				
687	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control</u> ; • Deviation and Specification Change Requests;		Yes				
688	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control</u> ; • Data Management;		Yes				
689	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control</u> ; • Configuration Audits (functional and physical);		Yes				
690	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control</u> ; • Acceptance Requirements for Installed Systems;		Yes				
691	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control</u> ; • Testing Requirements for Installed Systems.		Yes				
692	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Document Control and the Library Function;		Yes				
693	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Accepted Documents;		Yes				
694	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Revision History for Documents;		Yes				
695	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Physical Item Content;		Yes				
696	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Physical Item Where Used;		Yes				
697	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Status of Changes;		Yes				
698	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Changes by Product/Serial Number;		Yes				
699	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Results of Configuration Audits;		Yes				
700	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Configuration Management Accounting (As Designed, As Built, As Delivered);		Yes				
701	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Revision Status of Installed Systems;		Yes				
702	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting</u> ; • Version Control.		Yes				
<b>703</b>	<b>8.10.3.</b>	<b>Project Schedule</b>		<b>N/A</b>				
704	8.10.3.	The TSI shall prepare, and keep up to date, a Project Schedule developed using the CPM. An initial version of the schedule shall be included in the Proposal and then updated 10 days prior to the Project kick-off meeting. This schedule shall be based on anticipated dates by which the TSI will submit deliverables and complete milestones.		Yes				
705	8.10.3.	The schedule shall be used as a basis for tracking progress throughout the course of the Project. The end dates for the Project Phases may not change but the TSI is free to revise the order of activities or make other changes, such as combining submissions that it believes will facilitate a more efficient review and approval process. However, the Authority reserves the right to approve or reject the TSI's schedule and the TSI is cautioned to not overburden the Authority with submittals of excessive size (number of concurrent submission and/or length of individual documents) that cannot be realistically reviewed in the time allotted.		Yes				
<b>706</b>	<b>8.10.4.</b>	<b>Meetings and Reports</b>		<b>N/A</b>				
<b>707</b>	<b>8.10.4.1.</b>	<b>Project Kick-Off and Work Progress</b>		<b>N/A</b>				
708	8.10.4.1.	A Project kick-off meeting shall be held between the Authority and the TSI within 30 days of the Project NTP. At this meeting, all appropriate lines of communication for both oral and written correspondence will be established. Appropriate methods for documenting meetings, telephone conversations, and other communications will be defined. The TSI's Project Schedule will be reviewed in detail and refined as necessary.		Yes				
709	8.10.4.1.	The TSI shall prepare and submit to the Authority monthly progress reports on the status of all-major items and activities. The progress report shall include an updated Project Schedule.		Yes				
710	8.10.4.1.	Project progress meetings shall be conducted monthly at the offices of the Authority, at a schedule to be proposed by the TSI and accepted by the Authority. The purpose of these meetings will be to monitor progress, discuss design issues, and plan for SYSTEM installation, testing, and transition.		Yes				



Attachment A - Requirements Conformance Matrix

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711	8.10.4.1.	The TSI shall allow the Authority to conduct periodic inspections of the software development effort including reviewing the status of source code. This includes on-site review at the TSI's development facility and could include actual review of files with the TSI present; reviewing file size, number of lines, work completed, etc.; and witnessing unscripted and unofficial testing of incremental development versions of the software. These periodic inspections could occur on a monthly basis or at some other frequency to be defined by the Authority.		Yes			
712	8.10.4.2.	<b>Workshops</b>		N/A			
713	8.10.4.2.	The TSI shall conduct monthly workshops with appropriate stakeholders to review all submissions, validate SYSTEM requirements, design approach and design, report formats, and other issues requiring coordination between the Authority and the TSI. Whenever possible, these workshops should be scheduled in conjunction with project progress meetings. With Authority approval, some workshops may be conducted via conference call.		Yes			
714	8.10.5.	<b>Submittals</b>		N/A			
715	8.10.5.1.	<b>Plans and Requirements</b>		N/A			
716	8.10.5.1.	All plans and documentation shall be submitted to the Authority electronically in the English language. The TSI shall provide and maintain, for the duration of the Contract, a secure document management repository that will be used by authorized users of both the Authority (and others as designated by the Authority) and the TSI for exchanging electronic files and storing the current approved versions of all controlled documents that are applicable to the Contract.		Yes			
717	8.10.5.1.	All plans and documentation shall be submitted to the Authority for its review and acceptance. Plans and other documentation shall be submitted in sufficient time for a minimum of two (2) iterations of Authority review/TSI revisions to be completed and still adhere to the targeted final document deliverables identified by the TSI and approved by the Authority. For example, the first review of the QA Plan by the Authority shall occur within 10 Business Days and the second review shall occur within 10 Business Days. Appendix B lists the Authority review periods for each of the deliverables. The Authority reserves the right to reject any plan or other documentation deliverable prior to detailed review due to the deliverable's failure to meet the purpose and intent of the deliverable. In the event a deliverable is rejected, the Authority will notify the TSI of the basis for rejection in writing. Rejection of a deliverable will constitute a delay caused by the TSI if a completed version of the submittal is not approved by the submittal approval milestone date documented in the Project Schedule. Multiple simultaneous submittals may extend the Authority's review times.		Yes			
718	8.10.5.1.	Acceptance of documents shall not relieve or limit the TSI's responsibility to provide a SYSTEM in full compliance with the Contract. If corrections or improvements are requested, the TSI shall resubmit the Plans and Documentation until such time as it is fully accepted. Any need for re-submittal shall not be seen as a cause for delay in completing the Project in accordance with overall Project milestones.		Yes			
719	8.10.5.1.	Deviations from the Requirements of this RFP that may be contained within TSI-submitted documents, even though the document may be accepted by the Authority, shall not have the effect of modifying Contract requirements. Only specific requests to the Authority from the TSI for waivers or specification change that are formally accepted by the Authority will change requirements in the Contract.		Yes			
720	8.10.5.1.	All Plans, Documentation, Manuals, and updates shall be submitted in soft copy (latest version of the appropriate Microsoft application (Word, Excel, Access, Power Point, Visio, Project) and Adobe PDF used by the Authority). Final accepted versions of all documentation shall be delivered in soft copy in a format that is acceptable to the Authority.		Yes			
721	8.10.5.1.	When possible, documents shall be formatted to be printed on letter size sheets.		Yes			
722	8.10.5.1.	All design drawings submitted by the TSI shall be submitted in Adobe PDF.		Yes			
723	8.10.5.1.	During the Operational and Maintenance periods (Phases III, IV, and V), the TSI shall continuously update all documentation to reflect correction of discovered errors or enhancements made to the SYSTEM or changes made to Business Rules and policies. The TSI shall update documents to reflect changes and submit soft copy versions of the revised documents within 30 days of the change.		Yes			
724	8.10.5.1.	The TSI shall update all relevant system documentation to correct errors at no cost to the Authority.		Yes			
725	8.10.5.1.	The costs for updating documentation to incorporate changes requested by the Authority to the SYSTEM shall be included in the total cost of the applicable Change Orders and the work of the Change Order will not be accepted by the Authority or fully paid for by the Authority until all updated manuals/documents have been delivered to and accepted by the Authority.		Yes			
726	8.10.5.1.	Each document shall go through an internal Quality Assurance (QA) review process prior to submittal to the Authority and a change log be kept in each submittal to record the document creation, review, and update history. The resource that performed the QA review shall be noted in the change log.		Yes			
727	8.10.6.	<b>Quality Assurance Program and Plan</b>		N/A			
728	8.10.6.	The TSI shall establish and maintain an effective Quality Assurance (QA) Program to ensure compliance with all of the Contract requirements. The TSI's QA Program shall be submitted for review and approval to the Authority in accordance with the approved Project schedule.		Yes			
729	8.10.6.	The QA Program shall ensure adequate quality throughout all areas of this Project, including design, procurement, development, fabrication, processing, assembly, inspection, testing, maintenance, reporting, repair, packaging, shipping, storage, site preparation, installation, and cleaning.		Yes			
730	8.10.6.	The QA Program shall be segregated into two separate sections, the first to discuss QA during the Development Period (Phases I and II) and the second to discuss QA during the Operations and Maintenance Period (Phases III through V).		Yes			
731	8.10.6.	All supplies and services under this Contract, whether manufactured or performed within the TSI's plant or at any other source, shall be controlled at all points necessary to ensure conformance to the specifications of the technical requirements.		Yes			

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732	8.10.6.	Manufacturing, fabrication, and assembly work conducted within the TSI's facility shall be controlled completely by the TSI. The TSI shall maintain records or data essential to providing objective evidence of quality until the expiration of the Contract, and they shall be made available to the Authority upon request.		Yes				
733	8.10.6.	The QA Program shall include a requirement that the TSI's identified QA Manager shall sign off on all submissions. By signing off on a submission, the TSI verifies that all work related to that submission adheres to the TSI's QA Program.		Yes				
734	8.10.6.	The QA Program shall include the following elements that shall be submitted to the Authority for review and approval in the form of a Quality Assurance Plan: • A description of the QA and control organization including employees and an organizational chart, and demonstration that all QA personnel are qualified, experienced, and have the proper skills for QA activities.		Yes				
735	8.10.6.	The QA Program shall include the following elements that shall be submitted to the Authority for review and approval in the form of a Quality Assurance Plan: • Procedures for presenting, preparing, and verification of all submittals from any source and demonstration that all QA personnel are qualified, experienced, and have the proper skills for QA activities.		Yes				
736	8.10.6.	The QA Program shall include the following elements that shall be submitted to the Authority for review and approval in the form of a Quality Assurance Plan: • Procedures to ensure that work is performed according to the QA Plan and Contract requirements.		Yes				
737	8.10.6.	The QA Program shall include the following elements that shall be submitted to the Authority for review and approval in the form of a Quality Assurance Plan: • Procedures to ensure that any and all failures, malfunctions, deficiencies, defects, deviations, etc., are corrected and/or documented according to the QA Plan and Contract requirements.		Yes				
738	8.10.6.	The QA Program shall include the following elements that shall be submitted to the Authority for review and approval in the form of a Quality Assurance Plan: • Details of the TSI's change control process that is instituted for the Project. This process shall be utilized for all design, plan, calculations, and field changes.		Yes				
739	8.10.6.	The QA Program shall include the following elements that shall be submitted to the Authority for review and approval in the form of a Quality Assurance Plan: • A trouble reporting function that includes trouble logging and tracking, follow-up tracking, and final Disposition tracking during testing and implementation and maintenance and operations support.		Yes				
740	8.10.6.	The QA Program shall include the following elements that shall be submitted to the Authority for review and approval in the form of a Quality Assurance Plan: • A Change Order Tracking System for documenting and tracking change order requests and their status for the Project duration.		Yes				
741	8.10.6.	The Authority may conduct independent QA reviews of all TSI work and submissions. The TSI shall address all issues identified by the Authority during QA reviews, including correcting errors and resubmitting documentation. All work to address Authority QA comments shall be at no additional cost.		Yes				
742	8.10.7.	<b>Phase I – Design Requirements</b>		N/A				
743	8.10.7.1.	<b>Toll Zone Design</b>		N/A				
744	8.10.7.1.	The TSI shall prepare conceptual toll zone design drawings as part of their proposal for the Authority to use it as a reference for developing the bid documents to procure a third-party Construction Contractor to provide and construct any roadside infrastructure required to install the SYSTEM. The TSI is strongly encouraged to prepare aesthetically pleasing conceptual toll zone designs.		Yes				
745	8.10.7.1.	These conceptual toll zone drawings shall include the following: • Toll gantry configuration type (e.g., Dual, Single, Truss, Monotube) and spacing (the gantries shall span the full roadway, i.e., span both directions of travel). The Authority will not accept a conceptual design of more than two gantries.		Yes				
746	8.10.7.1.	These conceptual toll zone drawings shall include the following: • AET tolling equipment and mounting infrastructure		Yes				
747	8.10.7.1.	These conceptual toll zone drawings shall include the following: • Roadside enclosure(s) equipment (e.g., zone controllers, RFID readers, UPSs, power supplies, other electronics)		Yes				
748	8.10.7.1.	These conceptual toll zone drawings shall include the following: • DVAS camera mounting infrastructure		Yes				
749	8.10.7.1.	These conceptual toll zone drawings shall include the following: • Proposed equipment layout (e.g., overhead equipment layout, side fire equipment layout)		Yes				
750	8.10.7.1.	These conceptual toll zone drawings shall include the following: • Conduit runs (e.g., for power, backup power, communications)		Yes				
751	8.10.7.1.	Once under contract, the TSI shall support the Authority's Civil Design Consultant to prepare detailed construction plans and specifications, which shall be submitted to the Authority's Director of Engineering for review and approval.		Yes				
752	8.10.7.2.	<b>SYSTEM Design Reviews</b>		N/A				
753	8.10.7.2.1.	<b>Business Rules Review</b>		N/A				
754	8.10.7.2.1.	The Authority Business Rules that are to be supported by the SYSTEM are contained in Appendix A of this RFP. The TSI shall meet with the Authority to review and, if needed, update these Rules. Following this review, the TSI shall document the Authority's final Business Rules.		Yes				
755	8.10.7.2.2.	<b>Detailed Design Review</b>		N/A				
756	8.10.7.2.2.	The Detailed Design Review shall cover three major documents: • Requirements Traceability Matrix, • Detailed Design Document, and • Reports Detailed Design Document.		Yes				
757	8.10.7.2.2.1.	<b>Requirements Traceability Matrix</b>		N/A				

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758	8.10.7.2.2.1.	The TSI shall develop a Requirements Traceability Matrix (RTM) for the SYSTEM based on the Business Rules and Requirements presented in this RFP and the submitted Requirements Conformance Matrix, as well as any functionality described in their Proposal that was not specified directly in the RFP.		Yes				
759	8.10.7.2.2.1.	The initial RTM shall include identification of specific requirements that the TSI would like to discuss with the Authority at the design review meeting, including a summary of the issue and proposed resolution.		Yes				
760	8.10.7.2.2.1.	The purpose of the RTM is to maintain documented traceability from the Business Rules through requirements, design, testing, and training. The RTM shall provide the following functionality: a. Each of the Authority's Business Rules shall be linked and can be traced to its associated technical requirement(s).		Yes				
761	8.10.7.2.2.1.	The purpose of the RTM is to maintain documented traceability from the Business Rules through requirements, design, testing, and training. The RTM shall provide the following functionality: b. Each system requirement shall reflect its associated RFP section or subsection.		Yes				
762	8.10.7.2.2.1.	The purpose of the RTM is to maintain documented traceability from the Business Rules through requirements, design, testing, and training. The RTM shall provide the following functionality: c. Each system requirement shall be linked and can be traced to associated use case(s).		Yes				
763	8.10.7.2.2.1.	The purpose of the RTM is to maintain documented traceability from the Business Rules through requirements, design, testing, and training. The RTM shall provide the following functionality: d. Each testing use case shall be linked and can be traced to its associated Design Documentation section or subsection (lowest level).		Yes				
764	8.10.7.2.2.1.	The purpose of the RTM is to maintain documented traceability from the Business Rules through requirements, design, testing, and training. The RTM shall provide the following functionality: e. Use cases shall be linked and can be traced to their associated test case(s).		Yes				
765	8.10.7.2.2.1.	The purpose of the RTM is to maintain documented traceability from the Business Rules through requirements, design, testing, and training. The RTM shall provide the following functionality: f. Use cases shall be linked and can be traced to their associated training module(s).		Yes				
766	8.10.7.2.2.1.	The purpose of the RTM is to maintain documented traceability from the Business Rules through requirements, design, testing, and training. The RTM shall provide the following functionality: g. Test cases can be associated to groupings of regression test cases.		Yes				
767	8.10.7.2.2.1.	The purpose of the RTM is to maintain documented traceability from the Business Rules through requirements, design, testing, and training. The RTM shall provide the following functionality: h. The RTM shall be used and updated throughout the project.		Yes				
768	8.10.7.2.2.1.	The purpose of the RTM is to maintain documented traceability from the Business Rules through requirements, design, testing, and training. The RTM shall provide the following functionality: i. All documentation and artifacts contained in the documentation management system shall be easily searchable and accessible by Authority users.		Yes				
769	8.10.7.2.2.2.	<b>Detailed Design Document</b>		N/A				
770	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: a. Overall SYSTEM architecture;		Yes				
771	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: b. The proposed hardware;		Yes				
772	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: c. The proposed software;		Yes				
773	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: d. Data communications;		Yes				
774	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: e. Security;		Yes				
775	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: f. Back-ups;		Yes				
776	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: g. Interfaces between subsystems and with external systems;		Yes				
777	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: h. SYSTEM and Subsystem block diagrams, data flow diagrams, data structure diagrams, schematics, and any other graphic illustrations to demonstrate the technical adequacy of the design approach and compliance for SYSTEM requirements;		Yes				
778	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: i. Screen layouts;		Yes				
779	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: i. Report formats;		Yes				

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780	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: k. Database design, including the data dictionary and data schema for the relational database;		Yes				
781	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: l. Configuration parameters;		Yes				
782	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: m. Communications design;		Yes				
783	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: n. SYSTEM capacity and performance details; and		Yes				
784	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: o. Detailed typical wiring diagrams for all equipment.		Yes				
785	8.10.7.2.2.2.	The TSI shall provide a description of how the software will be implemented, including: a. Relational operating systems utilized in each subsystem;		Yes				
786	8.10.7.2.2.2.	The TSI shall provide a description of how the software will be implemented, including: b. Protocols for data communication over each interface within the SYSTEM.		Yes				
787	8.10.7.2.2.2.	The TSI shall provide a description of how the software will be implemented, including: c. Relational database products, and		Yes				
788	8.10.7.2.2.2.	The TSI shall provide a description of how the software will be implemented, including: d. Other significant third-party software tools and modules integrated into the SYSTEM.		Yes				
<b>789</b>	<b>8.10.7.2.2.3.</b>	<b>Reports Detailed Design Document</b>		<b>N/A</b>				
790	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: a. Introduction and audience;		Yes				
791	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: b. General reporting procedures;		Yes				
792	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: c. Content selection;		Yes				
793	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: d. Access control;		Yes				
794	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: e. Printing, saving, and exporting procedures;		Yes				
795	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: f. Categorized report sections containing the following for each report: i. Report name, description and frequency;		Yes				
796	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: f. Categorized report sections containing the following for each report: ii. Inputs;		Yes				
797	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: f. Categorized report sections containing the following for each report: iii. Outputs;		Yes				
798	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: f. Categorized report sections containing the following for each report: iv. Sample report;		Yes				
799	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: f. Categorized report sections containing the following for each report: v. Related reports and processes; and		Yes				
800	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: f. Categorized report sections containing the following for each report: vi. Ad-hoc reporting procedures.		Yes				
<b>801</b>	<b>8.10.8.</b>	<b>Phase II – Implementation Requirements</b>		<b>N/A</b>				
<b>802</b>	<b>8.10.8.1.</b>	<b>Development</b>		<b>N/A</b>				
803	8.10.8.1.	The TSI shall follow a logical, structured, efficient, well-documented development process that includes tightly controlled configuration management, clear definition of each software module's purpose, relationship to other modules, full unit testing, integration testing, and end-to-end testing to ensure that all technical, functional, and performance Requirements are met or exceeded.		Yes				
<b>804</b>	<b>8.10.8.2.</b>	<b>Testing / Test Plan</b>		<b>N/A</b>				
805	8.10.8.2.	The requirements described in this subsection detail the test phases, facilities, and support services necessary to test the SYSTEM. The TSI shall conduct testing of the SYSTEM to validate the SYSTEM integrity, reliability, functionality, accuracy and compliance to the Requirements of this RFP.		Yes				

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806	8.10.8.2.	For all testing, the TSI will follow the applicable Authority-approved test plans to conduct internal pre-tests of the SYSTEM. The TSI will provide the pre-test results to the Authority prior to commencement of the actual test phases. The Authority may require the TSI to re-run the internal test prior to conducting the actual test if the preliminary test results do not indicate the test would be passed per the test plan.		Yes			
807	8.10.8.2.	The TSI will be responsible for tracking all issues found during all testing phases until the issue's final resolution. The TSI shall describe in detail all issues and what functionality is affected. This issues list will be provided to the Authority upon request within two (2) Business Days.		Yes			
808	8.10.8.2.1.	<b>Master Test Plan</b>		N/A			
809	8.10.8.2.1.	The TSI shall submit a Master Test Plan (MTP) to the Authority for review, comment and approval. The objective of the MTP is to ensure the SYSTEM meets all contractual requirements and is tested and certified to be operational and compliant with the RFP Requirements and Business Rules. The MTP shall provide a description of the standards for developing individual test plans and the procedures for the formal testing. These standards shall address test procedure format, severity levels, and acceptance criteria for each test phase. In addition, the MTP shall describe the entry criteria that must be met before a formal test can be started and the exit criteria that must be met before each formal test can be considered complete.		Yes			
810	8.10.8.2.2.	<b>Test Procedures</b>		N/A			
811	8.10.8.2.2.	All formal test procedures shall conform to the standards defined in the MTP.		Yes			
812	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Introduction;		Yes			
813	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Test purpose;		Yes			
814	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Test platform (including required equipment and location);		Yes			
815	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Time estimate;		Yes			
816	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Pre-requisites;		Yes			
817	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Set-up;		Yes			
818	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Entry and exit criteria including pass/fail criteria;		Yes			
819	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Individual test conditions/steps;		Yes			
820	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Test condition identifier (i.e., reference to requirement);		Yes			
821	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Description;		Yes			
822	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Expected results;		Yes			
823	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Actual results; and		Yes			
824	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Notes.		Yes			
825	8.10.8.2.2.	As test procedures for specific formal tests are developed, they shall be submitted to the Authority for review, comment and approval at least 30 days prior to commencement of the specific test. Once approved, the test procedures shall be added to the MTP as addenda.		Yes			
826	8.10.8.2.3.	<b>Test Reports</b>		N/A			
827	8.10.8.2.3.	After the completion of each formal test, the TSI shall submit a test report to the Authority for review and approval. The test report shall describe the results of the test, a listing of all defects identified together with the severity level of each, a plan for resolving those defects, and a recommendation for retests (if appropriate). The TSI shall be responsible for completing all corrective actions identified within a time frame approved by the Authority. The Authority may withhold approval of any test until the required corrective actions have been satisfactorily completed.		Yes			
828	8.10.8.2.3.	The Authority will review and approve formal test plans and schedules proposed by the TSI and will witness and determine the acceptability of the test results. The TSI shall provide all test and support personnel, test vehicles, test equipment and test sites in accordance with the approved Master Test Plan and Procedures. The TSI shall provide both development and test equipment configurations necessary to conduct their internal test activities. In addition, the TSI shall conduct all tests in accordance with the Master Project Schedule and the approved test plans and procedures.		Yes			
829	8.10.8.2.3.	During the development of the SYSTEM software, the TSI's test personnel shall conduct a comprehensive program of internal testing and walk-through sessions to ensure that the SYSTEM meets the functional specifications set forth in this RFP and that defects are detected and resolved or identified prior to formal demonstration testing witnessed by the Authority and Authority-designated representatives. Progress on these tests shall be reported during Project Meetings.		Yes			
830	8.10.8.2.4.	<b>Formal Test Phases</b>		N/A			
831	8.10.8.2.4.	In addition to the internal testing conducted by the TSI to verify that the SYSTEM meets the Requirements of this RFP, the TSI shall demonstrate to the Authority and Authority-designated representatives that the Roadside, AET toll zones, BOS, and Host components meet functional, technical, operational and performance Requirements by executing the following formal tests, which are further described in the subsections that follow: • Factory Acceptance Test, • Hardware Production Test, • Site Commissioning Test, • System Acceptance Test, and • Penetration Testing.		Yes			

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832	8.10.8.2.4.	For the test phases, the Authority requires an additional period of testing, above and beyond the test period scheduled for performing/validating the scripted testing, to perform "ad-hoc" Authority-defined tests. The TSI will support this testing utilizing the same test facilities/personnel/data available for the scripted test procedures. The TSI shall allocate 1 additional day for ad-hoc testing during the Factory Acceptance Test (SAT) and Site Commissioning Test (SCT).		Yes				
833	8.10.8.3.	<b>Factory Acceptance Test</b>		N/A				
834	8.10.8.3.	The TSI shall conduct a Factory Acceptance Test (FAT) at a test facility that is representative of the Project. The FAT shall include representative roadside and back end TCS equipment and all interfaces necessary to provide the TCS functionality. The FAT shall be designed to demonstrate the full functionality of the SYSTEM, in a factory environment with hardware and software representative of the final system, including all graphical user interfaces (GUIs), and simulated transaction volumes to represent the expected real-world load on the SYSTEM.		Yes				
835	8.10.8.3.1.	<b>FAT Site</b>		N/A				
836	8.10.8.3.1.	Tests shall be demonstrated at a closed-course test site provided by the TSI with real vehicles (approved by the Authority) and applicable equipment, simulating real-world traffic patterns driving through the test site. The test site shall accommodate at least two (2) lanes and one (1) travel shoulder lane which are configured in a fashion similar to the Authority's toll zone design configuration. The test site shall accommodate speeds ranging from stop-and-go up to 100 mph.		Yes				
837	8.10.8.3.2.	<b>FAT Plan</b>		N/A				
838	8.10.8.3.2.	The TSI shall develop a FAT Plan including test procedures (scripts) designed to demonstrate SYSTEM functionality in an integrated configuration, and to stress the SYSTEM. The FAT plan shall include the conditions to be tested together with the expected results and a description of the grading that will be used for classifying and recording any defects noted during the FAT (e.g., Critical, Major, Minor, depending on the severity of the defect).		Yes				
839	8.10.8.3.3.	<b>FAT Scope</b>		N/A				
840	8.10.8.3.3.	All SYSTEM functionality, capacity, modules, interfaces, and ease of use will be tested. The FAT shall include all external interfaces. Reports shall be generated to verify correctness and completeness. Internal and external interfaces shall be verified for accuracy.		Yes				
841	8.10.8.3.3.	The FAT shall also include test procedures for stress testing in order to verify that the SYSTEM will be able to handle the estimated transactional volumes for all payment types. Normal and exception scenarios shall be demonstrated.		Yes				
842	8.10.8.3.3.	The TSI shall provide simulated transaction data that will mimic the Authority's expected actual data. The simulated data shall be used to run the SYSTEM continuously over a two (2) day period (continuous 48 hours) to ensure the data files are correctly created, the data are processed accurately through each lane, and the data are transferred to the Hosts correctly.		Yes				
843	8.10.8.3.3.	All screens and reports shall also be tested. The full range of required reports shall be tested using simulated data or data collected over a sufficient test period that spans multiple consecutive months.		Yes				
844	8.10.8.3.3.	Various failure conditions shall be generated to test the MMS alarm and maintenance requirements.		Yes				
845	8.10.8.3.4.	<b>FAT Report and Approval</b>		N/A				
846	8.10.8.3.4.	Following the FAT, the TSI shall submit a detailed FAT report to the Authority that describes testing results including the severity levels of any defects found.		Yes				
847	8.10.8.3.4.	FAT approval is dependent on successful demonstration of the complete SYSTEM as functionally compliant and meeting the exit criteria identified in the FAT Plan.		Yes				
848	8.10.8.4.	<b>Hardware Production Test</b>		N/A				
849	8.10.8.4.	All hardware provided by the TSI shall be unit tested to ensure it complies with the Requirements of the SYSTEM. Records or relevant documentation of this hardware/unit testing shall be made available to the Authority upon request. The TSI shall also provide certification that the hardware provided under this RFP meets environmental requirements of the SYSTEM components (detailed in Section 8.1.4.1 of this RFP).		Yes				
850	8.10.8.5.	<b>Site Commissioning Test</b>		N/A				
851	8.10.8.5.	Upon completion of installation activities, the TSI shall test the equipment, software and communications following the first in-lane site installation test plan, or approved subset to test all lanes. At Authority discretion, the test will be witnessed by the Authority in accordance with approved test procedures and the test schedule.		Yes				
852	8.10.8.5.	After successful completion of the Commissioning testing in all of the lanes, the full Facility can be placed into revenue collection.		Yes				
853	8.10.8.6.	<b>System Acceptance Test</b>		N/A				
854	8.10.8.6.	The objective of the System Acceptance Test (SAT) is to ensure that the SYSTEM (software and hardware) functions in a production (including revenue collection) environment over a period of sixty (60) consecutive days with the required functionality, availability, accuracy and performance. A precondition for the commencement of SAT is that the SYSTEM is meeting or exceeding the RFP Requirements and all applicable Project KPIs including any changes that the Authority has approved. The TSI Contractor shall submit KPI reporting demonstrating conformance prior to scheduling the SAT.		Yes				
855	8.10.8.6.	The TSI shall notify the Authority in writing when the System Acceptance Period shall begin. The TSI is solely responsible for executing SAT. The overall system shall be observed in live operations by the TSI and the Authority for a minimum of sixty (60) consecutive days. During this period, system accuracy, performance, reliability, and auditability shall be measured and verified with respect to the Requirements of this RFP and any approved changes. The alarms displayed by the MMS shall be analyzed. If testing results in a failure or requires a restart, the TSI is accountable for any costs incurred by the Authority to support the additional system acceptance period(s).		Yes				

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856	8.10.8.6.	Anomalies identified shall be categorized by criticality, and the timing of resolution of all anomalies shall be agreed upon by the Authority and the TSI. The TSI shall develop a plan for correcting the anomalies and testing the fixes prior to requesting authorization from the Authority to install the fixes in the production system and verification through the use of appropriate regression testing that they are working properly and have not caused any new problems. These tests shall be repeated until the SYSTEM has met SAT requirements for sixty (60) consecutive days and the Authority is satisfied that the SYSTEM meets the Requirements as defined in the design documents and this RFP.		Yes				
857	8.10.8.6.	The TSI will be granted System Acceptance for the SYSTEM upon the successful completion of SAT, closure of all punch-list items, completion and submission of all required documents and meeting of other conditions as specified in the Contract Documents.		Yes				
<b>858</b>	<b>8.10.8.7.</b>	<b>Penetration Testing</b>		<b>N/A</b>				
859	8.10.8.7.	The TSI shall contract with a certified, neutral, third-party testing entity skilled in penetration testing and have the testing entity conduct a comprehensive Penetration Test of the SYSTEM after installation and yearly thereafter. The testing entity shall be approved by the Authority and provide all correspondence and preliminary and final testing results to the Authority.		Yes				
860	8.10.8.7.	The Penetration testing shall include: • Application Security		Yes				
861	8.10.8.7.	The Penetration testing shall include: • Network Security		Yes				
862	8.10.8.7.	The Penetration testing shall include: • Cloud Security		Yes				
863	8.10.8.7.	The Penetration testing shall include: • Social Engineering		Yes				
864	8.10.8.7.	The Penetration testing shall include: • IoT Security, if applicable		Yes				
<b>865</b>	<b>8.10.8.8.</b>	<b>Back-Up and Disaster Recovery Plan</b>		<b>N/A</b>				
866	8.10.8.8.	The TSI shall develop and submit a Back-Up and Disaster Recovery Plan.		Yes				
867	8.10.8.8.	The plan submittal and systems design shall support the accepted plan.		Yes				
868	8.10.8.8.	The Disaster Recovery Plan (DRP) shall include a full testing of the Disaster Recovery functionality prior to transition to the SYSTEM.		Yes				
869	8.10.8.8.	This test shall be conducted and must be approved by the Authority, prior to the start of revenue operation.		Yes				
870	8.10.8.8.	A new image copy of the entire SYSTEM shall be created after any application and/or operating System Upgrade performed by the TSI.		Yes				
871	8.10.8.8.	The Back-Up and Disaster Recovery Plan shall be kept current throughout the life of the Contract.		Yes				
872	8.10.8.8.	Back-Up and Disaster Recovery Plan requirements are further detailed in Section 8.11 of this RFP.		N/A				
<b>873</b>	<b>8.10.8.9.</b>	<b>Installation / Installation Plan</b>		<b>N/A</b>				
874	8.10.8.9.	The TSI shall be responsible for the installation of the complete SYSTEM equipment provided under this RFP. To perform installation of the SYSTEM, the TSI shall supply all qualified personnel, tools, materials and equipment required.		Yes				
875	8.10.8.9.	The TSI shall ensure that all components manufactured by a third party are installed in accordance with the manufacturer's installation instructions. In addition, the TSI shall procure on-site and remote support as needed from the third-party vendor(s) to ensure the proper operation of equipment at no additional cost to the Authority. The TSI is responsible for all aspects of system provisioning, installation and implementation.		Yes				
876	8.10.8.9.	Electrical work shall be performed by electricians licensed in the State of Rhode Island. All electrical work shall be performed in accordance with the applicable standards and regulations. Appropriate NEC compliance shall be adhered to with all electrical articles for installation pertaining to wiring, enclosures, and other electrical equipment, including lightning protection. The TSI shall ensure that site grounding and lightning protection meet the stated requirements.		Yes				
<b>877</b>	<b>8.10.8.9.1.</b>	<b>Installation Plan</b>		<b>N/A</b>				
878	8.10.8.9.1.	The TSI shall submit an installation plan to the Authority for review and approval. The TSI shall coordinate all aspects of the installation activities at the roadside, and Host (production and DR) locations.		Yes				
879	8.10.8.9.1.	The Installation Plan shall provide a complete description of all aspects of the installation activities associated with the Project including the following: • An installation schedule for Authority review, comment and approval.		Yes				
880	8.10.8.9.1.	The Installation Plan shall provide a complete description of all aspects of the installation activities associated with the Project including the following: • A description of installation resources including personnel and equipment.		Yes				
881	8.10.8.9.1.	The Installation Plan shall provide a complete description of all aspects of the installation activities associated with the Project including the following: • Description of the requirements for lane closures and other traffic management requirements necessary to install the toll equipment.		Yes				
882	8.10.8.9.1.	The Installation Plan shall provide a complete description of all aspects of the installation activities associated with the Project including the following: • A description of the methods to be used to manage delivery and staging of the SYSTEM equipment to be installed.		Yes				
883	8.10.8.9.1.	The Installation Plan shall provide a complete description of all aspects of the installation activities associated with the Project including the following: • A detailed component list and description of how each item version number and serial number shall be recorded for each installation activity.		Yes				
<b>884</b>	<b>8.10.8.9.2.</b>	<b>Installation Meetings</b>		<b>N/A</b>				
885	8.10.8.9.2.	The TSI shall schedule and attend weekly installation meetings during the installation phase of the Project.		Yes				
886	8.10.8.9.2.	The TSI and any sub-contractors shall ensure that appropriate personnel are present at these meetings who are authorized to make decisions on behalf of the TSI and who can report on the Master Project Schedule, issues, status and planned activities.		Yes				

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887	8.10.8.9.2.	The TSI shall prepare and distribute a meeting agenda at least 24 hours prior to the scheduled meeting. This meeting agenda shall consist of those items pertaining to the installation and schedule for the previous and current week's installation efforts.		Yes				
888	8.10.8.9.2.	All issues recorded during the installation activity for the week shall be discussed and resolved if possible.		Yes				
889	8.10.8.9.2.	An open action items list shall also be maintained for any outstanding work items related to the weekly meeting.		Yes				
<b>890</b>	<b>8.10.8.9.3.</b>	<b>Traffic Control and Lane Closures</b>		<b>N/A</b>				
891	8.10.8.9.3.	The TSI will provide for, at no cost to the Authority, any required Maintenance of Traffic (MOT) required to install, test, or maintain any of the toll and toll-related devices that are located in the toll lanes.		Yes				
892	8.10.8.9.3.	All MOT closure designs shall be approved by the Authority's Director of Engineering. Rhode Island State Police (RISP) is not required for MOT closures.		Yes				
893	8.10.8.9.3.	The TSI shall provide the Authority with a schedule of requested lane closures and will cooperate with the Authority to minimize the required number of closed lanes.		Yes				
894	8.10.8.9.3.	The TSI shall communicate all lane closure requests to the Authority for approval at least one (1) week in advance of the anticipated closure. The process for requesting lane closures will be jointly developed between the TSI and the Authority sixty (60) days prior to the first lane installation.		Yes				
895	8.10.8.9.3.	The TSI shall work with the Authority to determine the allowed lane closures (lanes and time periods) sixty (60) days prior to the first lane installation.		Yes				
<b>896</b>	<b>8.10.8.9.4.</b>	<b>Installation Checklist</b>		<b>N/A</b>				
897	8.10.8.9.4.	The TSI shall develop and submit to the Authority for review an installation checklist for all TSI installation activities associated with the SYSTEM. The checklist shall detail all items required for the installation team to complete the installation process. A copy of the completed checklist shall be provided to the Authority after the completion of the installation activity.		Yes				
<b>898</b>	<b>8.10.8.9.5.</b>	<b>Installation Work Restrictions</b>		<b>N/A</b>				
899	8.10.8.9.5.	Daytime work must always be planned and approved by the Authority's Director of Engineering.		Yes				
900	8.10.8.9.5.	The TSI shall provide lighting for night-time work.		Yes				
901	8.10.8.9.5.	The TSI shall coordinate with the Authority and cooperate with other civil, electrical or construction contractors as directed by the Authority.		Yes				
<b>902</b>	<b>8.10.8.9.6.</b>	<b>Construction Coordination</b>		<b>N/A</b>				
903	8.10.8.9.6.	The TSI shall coordinate directly with the Authority regarding the work of the toll zone Construction Contractor in all aspects of the project. The TSI shall attend weekly progress meetings with the Authority and the Construction Contractor. All other communication shall go through the Authority.		Yes				
904	8.10.8.9.6.	The TSI shall: (1) Provide to the Authority all requirements for toll zone gantries, equipment mounting hardware, camera infrastructure, other support infrastructure, conduit and cabling;		Yes				
905	8.10.8.9.6.	The TSI shall: (2) Submit a complete wiring diagram and/or drawing of the work to be done so that the Authority can incorporate such construction requirements into the bidding documents for the Construction Contractor;		Yes				
906	8.10.8.9.6.	The TSI shall: (3) Provide all required design and installation drawings, operating requirements and installation instructions for any proposed SYSTEM equipment to the Authority with copies as directed to its Construction Contractor;		Yes				
907	8.10.8.9.6.	The TSI shall: (4) Review any third party-provided drawings with respect to the SYSTEM and approve all aspects of such drawings related to the SYSTEM infrastructure; and		Yes				
908	8.10.8.9.6.	The TSI shall: (5) Ensure that the necessary information is provided such that the locations, positions, and other elements of work required to be performed by the Construction Contractor is identified to meet the Requirements of this RFP.		Yes				
<b>909</b>	<b>8.10.8.10.</b>	<b>Training / Training Plan</b>		<b>N/A</b>				
910	8.10.8.10.	A Training Plan covering all training requirements of this SYSTEM Contract shall be submitted to the Authority prior to start of installation.		Yes				
911	8.10.8.10.	The plan shall cover all types of training required for all personnel that will use the SYSTEM including: • Operations.		Yes				
912	8.10.8.10.	The plan shall cover all types of training required for all personnel that will use the SYSTEM including: • Auditor operations staff, and		Yes				
913	8.10.8.10.	The plan shall cover all types of training required for all personnel that will use the SYSTEM including: • General management.		Yes				
914	8.10.8.10.	The Training Plan shall include descriptions of the following: • A training schedule listing each period of instruction and time required;		Yes				
915	8.10.8.10.	The Training Plan shall include descriptions of the following: • A list of training procedures which shall describe the step-by-step plan for conducting the training;		Yes				
916	8.10.8.10.	The Training Plan shall include descriptions of the following: • A complete description of each proposed course format and content, training techniques and objectives, instructor outlines, audio/visual aids, training equipment (including workstations, zone-based equipment etc.), and demonstration procedures; and		Yes				
917	8.10.8.10.	The Training Plan shall include descriptions of the following: • A description of the lesson plan, and of the courses, literature, use of standard operating procedures (SOPs) and manuals, and test materials which will be used for the training.		Yes				



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918	8.10.8.10.	The TSI shall provide the initial onsite training to all Authority personnel who regularly use the SYSTEM. Table 8-6 indicates the approximate number of employees that will require training for each employee position. Note that these values are approximate and may change prior to actual training.		Yes				
919	8.10.8.10.	No training shall be conducted without an accepted Training Plan. In addition, no training shall be conducted until Factory Acceptance Test approval has been obtained from the Authority and approval has been granted to begin Transition. SYSTEM training shall be incorporated into the Transition Schedule. All training aids, including charts, graphs, videos, support documents, and any other media shall become the property of the Authority upon completion and acceptance of the training program, including rights for reproduction and distribution. Unless otherwise approved by the Authority, class size shall be limited to 10 students per class. The Authority will provide a room suitable for training classes of this size.		Yes				
920	8.10.8.10.	Additionally, the TSI shall provide ad-hoc training of SYSTEM staff and training for additional Authority staff, or other designees on any aspect of the SYSTEM up to two times per year as requested by the Authority.		Yes				
921	8.10.9.	<b>Phase III- Warranty Requirements</b>		N/A				
922	8.10.9.1.	<b>Operations Requirements</b>		N/A				
923	8.10.9.1.	All of the Operations requirements from Phase II shall continue throughout Phase III.		Yes				
924	8.10.9.2.	<b>Warranty Requirements</b>		N/A				
925	8.10.9.2.	The Warranty requirements are identical to the Maintenance requirements with the exception that the TSI shall be responsible for providing all necessary hardware and software at no additional expense to the Authority. The Maintenance requirements are described in Phase IV requirements below.		Yes				
926	8.10.10.	<b>Phase IV and V- Operations and Maintenance Support Requirements</b>		N/A				
927	8.10.10.1.	<b>Operations Requirements</b>		N/A				
928	8.10.10.1.	All of the Operations requirements from Phase II shall continue throughout Phases IV and V.		Yes				
929	8.10.10.2.	<b>Maintenance / Maintenance Plan</b>		N/A				
930	8.10.10.2.	<b>Definitions:</b> <b>Priority 1:</b> Any failure that will result in: loss of ability to accurately collect revenue, inability to accurately create transactions in the lane, lane closure, safety hazard, loss of auditability, or is customer facing. <b>Priority 2:</b> Failure of a system component or software defect that will result in a degradation of system performance or results in the loss of redundancy in a key system component but does not qualify as a Priority 1 event. <b>Priority 3:</b> Minor failure of the equipment, network, or software or an indication that an event may occur that would result in a malfunction or degradation of the SYSTEM.		N/A				
931	8.10.10.2.	As noted elsewhere in this RFP, the TSI shall be required to have onsite personnel until formal System Acceptance. During this period the onsite TSI staff shall assist Authority staff with any maintenance issues that arise.		Yes				
932	8.10.10.2.	After System Acceptance, the TSI will not be required to have continuous onsite presence, but will be responsible for administering the maintenance program, including: • Monitoring all components of the SYSTEM remotely, including the roadside, TCS Host, and BOS equipment and software using MMS and other monitoring tools as needed.		Yes				
933	8.10.10.2.	After System Acceptance, the TSI will not be required to have continuous onsite presence, but will be responsible for administering the maintenance program, including: • Accessing the SYSTEM remotely to perform troubleshooting procedures when alerts or alarms occur.		Yes				
934	8.10.10.2.	After System Acceptance, the TSI will not be required to have continuous onsite presence, but will be responsible for administering the maintenance program, including: • Performing all necessary system and database administration tasks necessary to keep the roadside, TCS Host, and BOS subsystems operating efficiently and accurately.		Yes				
935	8.10.10.2.	After System Acceptance, the TSI will not be required to have continuous onsite presence, but will be responsible for administering the maintenance program, including: • Ensuring that MMS is kept up to date with records of failures, maintenance actions, part replacements, etc.		Yes				
936	8.10.10.2.	After System Acceptance, the TSI will not be required to have continuous onsite presence, but will be responsible for administering the maintenance program, including: • Monitoring of the parts inventory to ensure that adequate, operational, spare parts are on hand at the Facility. Whenever inventory levels fall below established thresholds, the TSI shall immediately supply or procure additional parts and have them shipped to the Facility.		Yes				
937	8.10.10.2.	After System Acceptance, the TSI will not be required to have continuous onsite presence, but will be responsible for administering the maintenance program, including: • Submittal of monthly maintenance and monitoring reports, which will include details on maintenance tickets, activities and measurement of the applicable Project KPIs.		Yes				
938	8.10.10.2.	The TSI shall submit to the Authority a detailed Maintenance Plan which shall include maintenance staffing and administration, dispatch procedures, communication requirements, support from outside maintenance services (for example, equipment manufacturers), final maintenance equipment list, and other details as may be appropriate.		Yes				

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939	8.10.10.2.	The Maintenance Plan shall include all processes and procedures used to successfully manage, staff and conduct SYSTEM Maintenance in accordance with all of the Requirements set forth in this RFP. The Plan shall address the following: <ul style="list-style-type: none"> <li>• Descriptive language detailing the maintenance methodology approach,</li> <li>• Tools (specialized and standard),</li> <li>• MMS use and processes,</li> <li>• Emergency/corrective maintenance procedures,</li> <li>• Contracted computer maintenance companies,</li> <li>• Personnel,</li> <li>• Staff location,</li> <li>• Qualifications,</li> <li>• Training,</li> <li>• Maintenance facilities/workshop(s),</li> <li>• Maintenance records,</li> <li>• Failure tracking and corrective action,</li> <li>• Reliability and maintainability analysis and calculation, and</li> <li>• Maintenance activity report.</li> </ul>		Yes				
940	8.10.10.2.1.	<b>Response and Repair Times</b>		N/A				
941	8.10.10.2.1.	The TSI shall provide direct corrective, emergency maintenance and preventative maintenance (or support the Authority's onsite maintenance efforts) for the full duration of the Contract. The TSI shall minimize the potential for revenue loss while maximizing the availability of all components. This shall be accomplished, in part, through response and repair times as well as focusing on SYSTEM accuracy and availability.		Yes				
942	8.10.10.2.1.	<u>Response Times</u> Refer to Table 8-7  The response time for corrective or emergency maintenance shall be measured as the elapsed time from the start of the first MMS alert or from the time the Authority notifies the TSI's toll-free phone service or maintenance supervisor or technician to the time the Contractor's technician responds and, if requested, initiates remote actions necessary to affect repairs and/or support Authority maintenance personnel working on the issue onsite.		Yes				
943	8.10.10.2.1.	<u>Repair Times</u> Refer to Table 8-8  The repair time for corrective or emergency maintenance shall apply whenever repair of the SYSTEM requires actions that are outside Authority personnel responsibilities or capabilities. The repair time shall begin when the Authority notifies the TSI that their assistance is required. The repair time shall end when the SYSTEM is returned to full, normal operation. Repair times for every maintenance event shall be recorded and reported by MMS and such reports shall be provided to the Authority in accordance with the reporting requirements of this Scope of Work.		Yes				
944	8.10.10.2.2.	<b>Ongoing System and Equipment Support</b>		N/A				
945	8.10.10.2.2.	The TSI shall provide the following SYSTEM Maintenance.		N/A				
946	8.10.10.2.2.	The SYSTEM Maintenance shall consist of all TCS equipment and software, external and internal interfaces, and all network components.		Yes				
947	8.10.10.2.2.	The TSI shall be responsible for maintaining the entire SYSTEM hardware and software for any time period in which the equipment is installed and placed into revenue service but has not received Project acceptance.		Yes				
948	8.10.10.2.2.	After providing and installing any System, the TSI shall provide all equipment, hardware, software, and labor to directly maintain, or support Authority personnel efforts to maintain, the SYSTEM in accordance with the Contract functional, performance, and technical requirements.		Yes				
949	8.10.10.2.2.	Scheduled preventative maintenance for toll lanes and toll zones shall be limited to no more than two (2) hours per lane per month unless otherwise approved by the Authority. All preventative maintenance must be approved in advance by the Authority.		Yes				
950	8.10.10.2.2.	The TSI shall notify the Authority prior to any SYSTEM upgrades and coordinate with the Authority and other contractors as necessary to ensure that SYSTEM upgrades do not affect other aspects of the Authority's or the Authority's contractors' operations. All SYSTEM upgrades shall be tested on a testing/development server and pass all tests before being placed into service.		Yes				
951	8.10.10.2.2.	The TSI shall provide the Authority with the option to participate in or observe testing for SYSTEM upgrades and shall provide the Authority with the results of testing.		Yes				
952	8.10.10.2.2.	The TSI shall provide 24/7 support of the SYSTEM, including a contact for the Authority to reach 24/7 in the event of an emergency.		Yes				
953	8.10.10.2.2.	The TSI shall complete daily back-ups of SYSTEM data and shall provide reports to the Authority verifying that back-ups have been completed.		Yes				
954	8.10.10.2.2.	The TSI shall utilize the SYSTEM MMS for documenting all maintenance activity.		Yes				
955	8.10.10.2.2.	The TSI shall provide daily and monthly reporting on uptime and outage statistics through MMS. Monthly reporting shall accompany SYSTEM invoicing to the Authority.		Yes				
956	8.10.10.2.3.	<b>Upgrades, Patches, and On-Going Development</b>		N/A				

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957	8.10.10.2.3.	The TSI shall: <ul style="list-style-type: none"> <li>• Migrate the SYSTEM to major new releases of its own or third-party software to avoid obsolescence and maintain support for the software.</li> <li>• Provide an integrated and comprehensive software patch management system.</li> <li>• Test and deploy critical security related updates within a 4-hour period (after testing and Authority approval).</li> <li>• Install non-security related patches on an as-necessary basis after successful testing and Authority approval.</li> <li>• Prepare and submit to the Authority a detailed software development change for approval for any software upgrades and development in accordance with the approved Software Development Plan.</li> <li>• Provide a description of the testing conducted and a summary of test results along with the written test plan executed for each build prior to its deployment into the production environment.</li> <li>• Have the Authority pre-approve any purchase of software licenses or support renewals for these test/development servers. The TSI shall maintain current the necessary licenses and support renewals and shall maintain a schedule of all licenses and support renewal dates. The TSI shall be liable for any late fees or penalties incurred due to the TSI's lack of control over the license and support process.</li> <li>• Provide to the Authority training on any routines or applications impacted by software changes or upgrades.</li> </ul>		Yes			
958	8.10.10.2.4.	<b>Coordination with the Authority</b>		N/A			
959	8.10.10.2.4.	The TSI shall: <ul style="list-style-type: none"> <li>• Conduct bi-weekly progress meetings with the Authority to report operating performance, problems and proposed solutions, and at other times upon Authority direction to deal with unusual situations.</li> <li>• Conduct a monthly status meeting with the Authority. At these meetings, the TSI shall review the monthly report on the functioning of the SYSTEM, the previous month's work, anticipated work for the next month, and any operational problems that have arisen</li> <li>• During the monthly status meetings, identify and communicate to the Authority all SYSTEM errors, operational errors and mistakes, and any other issues that affected SYSTEM and TSI performance. The TSI shall complete root cause analysis and after-action reporting. The TSI shall in detail present how the errors, mistakes, and issues arose, were identified, and were addressed. All errors, issues, and mistakes shall be documented and provided to the Authority as part of the monthly status meeting.</li> </ul>		Yes			
960	8.10.10.2.5.	<b>Authority Audit and Verification</b>		N/A			
961	8.10.10.2.5.	The TSI shall: <ul style="list-style-type: none"> <li>• Support independent System Performance Audits to verify the performance of the SYSTEM Sub-systems.</li> <li>• Support annual Authority financial audits. Any fines, fees, or other costs associated with a negative audit finding and incurred by the Authority as a result of the TSI's failure to properly maintain or operate the SYSTEM, or to accurately collect, process and report data will be passed on to and paid by the TSI.</li> <li>• Create and maintain reasonable detailed, complete and accurate documentation describing the SYSTEM, processes, network segments, security controls, and dataflow used to receive, transmit, store and secure Customer's cardholder data.</li> <li>• Cooperate with all audits. Cooperation with audits will not be measured or paid for separately but shall be considered incidental to all SYSTEM Contract work bid items and no additional compensation will be paid.</li> <li>• Address audit findings related to safeguarding of assets, segregation of duties, errors and irregularities, as directed by the Authority with corrective measures within 60 days. Audits may be repeated after corrective measures have been taken. The TSI may be subject to general Contract liquidated damages for failing to address audit findings within 60 days.</li> </ul>		Yes			
962	8.10.10.2.5.	The TSI will not be required to address audit findings that fall outside of the original SYSTEM Contract requirements. Audit findings that fall outside of the original SYSTEM Contract requirements may be addressed as a Task Order.		N/A			
963	8.11.	<b>Disaster Recovery/Business Continuity</b>		N/A			
964	8.11.	The TSI shall ensure that the Authority will be able to continue to operate the SYSTEM with minimal interruption to daily operations under various business disruption scenarios.		Yes			
965	8.11.	The Primary TCS Host and Secondary TCS Host shall be configured in a Warm Standby configuration. After initial troubleshooting, the Secondary TCS Host shall take over operation within 4 hours of the Primary TCS Host's failure with operations continuing as normal. Respondents should explain in detail how their solution best meets this requirement.		Yes			
966	8.11.	Respondents should propose the system and approach to providing Disaster Recovery and maintaining business continuity to toll operations. Included should be details specific to hardware, communications and infrastructure designs as well as any operational methods and practices. Respondents should include such aspects as: <ul style="list-style-type: none"> <li>• Primary &amp; Secondary Host environment(s);</li> <li>• Description of the processes, methods and services used for business continuity;</li> <li>• Redundancy and standalone capabilities including AET Zone, Host and other subsystems; and</li> <li>• Degraded toll zone operations.</li> </ul>		Yes			
967	8.11.	The TSI shall satisfy the requirements for the Business Continuity and Disaster Recovery Plan as described in the following sections.		Yes			
968	8.11.1.	<b>Disaster Recovery Plan</b>		N/A			

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969	8.11.1.	The TSI shall develop a Disaster Recovery Plan (DRP) that shall include: <ul style="list-style-type: none"> <li>• Business impact analysis of an outage;</li> <li>• Initial SYSTEM damage assessment checklist;</li> <li>• Description of redundant systems and failover/fail-back processes;</li> <li>• List of equipment in the primary SYSTEM, including a software list which includes the version and patch level;</li> <li>• List of equipment in the Back-Up or Disaster Recovery Site including a software list which includes the version and patch level;</li> <li>• Emergency contact lists;</li> <li>• Hardware manufacturer and software contractor contact lists;</li> <li>• Detailed procedures/processes for failing over to the back-up site in the event of an outage at the primary site;</li> <li>• Detailed procedures/processes for failing back from the back-up site to the primary site;</li> <li>• Test plans including detailed test scripts for testing the failover and failback procedures; and</li> <li>• Detailed procedures/processes that will be used in the event of complete destruction of the primary site.</li> </ul>		Yes			
970	8.11.1.	The DRP shall address the requirement that the TSI shall test the DRP as part of System Integration Test and then semi-annually during the Maintenance period, which shall include full execution of the failover-failback process as well as restoring SYSTEM data from back-up media.		Yes			
971	8.11.1.	The DRP shall address that the TSI shall coordinate with the Authority for the scheduling of these ongoing tests, provide the Authority with the opportunity to witness the testing, and review the results of the testing with the Authority upon completion.		Yes			
972	8.11.1.	The DRP shall address that the TSI shall maintain, validate, test, and resubmit the DRP for review and approval annually during the Maintenance Period or after material changes in the SYSTEM, architecture, location(s), or operations (including any contracted or outsourced services).		Yes			
<b>973</b>	<b>8.11.2.</b>	<b>Business Continuity Plan</b>		<b>N/A</b>			
974	8.11.2.	The Business Continuity Plan (BCP) will document the TSI's day-to-day policies, guidelines, and procedures for ensuring that the SYSTEM is fully functional and meeting the required KPIs.		Yes			
975	8.11.2.	The components of the BCP shall include: <ul style="list-style-type: none"> <li>• Details of governance and process for the direction, control and coordination of Business Continuity activities;</li> <li>• The management, staffing, communications with Authority staff by the TSI, as well as actions to be taken for issue identification, escalation, remedies and restoration of facilities, software applications, computer hardware, network communications, operations and maintenance; and</li> <li>• The process to be undertaken by the TSI when a business disruption event occurs that impacts the SYSTEM as further detailed under the DRP.</li> </ul>		Yes			
<b>976</b>	<b>8.12.</b>	<b>Succession Transition</b>		<b>N/A</b>			
977	8.12.	The TSI shall perform Succession Transition activities within this Contract that will overlap with start-up activities for a Successor.		Yes			
978	8.12.	A Successor shall be defined as the entity which takes over the Maintenance Period responsibilities from the TSI.		N/A			
979	8.12.	The TSI shall meet the following requirements [see Section 8.12.1 - Transition Requirements] for transition of all or part of the SYSTEM environment, data and operations.		Yes			
980	8.12.	The Authority will provide notification of the Successor transition no less than 180 days prior to the start of the transition.		N/A			
<b>981</b>	<b>8.12.1.</b>	<b>Transition Requirements</b>		<b>N/A</b>			
982	8.12.1.	The TSI shall confer and cooperate with the Successor to determine the activities required to transition the SYSTEM in an orderly manner and to allow the transition to occur without interruption of services or operations under the existing Contract.		Yes			
983	8.12.1.	The TSI shall designate a Transition Manager who shall serve as the single point of contact for transition related activities.		Yes			
984	8.12.1.	Within thirty (30) days of notification from the Authority of its intention to transition to the Successor, the TSI shall make any updates necessary to make the Transition Plan current for the transition process.		Yes			
985	8.12.1.	The TSI shall develop, seek Authority approval for, and manage an issue resolution process for the transition.		Yes			
986	8.12.1.	The TSI shall work with the Successor to develop and establish an acceptable Interface Transfer Plan to transfer data from the legacy SYSTEM to the new SYSTEM. Transfer activities shall include the confidential destruction of certain Authority-designated hardcopy and electronic records or a validated transfer methodology.		Yes			
987	8.12.1.	The Authority may request that certain transition related documentation or functions be transferred to the Successor before the final transition date. The TSI shall respond to such requests within ten (10) days of the request.		Yes			
988	8.12.1.	The TSI shall work with the Successor to develop a data transfer format and mechanism to successfully transfer data from the legacy SYSTEM to the new SYSTEM. The TSI shall provide sufficient SYSTEM-experienced personnel during the entire transition period to ensure that the qualities of services are maintained at the levels required by the SYSTEM Contract.		Yes			
989	8.12.1.	The TSI shall provide support to help the Successor maintain the continuity and consistency of the Services required by the SYSTEM Contract.		Yes			
990	8.12.1.	The TSI shall allow the Successor to conduct on-site interviews with the TSI employees.		Yes			

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991	8.12.1.	The TSI shall review and update SYSTEM related business processes, procedures, database, Business Rules, and related documentation as a part of the transition process.		Yes			
992	8.12.1.	The TSI shall add any missing information and correct any deviations from current operating protocol and route to the Authority for review and approval per current Contract requirements.		Yes			
993	8.12.2.	<b>Succession Plan</b>		N/A			
994	8.12.2.	Prior to the System Acceptance, the TSI shall develop and submit a Succession Plan for Authority review and approval.		Yes			
995	8.12.2.	The Succession Plan shall describe the steps the TSI shall take to support transition of the TSI's Services in two specific situations as follows: (1) End of Contract Termination – This component of the Succession Plan shall describe the approach the TSI shall take to support the start-up of SYSTEM maintenance and operations support by a Successor due to the end of the SYSTEM Contract term. The TSI's plan shall include a timeline for supporting the start-up of such an effort, the lead times required by the TSI, the TSI resources required, and any assumptions underlying the resource estimates. (2) Early Termination – This component of the Succession Plan shall describe the steps the TSI shall take to transition the SYSTEM maintenance and operations support to another entity upon receiving notification from the Authority of its intent to terminate the Contract. This plan shall include a detailed outline of the phase-out period, the period during which equipment or systems shall be removed or services terminated, due to Contract termination. The period of transition shall not exceed six (6) months and shall include planning, documentation, training, and completion of the transition.		Yes			
996	8.12.2.	The plan shall describe how the TSI shall meet with replacement staff or contractors to facilitate handover of any Authority financial and other data maintained in the SYSTEM and any other information and property of the Authority.		Yes			
997	8.12.2.	The plan shall demonstrate how the TSI shall ensure there are no disruptions to the SYSTEM at any unscheduled time and at all locations during phase-out.		Yes			
998	8.12.2.	The TSI shall update its Succession Plan as appropriate and resubmit it for review and approval by the Authority annually or after any material changes in the TSI's system, architecture, location(s), or maintenance and operations support (including contracted Services).		Yes			
999	8.12.3.	<b>Suspension of Contract</b>		N/A			
1000	8.12.3.	The TSI shall meet the following requirements for suspension of maintenance and operations support due to events such as a termination or significant disruption of the TSI's Services due to bankruptcy, receivership, liquidation, or other suspension of the TSI's business operations that prevent the TSI from performing the Services required under the Contract.		Yes			
1001	8.12.3.1.	<b>Suspension of Contract Requirements</b>		N/A			
1002	8.12.3.1.	If the TSI is unable or fails to meet the requirements of the Contract, the TSI shall provide the Authority with full and immediate access and control of all software and hardware, communications networks, related data, policies, procedures required to operate the SYSTEM and any other Authority-owned asset under its care, custody or control immediately upon notice from the Authority.		Yes			
1003	8.12.3.2.	<b>Suspension of Contract Plan</b>		N/A			
1004	8.12.3.2.	The TSI shall develop and submit a Suspension of Contract Plan for Authority review and approval prior to System Acceptance.		Yes			
1005	8.12.3.2.	The Suspension of Contract Plan shall describe the steps the TSI shall take to support transition of the TSI's Services in the event of a termination or significant disruption of the TSI's Services due to bankruptcy, receivership, liquidation, or other suspension of the TSI's business operations.		Yes			
1006	8.12.3.2.	The Suspension of Contract Plan shall: (1) Document the steps the TSI shall take to protect the Authority from the impact of a termination or significant disruption in the TSI's normal business operations. The goal of this plan is to ensure that the Authority can continue to provide SYSTEM operations with minimal impact to its customers and no loss of tolling revenue. (2) Provide to the Authority various options for maintaining continuity of operations in the event of a significant disruption. (3) Detail how the TSI shall implement its approach to mitigating the Authority's risk of interruption to SYSTEM operations and revenues in the event of the termination of or significant disruption to the TSI's business operations.		Yes			
1007	8.12.3.2.	The TSI shall update its Suspension of Contract Plan as appropriate and resubmit it for review and approval by the Authority annually or after material changes in the TSI's system(s), architecture, location(s), or system maintenance and operations support (including contracted Services).		Yes			
1008	Appendix A	<b>Proposed New AET Toll Collection System Business Rules</b>		N/A			
1009	Appendix A	Transaction reconciliation reports shall provide for transaction counts by transaction date sent by the TCS, transaction counts by the same transaction date reported as received by the BOS over the TCS to BOS interface, and variances between counts. Image reconciliation reports shall provide for image counts for a transaction date sent by the TCS, image counts for the same transaction date received by the BOS over the TCS to BOS interface, and any variances between counts. Tag Validation File (TVL) reconciliation reports shall provide the number of tags processed from the TVL, the number of tags contained in the TVL, and any variances.		Yes			
1010	Appendix A	The Authority will allow tags on RITBA Non-Revenue Accounts to be exempt from paying tolls. These tags will be designated as non-revenue in the Tag Validation File received from the BOS. Non-revenue transactions shall be sent to the BOS with the Applied Fare of \$0.		Yes			
1011	Appendix A	The Authority has discount plans that offer a reduced rate for each toll and unlimited trips within a 30 day cycle for a fee. Each tag on a discount plan will be designated as such in the Tag Validation File. The Applied Fare for reduced rate trips will be at a lower rate than the standard rate.		Yes			

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1012	Appendix A	No vehicles will be prohibited outright from using the Toll Bridge. However, vehicles that exceed the defined weight or dimensional limits will need to obtain a permit which will be handled outside of the TCS.		Yes			
1013	Appendix A	The TCS shall classify all vehicles according to the Authority's axle and weight based vehicle classification in all toll lanes. Vehicle classification will be based on the number of axles, with weight also considered for 2 axle vehicles. The following are the vehicle classifications for travel on the Newport Pell Bridge:  Class 1 - vehicles with 2 axles and weight under and including 7,000 lbs. * Class 2 - vehicles with 2 axles and weight over 7,000 lbs. *  Class 3 - vehicles with 3 axles. Class 4 - vehicles with 4 axles. Class 5 - vehicles with 5 or more axles.  * The IAG class on the tag is referenced in determining weight. Note: When there is a vehicle class mismatch between the vehicle class identified by the automatic vehicle classification (AVC) system and the automatic vehicle identification system (AVI or tag class), the TCS shall apply the higher of the AVC and AVI class.		Yes			
1014	Appendix A	Toll payments on the Newport Pell Bridge will be made via pre-paid Electronic Toll transponders (E-ZPass and any other interoperable transponders) or post-paid Image Based Invoice Accounts.		Yes			
1015	Appendix A	The standard rate is \$2.00 per axle for tag based transactions. Standard rates for each vehicle class for tag based transactions are as follows:  Class 1 - \$4.00 Class 2 - \$4.00 Class 3 - \$6.00 Class 4 - \$8.00 Class 5 - \$10.00		Yes			
1016	Appendix A	The tag based toll rates, by discount plan, and eligible vehicle classes are as follows:  Rhode Island Resident - \$0.83 - Class 1 vehicles (IAG 72,136, 200, 264, 328, 392, 456, 520) Non-Revenue Plan - \$0.00 - All vehicle classes (see Business Rule 101) Rhode Island Gross Vehicle Weight - \$0.83 - Class 2 vehicles between 7,001 lbs - 8,000 lbs (IAG 202, 266, 330, 394, 458, 522) Frequent User - \$0.91 - Class 1 vehicles (IAG 72,136, 200, 264, 328, 392, 456, 520) Unlimited - \$0.00 * - Class 1 vehicles (IAG 72,136, 200, 264, 328, 392, 456, 520) RIPTA Bus Plan - \$0.50 - Class 2 vehicles (IAG 395 only)  * Unlimited trips within a 30-day cycle for a pre-paid fee of \$40.  Further information regarding discount plans is available at the following website: <a href="https://www.ezpassribe.com/StaticContent/Page?viewName=PlanInfo">https://www.ezpassribe.com/StaticContent/Page?viewName=PlanInfo</a>		Yes			
1017	Appendix A	The standard rate is \$3.00 per axle for image based transactions. Standard rates for each vehicle class for image based transactions are as follows:  Class 1 - \$6.00 Class 2 - \$6.00 Class 3 - \$9.00 Class 4 - \$12.00 Class 5 - \$15.00		Yes			
1018	Appendix A	All additional oversized vehicle fees will be handled outside of the TCS via the Authority's permitting system.		Yes			
1019	Appendix A	Although current and near future toll rates will be static, the Authority desires a configurable fare schedule with hourly toll rates by rate plan (standard, discount, or non-revenue), and by payment method (tag based or image based).		Yes			
1020	Appendix A	The TCS shall capture both front and rear license plates as well as an overview image of each vehicle. The TCS shall transmit license plate and overview images of all vehicles, including those with and without a valid ETC transponder, to the BOS for processing.		Yes			
1021	Appendix A	The TCS shall include a digital video audit system (DVAS) to monitor each tolled travel lane and shoulders and clearly identify each vehicle traveling through the toll zone under all lighting conditions. Overview video shall allow RITBA to identify the vehicle type and the number of axles on the vehicle. The DVAS shall be integrated with the TCS to overlay information for each vehicle transaction (including the transaction date, time, lane number, and direction at a minimum) with the recorded video. The DVAS shall allow authorized Authority users to export data (transactions, images, etc.) from a graphical user interface. The DVAS shall record video continuously 24/7 and retain data for at least 90 days.		Yes			

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1022	Appendix A	The TCS shall determine when one vehicle ends and another begins under all operating conditions. The TCS should also be able to detect both small and large trailer hitches.		Yes				
1023	Appendix A	The TCS shall process the tag status files within 15 minutes of receipt from the BOS. This includes tag status files from the Authority, each E-ZPass agency, and future National Inter-operable partners.		Yes				
1024	Appendix A	The TCS shall use E-ZPass Group approved multiprotocol RFID readers that can detect ISO 18000-6C transponders, E-ZPass TDM transponders and SeGo transponders. The ability to read each tag protocol shall be configurable (in other words, the Authority should be able to turn off and on the capability to read each of these three protocols if they so choose).		Yes				
1025	Appendix A	The TCS shall detect multiple transponders in a vehicle and prevent any of these transponders from being passed back or assigned to another vehicle. The transaction message shall report one primary transponder and up to 2 secondary transponders to the BOS when multiple transponders are detected. The TCS shall include configurable logic to determine which transponder to assign to the transaction as the primary transponder and the secondary transponder(s).		Yes				
1026	Appendix A	The TCS shall use license plate image cameras to capture a minimum of 1 human readable front and 1 human readable rear license plate images of all vehicles traveling in all toll lanes and shoulders under all operating conditions. A human readable region of interest image (ROI) of each of the front and rear license plates as well as a human readable overview image shall also be provided. The TCS shall transmit license plate images of all vehicles, including those with and without a valid ETC transponder, to the BOS.		Yes				
1027	Appendix A	The TCS shall retain license plate images of vehicles with a valid ETC transponder for at least 3 years then archive the images to long term storage for at least 6 years. The TCS shall retain license plate images of vehicles without a valid ETC transponder for at least at least 3 years then archive the images to long term storage for at least 6 years.	Yes	Yes				
1028	Appendix A	E-ZPass transactions for invalid tag status transactions shall be charged at the image based toll rate and license plate images shall be captured and forwarded with the transaction information to the BOS for processing.		Yes				
1029	Appendix A	The TCS shall include OCR functionality to perform automatic license plate recognition and identify a vehicle's license plate number, plate type and jurisdiction.		Yes				
1030	Appendix A	Manual image review services will be performed in the Authority's BOS and is outside the scope of the TCS.		N/A				
1031	Appendix A	The TCS shall record the vehicle speed in the transaction.		Yes				
1032	Appendix A	No in-lane feedback on the status of the transponder shall be provided to drivers with an electronic toll transponder.		Yes				
1033	Appendix A	Vehicles shall only be eligible for toll discounts if they have a transponder that is registered to an active RITBA E-ZPass account and subscribe to a discount plan. If the vehicle does not have a registered discount plan transponder at the time of travel, they will be assessed a toll at the standard rate.		Yes				
1034	Appendix A	The TCS shall assess the higher transponder class. If the AVC Subsystem is degraded or unavailable, the TCS shall assess the transponder class or default to Class 1 if the transponder class is unavailable.		Yes				
1035	Appendix A	The TCS shall assess the higher AVC Class. If the AVC Subsystem is degraded or unavailable, the TCS shall assess the transponder class or default to Class 1 if the transponder class is unavailable. If the transponder is on a discount plan account, and the AVC is Class 1 or Class 2, the discount rate is applied. If the transponder is on a discount plan account, and the AVC is Class 3 or greater, the standard rate for the vehicle's class is applied.		Yes				
1036	Appendix A	The TCS shall flag transactions on discount plans when the AVC class is greater than Class 1. The exception is for the RIPTA Bus Plan, where the TCS shall flag transactions on the RIPTA Bus Plan when the AVC class is greater than Class 2.		Yes				
1037	Appendix A	The TCS shall detect, flag transactions of, and capture images of oversized vehicles, and send the transactions and images to the BOS. Reference <a href="http://www.ritba.org/overweight-overwide/">http://www.ritba.org/overweight-overwide/</a> for oversized dimensions.		Yes				

**Table 7-1: Milestone Payment Schedule**

Milestone Name	Triggering Event	Percent of Non-Hardware Costs
Mobilization	Notice to Proceed (NTP)	10%
Management / QA Plan	Approval of Program Management/Quality Assurance Plan	5%
Design Acceptance	Approval of the Business Rules Document, Detailed Design Document and Requirements Traceability Matrix	15%
Reports Design Acceptance	Approval of the Reports Detailed Design Document	5%
Factory Test Approval	Approval of the Factory Test Report	10%
Approval of Plans: <ul style="list-style-type: none"> <li>• Training Plan</li> <li>• Maintenance Plan</li> <li>• Installation Plan</li> <li>• Master Test Plan and Individual Test Phase Plans</li> <li>• Back-Up and Disaster Recovery Plan</li> </ul>	Approval of all Plans listed	10%
Site Commissioning Test	Approval of Site Commissioning Test Report	10%
System Acceptance	Approval of the System Acceptance Test Report	20%
Succession Plan	Approval of Succession Plan	5%
Final Deliverables	All Remaining Deliverables Submitted and Approved	10%
<b>Total Service</b>		<b>100%</b>



**Table 8-1: Environmental Requirements**

Condition	Environment		
	Exterior	Roadside Enclosures	Building Interior
Minimum temperature	-20°F	20°F	50°F
Maximum temperature	120°F	104°F	85°F
Minimum humidity	15%	15%	15%
Maximum humidity	98%	95%	80%
Shock	Yes	Yes	Yes
Vibration	Yes	No	No
Corrosion / salt	Yes	Yes	No
Electrostatic discharge	Yes	Yes	Yes
Rain / water runoff	Yes, direct	Yes, indirect	No
Dust	Yes	Yes	Yes

Attachment A - Requirements Conformance Matrix

Table 8-2: Milestone Conformance Performance Indicators

#	Name	Performance Measure	Definitions	Number of Measurements	Period of Measurement	Denominator	Numerator	Service Level	Liquidated Damages Assessment
MC-01	Revenue Service	SYSTEM placed into revenue service		One	Once	Not Applicable	Not Applicable	No later than May 1, 2023	\$1,000/day until completion
MC-02	System Acceptance	Approval of System Acceptance Test Report		One	Once	Not Applicable	Not Applicable	No later than 180 days after Revenue Service begins	\$250/day until completion

Attachment A - Requirements Conformance Matrix

Table 8-3: Availability Performance Indicators

#	Name	Performance Measure	Definitions	Number of Measurements	Period of Measurement	Denominator	Numerator	Service Level	Liquidated Damages Assessment
AV-01	Roadside Tolling Availability	Percentage of time that all Roadside TCS Subsystems shall be Fully Available to generate Transaction Records.	<u>Fully Available:</u> All aspects of the Roadside TCS subsystems are performing all functions necessary to generate Transaction Records.	One	One Month	Total number of hours Roadside TCS was scheduled to be in operation during the period of measurement. This shall exclude any planned maintenance activities.	Total Number of Hours Roadside TCS was Fully Available.	99.90%	\$300 for every 0.1% below the Service Level
AV-02	TCS Host Availability	Percentage of time that all TCS Host Subsystems shall be Fully Available to generate Transaction Records.	<u>Fully Available:</u> All aspects of the TCS Host subsystems are performing all functions necessary to generate Transaction Records.	One	One Month	Total number of hours TCS Host was scheduled to be in operation during the period of measurement. This shall exclude any planned maintenance activities.	Total Number of Hours TCS Host was Fully Available.	99.80%	\$300 for every 0.1% below the Service Level

Table 8-4: Accuracy Performance Indicators

#	Name	Performance Measure	Number of Measurements	Period of Measurement	Denominator	Numerator	Service Level	Liquidated Damages Assessment
AC-01	Vehicle Detection and Transaction Generation Accuracy	Percentage of vehicles for which the SYSTEM generates one and only one transaction.	Two (one per zone)	One Month	Total number of vehicles.	Total number of vehicles that generated one and only one transaction record.	99.90%	\$1,000 for every 0.1% below the Service Level
AC-02	Vehicle Classification	Percentage of vehicles for which the SYSTEM correctly reports the classification.	Two (one per zone)	One Month	Total number of vehicle records generated.	Total number of vehicle records that contain the correct classification.	99.80%	\$200 for every 0.1% below the Service Level
AC-03	RFID Capture Rate Accuracy	Percentage of vehicles for which the SYSTEM correctly reports at least one RFID Transponder ID if a transponder has been correctly mounted (according to manufacturer specification).	Two (one per zone)	One Month	Total number of vehicles with a correctly mounted transponder.	Total number of vehicles passing with at least one correctly reported Transponder ID.	99.90%	\$200 for every 0.1% below the Service Level
AC-04	VES Image Capture and Correlation Accuracy	Percentage of vehicles for which The SYSTEM subsystem shall capture, report and correctly associate at least one front and two rear images to each vehicle.	Two (one per zone)	One Month	Total number of vehicles traveling through the toll zone, including vehicles in the shoulders and straddling the lane on the edge of the toll zone.	Total number of vehicles for which all license plates are captured, reported, and correctly associated to the vehicle transaction.	99.00%	\$200 for every 0.1% below the Service Level
AC-05	Image Quality	Percentage of images that contain a Human Readable license plate, license plate jurisdiction, and license plate type.	One	One Month	Number of images that contain Human Readable license plates.	Number of images that can be read.	99.30%	\$250 for every 0.1% below the Service Level
AC-06a	License Plate Extraction Accuracy Automation	Percentage of images that can be Fully Automated (with an accuracy of >99.95%) using OCR results.	One	One Month	Total number of license plate images captured.	Total number of license plate image reads that can be Fully Automated.	70% automated with an accuracy of >99.95%	\$1,000 for every 0.10% below the Service Level
AC-06b	License Plate Extraction Accuracy	Reading accuracy for Fully Automated license plates.	One	One Month	Total number of Fully Automated license plate reads.	Total number of correct license plate reads.	99.95%	\$1,000 for every 0.05% below the Service Level
AC-07	Vehicle Framing Accuracy	Percentage of vehicles for which the SYSTEM correctly assigns all data captured (tag reads, vehicle height and length, toll collector inputs, etc.) and include it in the recorded transaction. Percentage for which the SYSTEM correctly assigns all data captured by all SYSTEM subsystems (AVI, AVC, ALPR) and includes the data in the recorded transaction.	One	One Month	Total number of vehicle records captured.	Total number of vehicle records correctly aligned with all captured data.	99.95%	\$200 for every 0.1% below the Service Level
AC-08	Transaction Transfer, Storage, and Retention	Percentage of transactions correctly transferred from the lanes to the TCS Host and from the TCS Host to the BOS.	One	One Month	Not Applicable	Not Applicable	100%	Expected Revenue Lost
AC-09	Image Transmission Accuracy	The VES subsystem shall correctly transmit all captured license plate images to the TCS Host under all operating conditions.	One	One Month	Not Applicable	Not Applicable	100%	Expected Revenue Lost

Table 8-5: Timeliness Performance Indicators

#	Name	Performance Measure	Definitions	Number of Measurements	Period of Measurement	Denominator	Numerator	Service Level	Liquidated Damages Assessment
TI-01	Timely Report Generation (Daily Report)	Daily reports shall be generated in 10 seconds or less.		One (system-wide)	One Month	Total number of daily reports generated	Total number of reports generated within 10 seconds.	100%	\$250 for every 0.1% below the Service Level
TI-02	Timely Report Generation (Monthly Report)	Monthly Reports generated in 30 seconds or less.		One (system-wide)	One Month	Total number of monthly reports generated	Total number of reports generated within 30 seconds.	100%	\$250 for every 0.1% below the Service Level
TI-03	Timely Report Generation (Annual Report)	Annual Reports generated in 120 seconds or less.		One (system-wide)	One Month	Total number of annual reports generated	Total number of reports generated within 120 seconds.	100%	\$250 for every 0.1% below the Service Level
TI-04	Timely Submission of Monthly KPI Report	The KPI Report shall be submitted no later than the 10 <sup>th</sup> Business Day of the month covering the previous calendar month.		One (system-wide)	One Month	Not Applicable	Not Applicable	10 <sup>th</sup> Business Day of the month	\$200 for every day past the Service Level due date
TI-05	Timely Maintenance Response – Priority One	The TSI shall Respond to a Priority One issue within a required time frame by contacting the Authority and acknowledging the issue and, if requested, initiating any necessary remote assistance.		Each Occurrence	Not Applicable	Not Applicable	Not Applicable	1 hour	\$100 for every 15 minutes past the Service Level
TI-06	Timely Maintenance Response – Priority Two	The TSI shall Respond to a Priority Two issue within a required time frame by contacting the Authority and acknowledging the issue and, if requested, initiating any necessary remote assistance.		Each Occurrence	Not Applicable	Not Applicable	Not Applicable	2 hours	\$50 for every 15 minutes past the Service Level
TI-07	Timely Maintenance Response – Priority Three	The TSI shall Respond to a Priority Three issue within a required time frame by contacting the Authority and acknowledging the issue and, if requested, initiating any necessary remote assistance.		Each Occurrence	Not Applicable	Not Applicable	Not Applicable	4 hours	\$100 for every hour past the Service Level
TI-08	Timely Maintenance Repair – Priority One	Whenever a Priority One issue occurs and the Authority cannot affect the necessary repairs, upon notification from the Authority the TSI shall repair the SYSTEM and return it to normal operation.		Each Occurrence	Not Applicable	Not Applicable	Not Applicable	2 hours	\$100 for every 15 minutes past the Service Level
TI-09	Timely Maintenance Repair – Priority Two	Whenever a Priority Two issue occurs and the Authority cannot affect the necessary repairs, upon notification from the Authority the TSI shall repair the SYSTEM and return it to normal operation.		Each Occurrence	Not Applicable	Not Applicable	Not Applicable	4 hours	\$100 for every 15 minutes past the Service Level
TI-10	Timely Maintenance Repair – Priority Three	Whenever a Priority Three issue occurs and the Authority cannot affect the necessary repairs, upon notification from the Authority the TSI shall repair the SYSTEM and return it to normal operation.		Each Occurrence	Not Applicable	Not Applicable	Not Applicable	2 Business Days	\$100 for every hour past the Service Level
TI-11	Timely Host Failover	Upon failure of the Primary TCS Host, the TSI shall fully configure the Secondary TCS Host to take over all Host functions and requirements within the service level requirement.		Each Occurrence	Not Applicable	Not Applicable	Not Applicable	4 hours	\$250 for every hour past the required time

Table 8-6: SYSTEM Training

Position	Number of Authority Staff to be Trained
Operations Staff	6
Auditor/Finance Staff	5
Management Staff	6
Lane Maintenance Staff	1
Other	2

**Table 8-7: Response Times**

Failure Severity Level		
1	2	3
Response Time		
1 hour	2 hours	4 hours

Attachment A - Requirements Conformance Matrix

Table 8-8: Repair Times

Failure Severity Level		
1	2	3
Repair Time		
2 hours	4 hours	2 Business Days