



ADDENDUM #1

The attention of bidders is called to the following responses to questions received from Request for Proposals (RFP) 22-02 Respondents and related revisions to the original RFP 22-02 document which shall be taken into account in preparing the Proposal and shall be part of Contract 22-02.

RESPONSES TO QUESTIONS RECEIVED FROM RESPONDENTS AND UPDATED REQUIREMENTS CONFORMANCE MATRIX

Please refer to the following attachments for responses to questions received from Respondents and an updated Attachment A – Requirements Conformance Matrix (RCM), which shall be completed as Section II of the RFP 22-02 Technical Proposal.

1. Responses to Questions Received from Respondents.
2. Updated Attachment A – Requirements Conformance Matrix (RCM) in Excel and PDF formats.
 - a. Includes the revisions to the RFP that are described in the responses to questions received from Respondents. Revisions are marked in accordance with the RCM Instructions.



Rhode Island Turnpike and Bridge Authority

RFP 22-02 Request for Proposals (RFP) to Design, Install and Maintain a New All-Electronic Tolling System for the Claiborne Pell Bridge

Responses to Questions Received from Respondents

No.	RFP Section	Question	Answer
1.	Section 1.3.3. Image Based Tolling	Would RITBA please clarify (with examples if possible) what is meant by "state assigned plate type"?	<p>Several states including Rhode Island, Massachusetts, New Hampshire, Maine, Illinois, and Indiana issue the same license plate number across different plate types. Each state has a variety of state-assigned plate types such as passenger, commercial, school bus, police, taxi, veteran, etc.</p> <p>In addition to integrating one or more OCR engines, the Authority encourages Respondents to integrate a vehicle signature/digital fingerprint solution to increase the overall accuracy of their ALPR solution and reduce the Authority's manual image review effort.</p>
2.	Section 2.2. Project Phases	What is RITBA's preferred "Go-Live" date for the new AET System?	Respondents shall propose their project schedule in their response to the RFP. The proposed Go-Live date shall be no later than September 1, 2023, as described in the Service Level description for KPI MC-01 – Revenue Service.
3.	Section 4.2.2.4.1. Project Team, Experience, Past Performance and References	Please clarify if RITBA will have resources available that will be utilized to provide 24x7x365 system monitoring support services.	Respondents should propose their approach for providing system monitoring in response to the RFP. RITBA personnel will monitor the TCS performance 24x7x365. The proposed SYSTEM shall provide automated monitoring tools to support this monitoring effort.



Rhode Island Turnpike and Bridge Authority

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4.	Section 8.1.1. General Requirements	Define "raw data" as described in section 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."	"Raw data" are any TCS event data created in the toll lanes and toll zones. Examples include, but are not limited to, tag read events (handshakes), axle sensor actuations, image capture triggers, etc.
5.	Section 8.1.1. General Requirements	Can the Authority confirm that it will design and build the gantry shelter/cabinet (dedicated to non-AVI equipment), including the concrete base, regardless if it is a masonry shelter or a dual rack stainless steel cabinet?	<p>The Authority confirms that it will design and build a roadside equipment building to house non-AVI equipment including the concrete base, power, communications, and HVAC.</p> <p>However, the TSI shall provide the equipment racks to install all non-AVI equipment in the roadside equipment building. Respondents shall provide information in their proposal on the type of equipment racks they intend to provide including the number of racks, manufacturer, model, and dimensions.</p> <p>Section 8.1.1 shall be modified to include the following language in bold font: "The TSI shall provide the cabling between the non-AVI equipment building, the AVI equipment roadside enclosures, and the equipment installed in the AET toll zones. The TSI shall also provide the equipment racks to install all non-AVI equipment in the non-AVI equipment building."</p>



Rhode Island Turnpike and Bridge Authority

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No.	RFP Section	Question	Answer
6.	Section 8.1.3.3. Lane Modes of Operation	Please explain the “Closed” mode of operation and how this will be used.	The “Closed” mode of operation will be used when the lane is closed to travel or for emergency events. If the lane is not physically closed to travel, during the “Closed” mode of operation the TCS shall record and report all lane events including identifying transponders, detecting and classifying vehicles, capturing images, generating transactions, etc. The TCS shall identify the transactions as occurring under the “Closed” mode of operation.
7.	Section 8.1.3.6. Image Capture	The statement “Visible light levels shall not be increased at any toll zones” appears to be in conflict with the requirement that says “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	<p>Respondents should propose their image capture solution to meet or exceed the requirements of the RFP.</p> <p>The fourth bulleted requirement in Section 8.1.3.6 shall be modified as follows: “The TSI shall:</p> <ul style="list-style-type: none"> • Provide 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.”



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RFP 22-02 Request for Proposals (RFP) to Design, Install and Maintain a New All-Electronic Tolling System for the Claiborne Pell Bridge

Responses to Questions Received from Respondents

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		make, model, color and to read state jurisdiction” in the same section. Can you clarify this issue please?	
8.	Section 8.5. Retention	Please confirm that all images must be retained in TCS Host long term archival storage for up to 6 years.	As defined in Section 8.5, images must be retained for a minimum of 3 years online in the TCS then archived to long term storage for at least 6 years.
9.	General – Contract Terms	Is the Authority willing to negotiate reasonable limitations on the amount of damages recoverable under the Agreement?	No. As described in Section 4.2.3, Pricing Proposals shall be based on accepting all terms and conditions detailed in this RFP. A written statement that the Pricing Proposal is based on accepting the Authority’s terms and conditions set forth in RFP Section 6 (General Terms and Conditions) and RFP ATTACHMENT B – PROFESSIONAL SERVICES AGREEMENT with no exceptions shall be included as part of the Pricing Proposal submission.
10.	General – Contract Terms	Is the Authority willing to negotiate reasonable limitations on the types of damages recoverable under the Agreement?	No. As described in Section 4.2.3, Pricing Proposals shall be based on accepting all terms and conditions detailed in this RFP. A written statement that the Pricing Proposal is based on accepting the Authority’s terms and conditions set forth in RFP Section 6 (General Terms and Conditions) and RFP ATTACHMENT B – PROFESSIONAL SERVICES AGREEMENT with



Rhode Island Turnpike and Bridge Authority

RFP 22-02 Request for Proposals (RFP) to Design, Install and Maintain a New All-Electronic Tolling System for the Claiborne Pell Bridge

Responses to Questions Received from Respondents

No.	RFP Section	Question	Answer
			no exceptions shall be included as part of the Pricing Proposal submission.
11.	Section 8.9.3. KPIs – Accuracy, Table 8-4: Accuracy Performance Indicators	<p>Please clarify what images the AC-04 KPI relates to. The RFP states "at least one front and two rear images to each vehicle" in the AC-04 KPI. Does this refer to:</p> <ul style="list-style-type: none"> - One front plate overview image, one rear plate overview image, and one overview (multi-lane) image as required in Business Rule 111? - One front plate ROI, one rear plate ROI, and one rear plate overview image as required in Business Rule 117? - One front plate overview image and two rear plate overview images? - Some other combination of images? 	<p>KPI AC-04 – VES Image Capture and Correlation Accuracy relates to the following images: at least two front license plate images, two rear license plate images, one front license plate ROI, one rear license plate ROI, and one overview image.</p> <p>The Performance Measure description for KPI AC-04 – VES Image Capture and Correlation Accuracy shall be modified as follows: “Percentage of vehicles for which the SYSTEM subsystem shall capture, report and correctly associate at least two front plate images, two rear plate images, one front plate ROI, one rear plate ROI, and one overview image to each vehicle.”</p> <p>The Numerator description for KPI AC-04 – VES Image Capture and Correlation Accuracy shall be modified as follows: “Total number of vehicles for which all required license plate and overview images are captured, reported, and correctly associated to the vehicle transaction.”</p> <p>Business Rules 111, 112, and 117 shall be modified as follows:</p>



Rhode Island Turnpike and Bridge Authority

**RFP 22-02 Request for Proposals (RFP) to Design, Install and Maintain a
New All-Electronic Tolling System for the Claiborne Pell Bridge**

Responses to Questions Received from Respondents

No.	RFP Section	Question	Answer
			<p>Business Rule 111 – “The TCS shall capture two (2) front plate images, two (2) rear plate images, one (1) front plate ROI, one (1) rear plate ROI, and one (1) overview (multi-lane) image of each vehicle. The overview image should show the full vehicle including the license plate and other identifying characteristics (such as make, model, color, axles, etc.). 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.”</p> <p>Business Rule 112 – “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. The overview video should show the full vehicle including the license plate and other identifying characteristics (such as make, model, color, axles, etc.) to 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</p>



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			<p>DVAS shall record video continuously 24/7 and retain data for at least 90 days.”</p> <p>Business Rule 117 – “The TCS shall use license plate image cameras to capture a minimum of two (2) human readable front and two (2) 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 and overview images of all vehicles, including those with and without a valid ETC transponder, to the BOS.”</p>
12.	Section 8.9.3. KPIs – Accuracy, Table 8-4: Accuracy Performance Indicators	Please clarify the reference to two rear images.	See response to Q&A #11.
13.	Attachment F – Preliminary Gantry Location	Where does RITBA expect to place the shelter for non-AVI equipment? Will it be within 200 feet of the gantry to accommodate copper Ethernet cable runs? If it is near enough to the gantry (50 feet or so), it	The non-AVI equipment building will be located within 200 feet of the gantry.



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Responses to Questions Received from Respondents

No.	RFP Section	Question	Answer
		could significantly reduce cost to RITBA.	



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 22-02) in which the Requirement can be found.
D	Requirement	Describes the Requirement from the AET SYSTEM RFP (RFP 22-02).
E	Modified Language Compared to RFP Language?	<p>If "Yes", indicates that the Requirement language has been modified since the AET SYSTEM RFP (RFP 22-02) was issued on March 3, 2022. The language modification will be denoted by strikethrough font if the language is being redacted and blue-colored bold font 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.

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 22-02) 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	General Purpose		N/A				
2	1.1.	Project Overview		N/A				
3	1.1.1.	The Rhode Island Turnpike and Bridge Authority		N/A				
4	1.1.2.	Current Toll Collection System		N/A				
5	1.1.3.	Future All-Electronic Toll Collection System		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 (i.e., three total lanes in each direction 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 \$2.00 per axle per crossing for E-ZPass transactions (additional \$1.00 per axle for image based transactions) and will require a permit above certain weight limits (overweight and overwide vehicle restrictions can be found at the following link: http://www.ritba.org/overweight-overwide/).		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.	RITBA E-ZPass Implementation		N/A				
11	1.1.5.	Current RITBA Back Office System Context		N/A				
12	1.1.5.	The new AET SYSTEM shall interface with the new BOS.		Yes				
13	1.2.	Project Objectives		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				
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.	Tolling Systems Overview		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.	General Tolling Concepts		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.	Automatic Vehicle Identification (AVI)		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.	Image Based Tolling		N/A				

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).		
					3) Non-compliant: Exception to the Requirement (Comment Required).	4) Non-compliant: Not Available. The Requirement will Not be Met (Comment Required).		
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				
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.	SYSTEM Administration and Operations		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	Scope of Work Summary		N/A				
45	2.1.	SOW Tasks by Category		N/A				
46	2.1.	Manage Project Management, System Administration, Documentation, Training for Authority staff, Provisions for Disaster Recovery, and 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.	Project Phases		N/A				
56	2.2.1.	Phase I – Design, Manufacturing, Factory Acceptance Test		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 Management Plans, 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 Management Plans, 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.	Phase II – Installation, Testing, Commissioning, and Go Live		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.	Phase III – Operation, System Acceptance, Maintenance Support and Warranty Period		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				

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).		
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.	Phase IV – Operation and Maintenance Support Period		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.	SYSTEM Phase V – Up to Three Optional 2-Year Extensions (Operations and Maintenance Support)		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.	Project Deliverables		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.	Contract Term		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	Proposal Submission Process		N/A				
79	4	Proposal Content Requirements		N/A				
80	5	Proposal Evaluation and Selection Process		N/A				
81	6	General Terms and Conditions		N/A				
82	7	Payment Milestones		N/A				
83	7	Compensation for this project shall be as follows: SYSTEM Hardware 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. Warranty 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. Operations and Maintenance Support The Authority will pay monthly fees to the Contractor for Maintenance Support Services tasks (Phases IV and V (if exercised)). Other Costs 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 Accounts Payable department at ap@ritba.org.		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				

Attachment A - Requirements Conformance Matrix

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87	8	Detailed Scope of Work		N/A				
88	8.1.	AET SYSTEM Requirements		N/A				
89	8.1.1.	General Requirements		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				
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 SYSTEM shall incorporate redundancy such that there are no single points of failure that would cause any required availability and functionality requirements to not be met.		Yes				
104	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				
105	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				
106	8.1.1.	The Authority will provide the gantry(s), conduits, non-AVI equipment building, and concrete bases for the AVI equipment roadside enclosures at the AET toll zones.		N/A				
107	8.1.1.	The TSI shall provide the cabling between the non-AVI equipment building, the AVI equipment roadside enclosures, and the equipment installed in the AET toll zones. The TSI shall also provide the equipment racks to install all non-AVI equipment in the non-AVI equipment building.	Yes	Yes				
108	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				
109	8.1.1.	The TSI shall provide, install, monitor and maintain Heating, Ventilation and Air Conditioning (HVAC) equipment necessary for SYSTEM components installed in the AVI equipment roadside enclosures. The Authority will provide HVAC for the non-AVI equipment building.		Yes				
110	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				
111	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				
112	8.1.1.1.	All-Electronic Tolling (AET) Facilities and Configurations		N/A				
113	8.1.1.1.	The SYSTEM shall support all-electronic tolling (AET) in all travel lanes and shoulders.		Yes				
114	8.1.1.1.	The Authority will make the toll gantry(s) and a non-AVI equipment building 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, AVI equipment roadside enclosure mounting infrastructure, and number and size of conduits required). The Authority prefers a single gantry configuration and will not accept a toll zone design of more than two gantries. However, if the TSI requires any changes to the design of the gantry(s) 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				
115	8.1.1.1.	The TSI will provide all necessary cabinets and AVI equipment enclosures for all SYSTEM equipment installed at or near the toll zones.		Yes				
116	8.1.1.1.	The TSI shall ensure that all infrastructure adheres to Authority structural and aesthetic requirements.		Yes				
117	8.1.1.2.	TCS Host		N/A				

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118	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	1) Compliant: Core Solution Fully Complies with the Requirement.		
119	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	2) Non-compliant: Not Currently Available in Core Solution (Additional System Module, Service, or Third-party Product or Service Required).		
120	8.1.1.2.	The TCS Host shall employ transfer processing controls with data validation to confirm the accuracy of all data exchanged with the BOS.		Yes	3) Non-compliant: Exception to the Requirement (Comment Required).		
121	8.1.1.2.	The TCS Host shall synchronize time to a Network Time Protocol source.		Yes	4) Non-compliant: Not Available. The Requirement will Not be Met (Comment Required).		
122	8.1.2.	TCS Business Rules		N/A			
123	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			
124	8.1.3.	TCS Functional Requirements		N/A			
125	8.1.3.1.	Lane Transactions		N/A			
126	8.1.3.1.	The TSI shall be responsible for the design of the UTM format, which shall be completed during detailed design.		Yes			
127	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			
128	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			
129	8.1.3.1.	The TCS shall create a UTM that includes all relevant lane transaction information.		Yes			
130	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			
131	8.1.3.1.	a. A unique lane transaction number that is sequential;		Yes			
132	8.1.3.1.	b. Date;		Yes			
133	8.1.3.1.	c. Time (to the 1/100 of a second), including transaction time as well as transponder read time;		Yes			
134	8.1.3.1.	d. Plaza/AET toll zone;		Yes			
135	8.1.3.1.	e. Lane number;		Yes			
136	8.1.3.1.	f. Transponder number (up to three if multiple transponders are present);		Yes			
137	8.1.3.1.	g. Transponder status (up to three if multiple transponders are present);		Yes			
138	8.1.3.1.	h. Automated Read license plate alphanumeric characters – front plate (if present);		Yes			
139	8.1.3.1.	i. Automated Read license plate jurisdiction of origin – front plate (if present);		Yes			
140	8.1.3.1.	j. Automated Read license plate type – front type (if present);		Yes			
141	8.1.3.1.	k. Automated Read license plate alphanumeric characters – rear plate (if present);		Yes			
142	8.1.3.1.	l. Automated Read license plate jurisdiction of origin – rear plate (if present);		Yes			
143	8.1.3.1.	m. Automated Read license plate type – rear plate (if present);		Yes			
144	8.1.3.1.	n. Automatic Number Plate Recognition (ALPR) confidence level;		Yes			
145	8.1.3.1.	o. Vehicle classification from the transponder (if present);		Yes			
146	8.1.3.1.	p. Vehicle classification from the Automatic Vehicle Classification (AVC) Subsystem;		Yes			
147	8.1.3.1.	q. Audit Reviewer ID entering vehicle classification amendments (if present);		Yes			
148	8.1.3.1.	r. Vehicle axes/number of axes;		Yes			
149	8.1.3.1.	s. Expected AVI revenue for this toll point and time;		Yes			
150	8.1.3.1.	t. Expected image based toll revenue for this toll point and time;		Yes			
151	8.1.3.1.	u. Lane operational state;		Yes			
152	8.1.3.1.	v. Lane equipment status;		Yes			
153	8.1.3.1.	w. Maintenance Management System (MMS) lane status; and		Yes			
154	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			
155	8.1.3.1.	The TCS shall create UTMs 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			
156	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			
157	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			
158	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			
159	8.1.3.1.	The TCS shall process image based toll lane transactions on a first-in, first-out basis.		Yes			
160	8.1.3.2.	Toll Rates		N/A			
161	8.1.3.2.	Toll rates shall be set through the SYSTEM according to the current Authority toll rates. The SYSTEM shall:		Yes			
162	8.1.3.2.	- Control the implementation of toll rates.		Yes			
163	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			
164	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			
165	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			
166	8.1.3.3.	Lane Modes of Operation		N/A			
167	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			
168	8.1.3.3.	Operational modes must include open, closed, and maintenance modes.		Yes			
169	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			

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170	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				
171	8.1.3.4.	Automatic Vehicle Identification (AVI)		N/A				
172	8.1.3.4.	The TCS shall:						
173	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				
174	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				
175	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				
176	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				
177	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				
178	8.1.3.5.	Automatic Vehicle Classification (AVC)		N/A				
179	8.1.3.5.	The TCS shall:						
180	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				
181	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				
182	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				
183	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				
184	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				
185	8.1.3.5.	· Allow authorized users to amend TCS-assigned vehicle classifications for each lane transaction.		Yes				
186	8.1.3.5.	· Receive vehicle classification determinations from: a. AVI transponders (if present), b. AVC Subsystem.		Yes				
187	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				
188	8.1.3.5.	· Identify oversized vehicles based on vehicle dimension parameters to be defined with the Authority.		Yes				
189	8.1.3.5.	· Provide adequate redundancy whereby failure of a single sensor or device does not degrade the TCS's capability to detect or classify vehicles in any travel lane or travel shoulder.		Yes				
190	8.1.3.6.	Image Capture		N/A				
191	8.1.3.6.	The TCS shall:		N/A				
192	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				
193	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				
194	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				
195	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	Yes				
196	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				

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197	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				
198	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				
199	8.1.3.6.	Provide adequate redundancy whereby failure of a single sensor or device does not degrade the TCS's capability to accurately capture human readable front and rear license plate images in any travel lane or travel shoulder.		Yes				
200	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				
201	8.1.3.7.	Image Based Toll Transaction Handling		N/A				
202	8.1.3.7.	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				
203	8.1.3.7.	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				
204	8.1.3.7.	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				
205	8.1.3.7.	The TCS shall flag oversize vehicles where dimension limitations are exceeded. Refer to the linked restrictions. Overweight & Overwide Rhode Island Turnpike and Bridge Authority (ritba.org) . The flag will be populated in the Transaction File sent to the BOS for transaction processing.		Yes				
206	8.1.3.8.	Digital Video Audit System (DVAS)		N/A				
207	8.1.3.8.	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 axes, etc.) at all times of the day and under all environmental and lighting conditions.		Yes				
208	8.1.3.8.	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				
209	8.1.3.8.	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				
210	8.1.3.8.	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				
211	8.1.3.8.	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				
212	8.1.3.8.	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				
213	8.1.3.8.	The TCS shall synchronize all components of the DVAS Subsystem to the SYSTEM Host to within 1/100 of a second.		Yes				
214	8.1.3.8.	The TCS shall monitor and report on the status of all DVAS Subsystem elements.		Yes				
	8.1.3.8.	The TCS shall provide adequate redundancy whereby failure of a single camera or device does not degrade the TCS's capability to provide images or video of vehicles in any travel lane or travel shoulder.		Yes				
215	8.1.3.8.	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				
216	8.1.3.8.	The TSI shall provide user training on the DVAS playback application.		Yes				
217	8.1.3.9.	Toll Zone Controller		N/A				
218	8.1.3.9.	The functionality of the toll zone controller includes, but is not limited to the following: The zone controller shall generate one, and only one, UTM for every vehicle passage through the toll zone.		Yes				
219	8.1.3.9.	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				
220	8.1.3.9.	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				
221	8.1.3.9.	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				

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222	8.1.3.9.	The zone controller shall read data from and write data to portable storage media devices.		Yes				
223	8.1.3.9.	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				
224	8.1.3.9.	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				
225	8.1.3.9.	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				
226	8.1.3.9.	The zone controller shall be externally controlled from authenticated nodes on the network such as the Toll Host.		Yes				
227	8.1.3.9.	The zone controller shall be capable of comparing the vehicle class measured by AVC equipment to any vehicle class programmed on the transponder.		Yes				
228	8.1.3.9.	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				
229	8.1.3.9.	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				
230	8.1.3.9.	The zone controller shall read ETC transponder information indicated in the interface specifications provided by the AVI equipment provider.		Yes				
231	8.1.3.9.	The zone controller shall report all events and messages created regardless of the status or operational mode of the lane.		Yes				
232	8.1.3.9.	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				
233	8.1.3.9.	The zone controller shall have sufficient performance capability to handle all Lane processes without degradation.		Yes				
234	8.1.3.9.	The zone controller shall support future upgrades to processors, memory, storage and operating system.		Yes				
235	8.1.3.9.	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				
236	8.1.3.9.	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				
237	8.1.3.9.	The zone controller shall provide sufficient data storage to meet all operational requirements.		Yes				
238	8.1.3.9.	The zone controller shall contain the latest generation of compatible processors at the time of Detailed Design Document approval.		Yes				
239	8.1.3.9.	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				
240	8.1.3.9.	The zone controller shall transmit all transactions, images, diagnostic messages or other maintenance information via a secure port and network connection.		Yes				
241	8.1.3.9.	All zone controllers shall use TCP/IP, or approved equivalent.		Yes				
242	8.1.3.9.	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				
243	8.1.3.9.	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				
244	8.1.3.10.	General TCS Operations		N/A				
245	8.1.3.10.	The SYSTEM shall generally, operate unattended. However, the requirements in this section shall allow authorized remote operators to perform certain functions.		Yes				
246	8.1.3.10.	The SYSTEM shall allow remote operators to review in real-time the most recent 100 transactions for each lane and travel shoulder.		Yes				
247	8.1.3.10.	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				
248	8.1.3.10.	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				
249	8.1.3.10.	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				
250	8.1.3.10.	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				
251	8.1.3.11.	License Plate Image Review		N/A				
252	8.1.3.11.	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				
253	8.1.3.11.	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				
254	8.1.3.11.	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				
255	8.1.3.11.	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				
256	8.1.3.11.	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				
257	8.1.3.12.	TCS Host		N/A				
258	8.1.3.12.1.	Host Functionality		N/A				
259	8.1.3.12.1.	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				

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260	8.1.3.12.1.	The TSI shall provide the software, hardware, and personnel needed to support the TCS Host requirements specified herein.		Yes				
261	8.1.3.12.1.	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				
262	8.1.3.12.1.	The TCS Host shall maintain the Toll Rate Schedule and determine the toll rate to be charged to each transaction.		Yes				
263	8.1.3.12.1.	Access controls shall be administered and controlled by a TCS Host that performs the functions detailed in the following sections.		Yes				
264	8.1.3.12.1.	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				
265	8.1.3.12.1.	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				
266	8.1.3.12.2.	User Access Management		N/A				
267	8.1.3.12.2.	The TCS Host shall provide User Access Management controls to manage and configure application access.		Yes				
268	8.1.3.12.2.	The TCS Host shall support the following controls and configurations: • Add/Delete/Modify User Profile and User Groups		Yes				
269	8.1.3.12.2.	The TCS Host shall support the following controls and configurations: • Add/Delete/Modify Host User Access		Yes				
270	8.1.3.12.2.	The TCS Host shall support the following controls and configurations: • Add/Delete/Modify AET Toll Zone User Access		Yes				
271	8.1.3.12.2.	The TCS Host shall support the following controls and configurations: • Administrative and User Password Management		Yes				
272	8.1.3.12.2.	The TCS Host shall support the following controls and configurations: • Logging of all system access and modification of access.		Yes				
273	8.1.3.12.3.	Transponder Status File Management		N/A				
274	8.1.3.12.3.	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				
275	8.1.3.12.3.	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				
276	8.1.3.12.4.	Toll Rate Management		N/A				
277	8.1.3.12.4.	The TCS Host shall support and define the toll rate schedule.		Yes				
278	8.1.3.12.4.	The TCS Host shall support user configurable differential toll rate schedule(s) for: • Transponder and image based transactions.		Yes				
279	8.1.3.12.4.	The TCS Host shall support user configurable differential toll rate schedule(s) for: • Discount plans of the Authority.		Yes				
280	8.1.3.12.4.	The TCS Host shall assign toll rates prior to sending the transactions over to the BOS.		Yes				
281	8.1.3.12.4.	Only authorized users shall create or modify the toll rate schedule in the TCS Host.		Yes				
282	8.1.3.12.4.	Each toll rate schedule shall have an effective begin and end date.		Yes				
283	8.1.3.12.4.	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				
284	8.1.3.12.4.	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				
285	8.1.3.12.5.	Toll Rate Schedule		N/A				
286	8.1.3.12.5.	The Claiborne Pell Bridge's Toll Rate Schedule is referenced in Table 1-4 in Section 1.1.4.		N/A				
287	8.1.3.12.5.	Valid ETC transponders shall be charged in accordance with the Authority's TCS Business Rules (see Appendix A).		Yes				
288	8.1.3.12.5.	Image based tolls shall be charged in accordance with the Authority's TCS Business Rules (see Appendix A).		Yes				
289	8.1.3.12.5.	Valid transponders on Authority discount plans shall be charged in accordance with the Authority's TCS Business Rules (see Appendix A).		Yes				
290	8.1.3.12.5.	The Toll Rate Schedule shall be stored so that the Authority can easily modify changes to the existing Toll Rate Schedule.		Yes				
291	8.1.3.12.5.	The TCS Host shall be capable of accepting or being configured to accommodate changes or additions to the Authority's discount plans.		Yes				
292	8.1.3.12.6.	Transponder Transaction Processing		N/A				
293	8.1.3.12.6.	The TCS Host shall send all ETC transponder-based transactions to the BOS for processing.		Yes				
294	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				
295	8.1.3.12.6.	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				
296	8.1.3.12.6.	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				
297	8.1.3.12.6.	The Authority also maintains several discount rate plans specific to Authority-issued transponders that require pre-registration in the BOS.		N/A				
298	8.1.3.12.6.	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				
299	8.1.3.12.6.	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 https://www.ezpassritba.com/StaticContent/Page?viewName=PlanInfo .		Yes				
300	8.1.3.12.6.	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				
301	8.1.3.12.6.	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				

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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).		
302	8.1.3.12.6.	The TCS shall flag oversize vehicles where dimension limitations are exceeded. Refer to the linked restrictions. Oversize & Overwide Rhode Island Turnpike and Bridge Authority (ritba.org) . The flag will be populated in the Tag Transaction File sent to the BOS for transaction processing.		Yes				
303	8.1.3.12.6.	The TCS Host shall assign a primary and secondary transponder(s) to the transaction when two or more transponders are read.		Yes				
304	8.1.3.12.6.	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				
305	8.1.3.12.6.	The tag priority rules will be finalized during the SYSTEM design phase with the TSI.		Yes				
306	8.1.3.12.7.	Host Administration Functions		N/A				
307	8.1.3.12.7.	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				
308	8.1.3.12.7.	The TCS Host administration system controls and configurations shall be available from any authorized workstation connected to the TCS Network.		Yes				
309	8.1.3.12.7.	The TCS Host administration system controls and configurations shall require a secure login and provide role-based access to different levels and features.		Yes				
310	8.1.3.12.7.	The TCS Host shall support the following administrative functions: • Real-time Monitoring		Yes				
311	8.1.3.12.7.	The TCS Host shall support the following administrative functions: • Remote Lane Management		Yes				
312	8.1.3.12.7.	The TCS Host shall support the following administrative functions: • TCS Controls and Configuration Management		Yes				
313	8.1.3.12.7.	All administrator functions may be performed by the Authority and the TSI in accordance with the Authority's technology access and security policies.		Yes				
314	8.1.3.12.8.	Real-Time Monitoring		N/A				
315	8.1.3.12.8.	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				
316	8.1.3.12.8.	This functionality shall be available from any workstation that connects to the TCS network.		Yes				
317	8.1.3.12.8.	Monitoring shall indicate lane status for all toll lanes.		Yes				
318	8.1.3.12.8.	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				
319	8.1.3.12.8.	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				
320	8.1.3.12.8.	The overall design and layout of the real-time monitoring screen shall be designed with ease of use and simplicity in mind.		Yes				
321	8.1.3.12.8.	Summary data by payment type for the Toll Bridge shall be displayed.		Yes				
322	8.1.3.12.8.	Users shall have the ability to drill down to the details of the lane level or to individual transactions.		Yes				
323	8.1.3.12.8.	Users shall be able to easily identify problems (traffic or equipment) in the toll lanes.		Yes				
324	8.1.3.12.8.	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				
325	8.1.3.12.8.	Data pertinent to traffic monitoring and maintenance shall be displayed in real-time.		Yes				
326	8.1.3.12.8.	In addition to the varying levels of monitoring, the real-time monitor shall allow for the real-time overview of lane activity.		Yes				
327	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Unique transaction ID;		Yes				
328	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Lane ID;		Yes				
329	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Lane Status (open/closed/degraded);		Yes				
330	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Previous Vehicle Classification;		Yes				
331	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Previous Vehicle Fare;		Yes				
332	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Current Vehicle Classification;		Yes				
333	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Transponder ID;		Yes				
334	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Transponder Status;		Yes				
335	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Current Vehicle Fare		Yes				
336	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Vehicle Speed		Yes				
337	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Oversize Vehicle Flag; and		Yes				
338	8.1.3.12.8.	The real-time overview should provide the following on-screen information: • Unusual Occurrence.		Yes				
339	8.1.3.12.9.	Remote Lane Management		N/A				
340	8.1.3.12.9.	The TCS Host shall provide functionality to remotely operate and manage devices in the toll lanes.		Yes				
341	8.1.3.12.9.	Remote Lane Management shall be available to any authorized user from any workstation that is allowed access to the TCS Network.		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).		
342	8.1.3.12.9.	The Remote Lane Management functions in the TCS Host shall be user friendly and intuitive.		Yes				
343	8.1.3.12.10.	Audit and Reconciliation		N/A				
344	8.1.3.12.10.	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				
345	8.1.3.12.10.	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				
346	8.1.3.12.10.	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				
347	8.1.3.12.10.	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				
348	8.1.3.12.10.	The TSI shall provide the details on reconciliation of data transmitted across each external system interface with the TCS Host.		Yes				
349	8.1.3.12.10.	The TSI shall work with the Authority to assure that all audit requirements are addressed.		Yes				
350	8.1.3.12.10.	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				
351	8.1.3.12.10.	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				
352	8.1.3.12.11.	TCS to BOS Reconciliation		N/A				
353	8.1.3.12.11.	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				
354	8.1.3.12.12.	Audit Trends		N/A				
355	8.1.3.12.12.	The TCS Host shall provide user-defined trend reporting information to identify patterns that could be indicators of equipment or operational problems.		Yes				
356	8.1.3.12.13.	TCS to BOS Interface		N/A				
357	8.1.3.12.13.	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				
358	8.1.3.12.13.	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				
359	8.1.3.12.13.	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 ATTACHMENT D - EXISTING RITBA INTERFACE CONTROL DOCUMENT). The new TCS-BOS ICD shall incorporate both the RITBA and RIDOT elements, similar to the existing TCS_BOS ICD, such that the new RITBA BOS uses the same TCS-BOS ICD for both RITBA and RIDOT. 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 - PROPOSED CHANGES TO THE EXISTING RITBA ICD FOR THE NEW TCS-BOS INTERFACE.		Yes				
360	8.1.3.12.14.	TCS Host Reports		N/A				
361	8.1.3.12.14.	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				
362	8.1.3.12.14.	Specific reports will be determined during the SYSTEM design workshops with the TSI.		Yes				
363	8.1.3.12.14.	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				
364	8.1.3.12.14.	The location selection criteria shall include plaza, lane, and direction of travel.		Yes				
365	8.1.3.12.14.	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				
366	8.1.3.12.14.	Users shall have the ability to sort the data by any field type and apply filters to select specific field types to display.		Yes				
367	8.1.3.12.14.	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				
368	8.1.3.12.14.	The TSI shall provide the Authority with the capability to manipulate the report data to perform comparative analysis and statistical calculations.		Yes				
369	8.1.3.12.14.	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				
370	8.1.3.12.14.	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				
371	8.1.3.12.14.	Ad-hoc report templates created by authorized users shall be made available to all authorized users.		Yes				
372	8.1.3.12.14.	All reports shall include individual totals, sub-totals, and grand-totals as appropriate.		Yes				
373	8.1.3.12.14.	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				
374	8.1.3.12.14.	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				

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375	8.1.3.12.14.	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				
376	8.1.3.12.14.	The TCS Host shall have ability to schedule trending reports for various transaction types, unusual occurrence items and system alerts.		Yes				
377	8.1.3.12.14.	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"> • Transaction serial number • Transaction date • Transaction type (transponder, image based, or discount plan) • AET toll zone/lane (possibly both separately) • AVC vehicle class • Full fare • Applied fare • Transponder agency • Transponder serial number • Transponder status • Transponder class • License plate image serial number • License plate state • License plate number • License plate type 		Yes				
378	8.1.3.12.14.	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				
379	8.1.3.12.14.	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				
380	8.1.3.12.14.	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				
381	8.1.3.12.14.	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				
382	8.1.3.12.14.	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				
383	8.1.3.12.14.	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				
384	8.1.3.12.14.	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				
385	8.1.3.12.14.	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				
386	8.1.3.12.14.	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				

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387	8.1.3.12.14.	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				
388	8.1.3.12.14.	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				
389	8.1.3.12.14.	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				
390	8.1.3.12.14.	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				
391	8.1.3.12.14.	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				
392	8.1.3.12.14.	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				
393	8.1.3.12.15.	Standalone Capabilities		N/A				
394	8.1.3.12.15.	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				
395	8.1.3.12.15.	Upon restoration of communications, the TCS Host shall send and receive all buffered data to/from the BOS.		Yes				
396	8.1.3.12.15.	The TCS Host shall generate a report to track/audit what stored transaction and image data was sent.		Yes				
397	8.1.3.12.16.	TCS Host Hardware, Software, and Infrastructure Requirements		N/A				
398	8.1.3.12.16.	The TSI shall provide all the hardware, software and network specifications to support the TCS Host and its required functionality.		Yes				
399	8.1.3.12.16.	The TCS Host shall be a clustered system resource with high availability that avoids single points of failure.		Yes				
400	8.1.3.12.16.	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				
401	8.1.3.12.16.	The TCS Host configuration shall include all cabinets and ancillary equipment to provide a complete, secure and reliable system.		Yes				
402	8.1.3.12.16.	The server configurations shall have redundancy to support the TCS's availability requirements.		Yes				
403	8.1.3.12.16.	Servers shall be specified, designed and configured to support DR procedures and ensure data security.		Yes				
404	8.1.3.12.16.	All TCS servers, including all major hardware elements, shall be of the latest design and shall incorporate standard commercial products currently in production.		Yes				
405	8.1.3.12.16.	All TCS equipment shall be new.		Yes				
406	8.1.3.12.16.	The TSI shall use proven server configurations that support future upgrades to processors, memory, storage, operating system, database, etc.		Yes				
407	8.1.3.12.16.	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				
408	8.1.3.12.16.	Server virtualization is encouraged to leverage and achieve fault tolerance, redundancy and fast recovery during failures.		Yes				
409	8.1.3.12.17.	TCS Host Operating System		N/A				
410	8.1.3.12.17.	The operating system(s) for the TCS shall consist of a multi-user, multi-tasking operating system.		Yes				
411	8.1.3.12.17.	The operating system shall support all peripherals defined in these requirements.		Yes				
412	8.1.3.12.17.	The operating system shall also support the proposed communications architecture, redundant configuration, database software, and TSI's application software.		Yes				
413	8.1.3.12.17.	The TSI shall obtain all licenses required in the name of the Authority.		Yes				
414	8.1.3.12.17.	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				
415	8.1.3.12.17.	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				
416	8.1.3.12.17.	Any operating system(s) shall have a planned upgrade path throughout the life of the Contract.		Yes				
417	8.1.3.12.17.	The proposed operating system(s) shall be covered under warranty during the Warranty Period.		Yes				

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418	8.1.3.12.17.	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				
419	8.1.3.12.18.	TCS Host System Database		N/A				
420	8.1.3.12.18.	The TCS Host System is a critical system that is directly linked to financial viability of the Toll Bridge and its operations.		N/A				
421	8.1.3.12.18.	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				
422	8.1.3.12.18.	The TSI shall use an industry standard, robust, highly available Relational Database Management System (RDBMS) that is field proven in toll collection environments.		Yes				
423	8.1.3.12.18.	The Host System database shall provide the common functionality, elements and capabilities encountered in commercially available relational databases.		Yes				
424	8.1.3.12.19.	TCS Host Security Requirements		N/A				
425	8.1.3.12.19.	The TSI shall adhere to the following security requirements at a minimum related to the TCS Host: • The TSI shall employ security measures ensuring that all application(s) and data are protected;		Yes				
426	8.1.3.12.19.	The TSI shall adhere to the following security requirements at a minimum related to the TCS Host: • 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		Yes				
427	8.1.3.12.19.	The TSI shall adhere to the following security requirements at a minimum related to the TCS Host: • 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.		Yes				
428	8.1.3.12.19.	The TSI shall adhere to the following security requirements at a minimum related to the TCS Host: • The TSI shall comply with the cybersecurity requirements set forth by the U.S. Department of Commerce National Institute of Standards and Technology (https://www.nist.gov/cyberframework) as well as the U.S. Department of Homeland Security Transportation Systems Subsector (https://www.cisa.gov/sites/default/files/publications/tss-cybersecurity-framework-implementation-guide-2016-508v2_0.pdf)		Yes				
429	8.1.3.13.	FCC Licensing		N/A				
430	8.1.3.13.	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				
431	8.1.3.13.	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				
432	8.1.3.14.	Maintenance Management System (MMS)		N/A				
433	8.1.3.14.	The MMS shall: • Monitor and collect data on SYSTEM and equipment statuses continually (24 hours a day, 7 days a week).		Yes				
434	8.1.3.14.	The MMS shall: • 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.		Yes				
435	8.1.3.14.	The MMS shall: • 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.		Yes				
436	8.1.3.14.	The MMS shall: • 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.		Yes				
437	8.1.3.14.	The MMS shall: • Support the generation of ad-hoc work orders by authorized users. Work orders are to be completed and closed out by the TSI.		Yes				
438	8.1.3.14.	The MMS shall: • 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.		Yes				
439	8.1.3.14.	The MMS shall: • Automatically alert maintenance staff once a work order has been generated.		Yes				
440	8.1.3.14.	The MMS shall: • Support the assignment of maintenance priority levels based on the SYSTEM configurable combination of severity level, facility, day and time.		Yes				
441	8.1.3.14.	The MMS shall: • Track mean time between failures (MTBF) for all SYSTEM elements.		Yes				
442	8.1.3.14.	The MMS shall: • Track component failure rates with error logs, historical tracking of errors, and repair histories for all TSI-provided equipment.		Yes				
443	8.1.3.14.	The MMS shall: • Allow authorized users access to the MMS from Authority workstations.		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).		
444	8.1.3.14.	The MMS shall: • Track spares and inventory levels including serial numbers and associated warranty information for installed equipment and inventoried equipment.		Yes				
445	8.1.3.14.	The MMS shall: • Be accessible by the Authority in the event of an internet communication outage.						
446	8.1.3.15.	Communications		N/A				
447	8.1.3.15.	The TSI shall follow the Authority's requirements for all equipment and systems connected to the Authority's Enterprise Network.		Yes				
448	8.1.3.15.	The Authority will provide and maintain firewalls at every SYSTEM connection point into the Authority's WAN.		N/A				
449	8.1.3.15.	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				
450	8.1.3.15.	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				
451	8.1.3.15.	The TSI/SYSTEM shall: • Monitor and manage equipment and Systems using a Simple Network Management Protocol (SNMP) monitoring tool.		Yes				
452	8.1.3.15.	• The SYSTEM shall operate with no loss of data.		Yes				
453	8.1.3.15.	• Provide for redundant network switches and power supplies.						
454	8.1.3.15.	• 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				
455	8.1.3.15.	• 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				
456	8.1.3.16.	AVI Roadside Equipment Enclosures		N/A				
457	8.1.3.16.	The Authority will provide the concrete base for the AVI roadside equipment enclosures which will house the AVI SYSTEM equipment installed at or near the toll zones.		N/A				
458	8.1.3.16.	The TSI shall provide, install, monitor and maintain the AVI roadside equipment enclosures, in addition to the HVAC equipment for all AVI roadside equipment enclosures.		Yes				
459	8.1.3.16.	The TSI shall provide the specifications for the Authority to construct the supporting infrastructure to mount the AVI equipment roadside enclosures (such as concrete bases) as well as the supporting infrastructure between the non-AVI equipment building and the AVI roadside equipment enclosures and the toll gantry(s) (such as conduits).		Yes				
460	8.1.3.17.	Data Storage		N/A				
461	8.1.3.17.	The SYSTEM shall: • Store lane transactions at the toll zone for a minimum of 30 days and at the TCS Host in accordance with the Authority's data retention schedule.		Yes				
462	8.1.3.17.	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 30 days. Store images at the TCS Host in accordance with the Authority's data retention schedule.		Yes				
463	8.1.3.17.	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				
464	8.1.3.17.	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				
465	8.1.3.18.	Reporting Server		N/A				
466	8.1.3.18.	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				
467	8.1.3.18.	This "Reporting Server" shall be kept synchronized with the TCS Host database using software replication techniques no less than every 24 hours.		Yes				
468	8.1.3.18.	This server is not to be proposed as a disaster recovery site.		Yes				
469	8.1.3.18.	All reports provided by the TSI to run on the Host shall also be installed and operate on the Reporting Server.		Yes				
470	8.1.3.18.	To limit bandwidth utilization, the Reporting Server shall be located with the TCS Host.		Yes				
471	8.1.3.19.	Data Security and Accountability		N/A				
472	8.1.3.19.	Only authorized personnel will have access to information on the SYSTEM computers and network.		Yes				
473	8.1.3.19.	Access to any system, sub-system, function or directory requires a valid user account with assigned access privileges and controls.		Yes				
474	8.1.3.19.	A user account is locked if the number of failed login attempts exceeds a configurable account lock threshold.		Yes				
475	8.1.3.19.	Pre-defined "roles" shall have varying levels of access to selected applications, screens, forms, files, and directories.		Yes				
476	8.1.3.19.	Only certain "roles" shall have the ability to change access levels for "roles" and individuals.		Yes				
477	8.1.3.19.	Only authorized personnel with appropriate system privileges can change or override toll rates.		Yes				
478	8.1.3.19.	The SYSTEM will not allow any data to be deleted from a SYSTEM record.		Yes				
479	8.1.4.	TCS Technical Requirements		N/A				
480	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				

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481	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				
482	8.1.4.1.	Physical Environmental Conditions		N/A				
483	8.1.4.1.	The SYSTEM components will be installed in three physical environments: a. Exterior. All locations outside of environmentally controlled buildings. b. Roadside Enclosures. Inside of enclosures located at the toll zones. c. Building Interiors. Inside environmentally controlled buildings.		Yes				
484	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				
485	8.1.4.2.	Hardware		N/A				
486	8.1.4.2.	The TSI shall follow Authority requirements for all hardware installed on Authority property.		Yes				
487	8.1.4.2.	The TSI shall: • Provide equipment and work in conformance with the current applicable codes, standards, and guidelines including: a. National Electrical Code (NEC); b. National Electrical Contractors Association (NECA) codes and standards; c. Occupational Safety and Health Act (OSHA) standards; d. National Fire Protection Association (NFPA) codes and standards; e. National Electrical Manufacturers Association (NEMA) standards; f. American Society for Testing and Materials (ASTM) International standards; g. Institute of Electrical and Electronics Engineers (IEEE) standards, including National Electrical Safety Code (NESC); h. Electronic Industries Association (EIA) standards for interface and intercommunication; i. Underwriters Laboratories (UL) standards; and j. State of Rhode Island standards.		Yes				
488	8.1.4.2.	The TSI shall: • 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.		Yes				
489	8.1.4.2.	The TSI shall: • 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.		Yes				
490	8.1.4.2.	The TSI shall: • 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.		Yes				
491	8.1.4.2.	The TSI shall: • 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.		Yes				
492	8.1.4.2.	The TSI shall: • 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 non-AVI equipment building and the AVI equipment roadside enclosures, but electrical work on the gantry is the responsibility of the TSI.		Yes				
493	8.1.4.2.	The TSI shall: • 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.		Yes				
494	8.1.4.2.	The TSI shall: • Provide grounding Systems in accordance with NEC requirements.		Yes				
495	8.1.4.2.	The TSI shall: • Provide surge and lightning protection in accordance with applicable NEC, Authority, UL, and NFPA specifications and standards.		Yes				
496	8.1.4.3.	Software		N/A				
497	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				
498	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				
499	8.1.4.3.	The Authority prefers software based on open source/open architecture.		Yes				
500	8.1.4.3.	The Authority prefers the use of COTS software to the maximum extent possible.		Yes				
501	8.1.4.3.	To the extent possible, the Development Environment(s) shall be on the same software versions as the Production Environment, except when testing new software.		Yes				
502	8.2.	Communications and Network Equipment		N/A				
503	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				

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504	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				
505	8.2.	At the minimum, the TSI shall be responsible for the following: (1) Providing and maintaining all network communications with the SYSTEM.		Yes				
506	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				
507	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				
508	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				
509	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				
510	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				
511	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				
512	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				
513	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				
514	8.3.	Back-Up Power		N/A				
515	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				
516	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				
517	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				
518	8.4.	Data Center		N/A				
519	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				
520	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				
521	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				
522	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				
523	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				
524	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 - EXISTING PRIMARY DATA CENTER RACK SPACE. 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				
525	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				
526	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				
527	8.4.	The TSI shall work with the Authority to size the bandwidth required to meet the SYSTEM performance requirements.		Yes				
528	8.4.	The TSI must ensure that the SYSTEM complies with all industry accepted security practices.		Yes				
529	8.5.	Data Management, Storage, and Retention		N/A				
530	8.5.	The TSI shall comply, at a minimum, with the following back-up and data retention requirements for the SYSTEM: Back-up • 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				

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531	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> • 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				
532	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> • At a minimum, data shall be backed up nightly, with one daily for differential, and one weekly for full data back-up.		Yes				
533	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				
534	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				
535	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				
536	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				
537	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				
538	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				
539	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				
540	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				
541	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				
542	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				
543	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				

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544	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				
545	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				
546	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				
547	8.6.	Data Security and Accountability		N/A				
548	8.6.	The SYSTEM shall include features to assure the security and integrity of all data collected and processed by the SYSTEM.		Yes				
549	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				
550	8.6.	Communication transmissions to and from the SYSTEM shall employ a reliable means of confirming sent data is accurately sent and received.		Yes				
551	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				
552	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				
553	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				
554	8.6.	The SYSTEM shall provide varying user-access levels that are assigned by a qualified and experienced system administrator.		Yes				
555	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				
556	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				
557	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				
558	8.6.	Any vulnerabilities shall be immediately reported to the Authority along with any recommended patches, upgrades and enhancements to the SYSTEM.		Yes				
559	8.6.	The TSI shall perform periodic cyber security testing and vulnerability assessments to be planned and coordinated with the Authority.		Yes				
560	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				
561	8.7.	Maintenance		N/A				
562	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				
563	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				
564	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				
565	8.7.	Until System Acceptance the TSI shall have personnel on site during all normal business hours.		Yes				
566	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				
567	8.7.1.	Maintenance Support Services		N/A				

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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).		
568	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"> • Tier 1 – On-Site Support: 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				
569	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"> • Tier 2 – Local Support: 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. • 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. 		Yes				
570	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"> • Tier 3 – Off-Site TSI Support: 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. 		Yes				
571	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"> • Tier 4 – On-Site TSI Support: 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&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. 		Yes				
572	8.7.2.	Maintenance Plan		N/A				
573	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				
574	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				
575	8.7.2.	The Maintenance Plan shall provide details on each routine maintenance activity including its scope, frequency, and anticipated duration for completion.		Yes				
576	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				
577	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				
578	8.7.2.	Spare parts inventory management shall also be addressed.		Yes				
579	8.7.3.	General Maintenance Requirements		N/A				
580	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				
581	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				
582	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				
583	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				
584	8.7.4.	Software and Firmware Maintenance		N/A				
585	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				
586	8.7.4.	The TSI shall keep all software instances (development, test, disaster recovery and production) at the same configuration and patch level.		Yes				

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587	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				
588	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				
589	8.7.4.	All changes to the system, of any kind, shall be approved by the Authority prior to implementation.		Yes				
590	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				
591	8.7.5.	Software Upgrades and Enhancements		N/A				
592	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				
593	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 Change Request process and coordinated through the Authority's Information Technology Department.		Yes				
594	8.7.6.	Hardware Maintenance		N/A				
595	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				
596	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				
597	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				
598	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				
599	8.7.7.	Preventive Maintenance		N/A				
600	8.7.7.	The TSI shall provide a schedule for all preventive maintenance on all SYSTEM hardware, software and firmware.		Yes				
601	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				
602	8.7.8.	Network Equipment and Electronic Communications Maintenance		N/A				
603	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				
604	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				
605	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				
606	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				
607	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				
608	8.7.9.	Emergency Maintenance Support		N/A				
609	8.7.9.	The SYSTEM monitoring functions should automatically identify any issues related to SYSTEM hardware, software, network communications, and other SYSTEM components.		Yes				
610	8.7.9.	The TSI shall provide a 24x7x365 Help Desk to identify and resolve emergency requests for SYSTEM maintenance.		Yes				
611	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				
612	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				
613	8.7.10.	Operations Support		N/A				

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614	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				
615	8.7.11.	Spares and Asset Management		N/A				
616	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				
617	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				
618	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				
619	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				
620	8.7.12.	Monthly Maintenance Report		N/A				
621	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				
622	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 (MTTR) calculations, including exceptions and justifications		Yes				
623	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				
624	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				
625	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				
626	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				
627	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				
628	8.7.12.	The Authority must approve format and content of the MMR prior to first submittal.		Yes				
629	8.8.	System Release Notes		N/A				
630	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				
631	8.8.	An updated set of System Release Notes shall also be provided for any SYSTEM updates during the Warranty and Maintenance phases.		Yes				
632	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				
633	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				
634	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				
635	8.9.	Key Performance Indicators (KPI)		N/A				
636	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				
637	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				
638	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				
639	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				

Attachment A - Requirements Conformance Matrix

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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).		
640	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				
641	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				
642	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				
643	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				
644	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				
645	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				
646	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				
647	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"> • Collect historical data <ul style="list-style-type: none"> 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"> 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. ii. Extract exact period that conforms to system loss-of-revenue period • Average collected data <ul style="list-style-type: none"> a. Add individual daily historical revenue amounts that conform to the collected historical data requirements above b. Divide by four (4), the number of days for which historical data is selected (see above) c. The resulting average is Expected Revenue as defined above, and shall be considered lost revenue for this application of damages 		Yes				
648	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				
649	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				
650	8.9.	Any resulting modifications to the KPIs would be subject to approval by the Authority.		Yes				
651	8.9.1.	KPIs – Milestone Conformance		N/A				
652	8.9.1.	Refer to Table 8-2.		Yes				
653	8.9.2.	KPIs – Availability		N/A				
654	8.9.	Refer to Table 8-3.		Yes				
655	8.9.3.	KPIs – Accuracy		N/A				
656	8.9.3.	Refer to Table 8-4.	Yes	Yes				
657	8.9.4.	KPIs – Timeliness		N/A				
658	8.9.4.	Refer to Table 8-5.		Yes				
659	8.9.5.	KPI Liquidated Damages Example Calculations		N/A				
660	8.10.	Project Execution Requirements		N/A				
661	8.10.1.	Project Management Plan		N/A				
662	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				
663	8.10.1.1.	Program Management Plan		N/A				
664	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				
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"> • Project Communication; 		Yes				
666	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"> • Primary Project Responsibility; 		Yes				
667	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"> • A Risk Register that identifies all risks and details how the risks will be managed and mitigated; 		Yes				
668	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"> • Subcontractor Management and Coordination; 		Yes				
669	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"> • Progress Scheduling (Critical Path Method [CPM] based); 		Yes				
670	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"> • Progress Reporting and Coordination with the Authority; 		Yes				

Attachment A - Requirements Conformance Matrix

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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).		
671	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: • Testing;		Yes				
672	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: • Design and Design Reviews;		Yes				
673	8.10.1.1.	The Management Plan shall address how the TSI shall manage the following elements of the Project: • On-Site Installation; and		Yes				
674	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				
675	8.10.1.2.	Responsibilities Matrix		N/A				
676	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				
677	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				
678	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				
679	8.10.2.	Configuration Management Plan		N/A				
680	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				
681	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				
682	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				
683	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				
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 Project Communication;		Yes				
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 Primary Project Responsibilities;		Yes				
686	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				
687	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				
688	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				
689	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				
690	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				
691	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				

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692	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				
693	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				
694	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • Requirements Management;		Yes				
695	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • Deviation and Specification Change Requests;		Yes				
696	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • Data Management;		Yes				
697	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • Configuration Audits (functional and physical);		Yes				
698	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • Acceptance Requirements for Installed Systems;		Yes				
699	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Control:</u> • Testing Requirements for Installed Systems.		Yes				
700	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting:</u> • Document Control and the Library Function;		Yes				
701	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting:</u> • Accepted Documents;		Yes				
702	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting:</u> • Revision History for Documents;		Yes				
703	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting:</u> • Physical Item Content;		Yes				
704	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting:</u> • Physical Item Where Used;		Yes				
705	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting:</u> • Status of Changes;		Yes				
706	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting:</u> • Changes by Product/Serial Number;		Yes				
707	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting:</u> • Results of Configuration Audits;		Yes				
708	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				
709	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting:</u> • Revision Status of Installed Systems;		Yes				
710	8.10.2.	The Configuration Management Plan shall address the following areas: <u>Configuration Accounting:</u> • Version Control.		Yes				
711	8.10.3.	Project Schedule		N/A				
712	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				
713	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				
714	8.10.4.	Meetings and Reports		N/A				
715	8.10.4.1.	Project Kick-Off and Work Progress		N/A				
716	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				
717	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				

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718	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				
719	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				
720	8.10.4.2.	Workshops		N/A				
721	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				
722	8.10.5.	Submittals		N/A				
723	8.10.5.1.	Plans and Requirements		N/A				
724	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				
725	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 deliveries 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				
726	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				
727	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				
728	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				
729	8.10.5.1.	When possible, documents shall be formatted to be printed on letter size sheets.		Yes				
730	8.10.5.1.	All design drawings submitted by the TSI shall be submitted in Adobe PDF.		Yes				
731	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				
732	8.10.5.1.	The TSI shall update all relevant system documentation to correct errors at no cost to the Authority.		Yes				
733	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				
734	8.10.5.1.	Each document shall go through an internal 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				
735	8.10.6.	Quality Assurance Program and Quality Management Plan		N/A				
736	8.10.6.	The TSI shall establish and maintain an effective QA Program to ensure compliance with all of the Contract requirements. The TSI's QA Program shall be documented in the Quality Management Plan and submitted for review and approval to the Authority in accordance with the approved Project schedule.		Yes				
737	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				
738	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				

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739	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				
740	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				
741	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				
742	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 Management 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				
743	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 Management 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				
744	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 Management Plan: • Procedures to ensure that work is performed according to the QA Plan and Contract requirements.		Yes				
745	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 Management 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				
746	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 Management 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				
747	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 Management 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				
748	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 Management Plan: • A Change Order Tracking System for documenting and tracking change order requests and their status for the Project duration.		Yes				
749	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				
750	8.10.7.	Phase I – Design Requirements		N/A				
751	8.10.7.1.	Toll Zone Design		N/A				
752	8.10.7.1.	The TSI shall prepare preliminary engineering toll zone design drawings as part of their proposal for the Authority. These preliminary designs would be used as a basis for developing final toll zone engineering design drawings in 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 gantry designs for the preliminary engineering design drawings submittal.		Yes				
753	8.10.7.1.	These preliminary engineering toll zone design 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 prefers a single gantry configuration and will not accept a toll zone design of more than two gantries. The proposed gantry design should conform to the Authority's preliminary gantry location shown in ATTACHMENT F - PRELIMINARY GANTRY LOCATION. Respondents shall be aware that this is an approximate gantry location to be finalized during Final Design, with the Authority and the Selected Respondent.		Yes				
754	8.10.7.1.	These preliminary engineering toll zone design drawings shall include the following: • AET tolling equipment and mounting infrastructure		Yes				
755	8.10.7.1.	These preliminary engineering toll zone design drawings shall include the following: • AVI equipment to be located in roadside enclosures provided by the Respondent (RFID readers)		Yes				
756	8.10.7.1.	These preliminary engineering toll zone design drawings shall include the following: • Non-AVI equipment to be located in a roadside building provided by the Authority (e.g., zone controllers, UPSs, power supplies, other electronics)		Yes				
757	8.10.7.1.	These preliminary engineering toll zone drawings shall include the following: • DVAS camera mounting infrastructure		Yes				
758	8.10.7.1.	These preliminary engineering toll zone drawings shall include the following: • Proposed equipment layout (e.g., overhead equipment layout, side fire equipment layout)		Yes				
759	8.10.7.1.	These preliminary engineering toll zone drawings shall include the following: • Conduit runs (e.g., for power, backup power, communications)		Yes				
760	8.10.7.1.	Once under contract, the TSI shall support the Authority's Engineering Design Consultant to prepare final toll zone engineering drawings and detailed construction plans and specifications, which shall be submitted to the Authority's Director of Engineering for review and approval.		Yes				

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761	8.10.7.2.	SYSTEM Design Reviews		N/A				
762	8.10.7.2.1.	Business Rules Review		N/A				
763	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				
764	8.10.7.2.2.	Detailed Design Review		N/A				
765	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				
766	8.10.7.2.2.1.	Requirements Traceability Matrix		N/A				
767	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				
768	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				
769	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				
770	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				
771	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				
772	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				
773	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				
774	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				
775	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				
776	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				
777	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				
778	8.10.7.2.2.2.	Detailed Design Document		N/A				
779	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				
780	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				
781	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				
782	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				
783	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				
784	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				
785	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				

Attachment A - Requirements Conformance Matrix

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786	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				
787	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				
788	8.10.7.2.2.2.	The Detailed Design Documentation (DDD) shall include detailed information on the design of the SYSTEM, including: j. Report formats;		Yes				
789	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				
790	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				
791	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				
792	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				
793	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				
794	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				
795	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				
796	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				
797	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				
798	8.10.7.2.2.3.	Reports Detailed Design Document		N/A				
799	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: a. Introduction and audience;		Yes				
800	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: b. General reporting procedures;		Yes				
801	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: c. Content selection;		Yes				
802	8.10.7.2.2.3.	The Reports Detailed Design Document (RDDD) shall contain the following types of information: d. Access control;		Yes				
803	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				
804	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				
805	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				
806	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				
807	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				
808	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				
809	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				
810	8.10.8.	Phase II – Implementation Requirements		N/A				
811	8.10.8.1.	Development		N/A				

Attachment A - Requirements Conformance Matrix

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812	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				
813	8.10.8.2.	Testing / Test Plan		N/A				
814	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				
815	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				
816	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				
817	8.10.8.2.1.	Master Test Plan		N/A				
818	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				
819	8.10.8.2.2.	Test Procedures		N/A				
820	8.10.8.2.2.	All formal test procedures shall conform to the standards defined in the MTP.		Yes				
821	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Introduction;		Yes				
822	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Test purpose;		Yes				
823	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Test platform (including required equipment and location);		Yes				
824	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Time estimate;		Yes				
825	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Pre-requisites;		Yes				
826	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Set-up;		Yes				
827	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				
828	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Individual test conditions/steps;		Yes				
829	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				
830	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Description;		Yes				
831	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Expected results;		Yes				
832	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Actual results; and		Yes				
833	8.10.8.2.2.	At a minimum, the test procedures shall include the following elements: • Notes.		Yes				
834	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				
835	8.10.8.2.3.	Test Reports		N/A				
836	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				
837	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				
838	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				
839	8.10.8.2.4.	Formal Test Phases		N/A				

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840	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: <ul style="list-style-type: none"> • Factory Acceptance Test, • Hardware Production Test, • Site Commissioning Test, • System Acceptance Test, and • Penetration Testing. 		Yes				
841	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				
842	8.10.8.3.	Factory Acceptance Test		N/A				
843	8.10.8.3.	The TSI shall conduct a Factory Acceptance Test (FAT) at a test facility in the USA 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				
844	8.10.8.3.1.	FAT Site		N/A				
845	8.10.8.3.1.	Tests shall be demonstrated at a closed-course (no live traffic) test site in the USA 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				
846	8.10.8.3.2.	FAT Plan		N/A				
847	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				
848	8.10.8.3.3.	FAT Scope		N/A				
849	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				
850	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				
851	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				
852	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				
853	8.10.8.3.3.	Various failure conditions shall be generated to test the MMS alarm and maintenance requirements.		Yes				
854	8.10.8.3.4.	FAT Report and Approval		N/A				
855	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				
856	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				
857	8.10.8.4.	Hardware Production Test		N/A				
858	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				
859	8.10.8.5.	Site Commissioning Test		N/A				
860	8.10.8.5.	Upon completion of installation of the new toll zones at the Claiborne Pell Bridge, the TSI shall test the functionality of all integrated hardware, software and communications components including the interface to the BOS, using an approved test plan to test all lanes individually. The test will be witnessed by the Authority in accordance with approved test procedures and the test schedule.		Yes				
861	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				
862	8.10.8.6.	System Acceptance Test		N/A				
863	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				

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864	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				
865	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				
866	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				
867	8.10.8.7.	Penetration Testing		N/A				
868	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				
869	8.10.8.7.	The Penetration testing shall include: • Application Security		Yes				
870	8.10.8.7.	The Penetration testing shall include: • Network Security		Yes				
871	8.10.8.7.	The Penetration testing shall include: • Cloud Security		Yes				
872	8.10.8.7.	The Penetration testing shall include: • Social Engineering		Yes				
873	8.10.8.7.	The Penetration testing shall include: • IoT Security, if applicable		Yes				
874	8.10.8.8.	Back-Up and Disaster Recovery Plan		N/A				
875	8.10.8.8.	The TSI shall develop and submit a Back-Up and Disaster Recovery Plan.		Yes				
876	8.10.8.8.	The plan submittal and systems design shall support the accepted plan.		Yes				
877	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				
878	8.10.8.8.	This test shall be conducted and must be approved by the Authority, prior to the start of revenue operation.		Yes				
879	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				
880	8.10.8.8.	The Back-Up and Disaster Recovery Plan shall be kept current throughout the life of the Contract.		Yes				
881	8.10.8.8.	Back-Up and Disaster Recovery Plan requirements are further detailed in Section 8.11 of this RFP.		N/A				
882	8.10.8.9.	Installation / Installation Plan		N/A				
883	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				
884	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				
885	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				
886	8.10.8.9.1.	Installation Plan		N/A				
887	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				
888	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				
889	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				
890	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				
891	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				

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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).		
892	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				
893	8.10.8.9.2.	Installation Meetings		N/A				
894	8.10.8.9.2.	The TSI shall schedule and attend weekly installation meetings during the installation phase of the Project.		Yes				
895	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				
896	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				
897	8.10.8.9.2.	All issues recorded during the installation activity for the week shall be discussed and resolved if possible.		Yes				
898	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				
899	8.10.8.9.3.	Traffic Control and Lane Closures		N/A				
900	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				
901	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				
902	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				
903	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				
904	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				
905	8.10.8.9.4.	Installation Checklist		N/A				
906	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				
907	8.10.8.9.5.	Installation Work Restrictions		N/A				
908	8.10.8.9.5.	Daytime work must always be planned and approved by the Authority's Director of Engineering.		Yes				
909	8.10.8.9.5.	The TSI shall provide lighting for night-time work.		Yes				
910	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				
911	8.10.8.9.6.	Construction Coordination		N/A				
912	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				
913	8.10.8.9.6.	The TSI shall: (1) Provide to the Authority all requirements for the toll zone gantry(s), equipment mounting hardware, camera infrastructure, other support infrastructure, conduit and cabling;		Yes				
914	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				
915	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				
916	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				
917	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				
918	8.10.8.10.	Training / Training Plan		N/A				
919	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				
920	8.10.8.10.	The plan shall cover all types of training required for all personnel that will use the SYSTEM including: • Operations.		Yes				
921	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				
922	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				
923	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				
924	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				

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925	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				
926	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				
927	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				
928	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				
929	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				
930	8.10.9.	Phase III- Warranty Requirements		N/A				
931	8.10.9.1.	Operations Requirements		N/A				
932	8.10.9.1.	All of the Operations requirements from Phase II shall continue throughout Phase III.		Yes				
933	8.10.9.2.	Warranty Requirements		N/A				
934	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				
935	8.10.10.	Phase IV and V- Operations and Maintenance Support Requirements		N/A				
936	8.10.10.1.	Operations Requirements		N/A				
937	8.10.10.1.	All of the Operations requirements from Phase II shall continue throughout Phases IV and V.		Yes				
938	8.10.10.2.	Maintenance / Maintenance Plan		N/A				
939	8.10.10.2.	Definitions: Priority 1: 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. Priority 2: 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. Priority 3: 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				
940	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				
941	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				
942	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				
943	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				
944	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				
945	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				
946	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				
947	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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948	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"> • Descriptive language detailing the maintenance methodology approach, • Tools (specialized and standard), • MMS use and processes, • Emergency/corrective maintenance procedures, • Contracted computer maintenance companies, • Personnel, • Staff location, • Qualifications, • Training, • Maintenance facilities/workshop(s), • Maintenance records, • Failure tracking and corrective action, • Reliability and maintainability analysis and calculation, and • Maintenance activity report. 		Yes				
949	8.10.10.2.1.	Response and Repair Times		N/A				
950	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				
951	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				
952	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				
953	8.10.10.2.2.	Ongoing System and Equipment Support		N/A				
954	8.10.10.2.2.	The TSI shall provide the following SYSTEM Maintenance.		N/A				
955	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				
956	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				
957	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				
958	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				
959	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				
960	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				
961	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				
962	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				
963	8.10.10.2.2.	The TSI shall utilize the SYSTEM MMS for documenting all maintenance activity.		Yes				
964	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				
965	8.10.10.2.3.	Upgrades, Patches, and On-Going Development		N/A				

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966	8.10.10.2.3.	The TSI shall: <ul style="list-style-type: none"> Migrate the SYSTEM to major new releases of its own or third-party software to avoid obsolescence and maintain support for the software. Provide an integrated and comprehensive software patch management system. Test and deploy critical security related updates within a 4-hour period (after testing and Authority approval). Install non-security related patches on an as-necessary basis after successful testing and Authority approval. 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. 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. 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. Provide to the Authority training on any routines or applications impacted by software changes or upgrades. 		Yes			
967	8.10.10.2.4.	Coordination with the Authority		N/A			
968	8.10.10.2.4.	The TSI shall: <ul style="list-style-type: none"> 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. 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 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. <p>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.</p>		Yes			
969	8.10.10.2.5.	Authority Audit and Verification		N/A			
970	8.10.10.2.5.	The TSI shall: <ul style="list-style-type: none"> Support independent System Performance Audits to verify the performance of the SYSTEM Sub-systems. 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. 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. 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. 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. 		Yes			
971	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			
972	8.11.	Disaster Recovery/Business Continuity		N/A			
973	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			
974	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			
975	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"> Primary & Secondary Host environment(s); Description of the processes, methods and services used for business continuity; Redundancy and standalone capabilities including AET Zone, Host and other subsystems; and Degraded toll zone operations. 		Yes			
976	8.11.	The TSI shall satisfy the requirements for the Business Continuity and Disaster Recovery Plan as described in the following sections.		Yes			
977	8.11.1.	Disaster Recovery Plan		N/A			

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978	8.11.1.	The TSI shall develop a Disaster Recovery Plan (DRP) that shall include: <ul style="list-style-type: none"> • Business impact analysis of an outage; • Initial SYSTEM damage assessment checklist; • Description of redundant systems and failover/fail-back processes; • List of equipment in the primary SYSTEM, including a software list which includes the version and patch level; • List of equipment in the Back-Up or Disaster Recovery Site including a software list which includes the version and patch level; • Emergency contact lists; • Hardware manufacturer and software contractor contact lists; • Detailed procedures/processes for failing over to the back-up site in the event of an outage at the primary site; • Detailed procedures/processes for failing back from the back-up site to the primary site; • Test plans including detailed test scripts for testing the failover and failback procedures; and • Detailed procedures/processes that will be used in the event of complete destruction of the primary site. 		Yes				
979	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				
980	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				
981	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				
982	8.11.2.	Business Continuity Plan		N/A				
983	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				
984	8.11.2.	The components of the BCP shall include: <ul style="list-style-type: none"> • Details of governance and process for the direction, control and coordination of Business Continuity activities; • 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 • The process to be undertaken by the TSI when a business disruption event occurs that impacts the SYSTEM as further detailed under the DRP. 		Yes				
985	8.12.	Succession Transition		N/A				
986	8.12.	The TSI shall perform Succession Transition activities within this Contract that will overlap with start-up activities for a Successor.		Yes				
987	8.12.	A Successor shall be defined as the entity which takes over the Maintenance Period responsibilities from the TSI.		N/A				
988	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				
989	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				
990	8.12.1.	Transition Requirements		N/A				
991	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				
992	8.12.1.	The TSI shall designate a Transition Manager who shall serve as the single point of contact for transition related activities.		Yes				
993	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				
994	8.12.1.	The TSI shall develop, seek Authority approval for, and manage an issue resolution process for the transition.		Yes				
995	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				
996	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				
997	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				
998	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				
999	8.12.1.	The TSI shall allow the Successor to conduct on-site interviews with the TSI employees.		Yes				

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1000	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				
1001	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				
1002	8.12.2.	Succession Plan		N/A				
1003	8.12.2.	Prior to the System Acceptance, the TSI shall develop and submit a Succession Plan for Authority review and approval.		Yes				
1004	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				
1005	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				
1006	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				
1007	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				
1008	8.12.3.	Suspension of Contract		N/A				
1009	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				
1010	8.12.3.1.	Suspension of Contract Requirements		N/A				
1011	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				
1012	8.12.3.2.	Suspension of Contract Plan		N/A				
1013	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				
1014	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				
1015	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				
1016	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				
1017	Appendix A	Proposed New AET Toll Collection System Business Rules		N/A				
1018	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				
1019	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				
1020	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				

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).		
1021	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				
1022	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 axes, 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 axes and weight under and including 7,000 lbs. * Class 2 - vehicles with 2 axes and weight over 7,000 lbs. * Class 3 - vehicles with 3 axes. Class 4 - vehicles with 4 axes. Class 5 - vehicles with 5 or more axes. * 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				
1023	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				
1024	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				
1025	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: https://www.ezpassritba.com/StaticContent/Page?viewName=PlanInfo		Yes				
1026	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				
1027	Appendix A	All additional oversized vehicle fees will be handled outside of the TCS via the Authority's permitting system.		Yes				
1028	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				
1029	Appendix A	The TCS shall capture both front and rear license plates as well as an overview image of each vehicle two (2) front plate images, two (2) rear plate images, one (1) front plate ROI, one (1) rear plate ROI, and one (1) overview (multi-lane) image of each vehicle. The overview image should show the full vehicle including the license plate and other identifying characteristics (such as make, model, color, axles, etc.). 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	Yes				

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). 3) Non-compliant: Exception to the Requirement (Comment Required). 4) Non-compliant: Not Available, The Requirement will Not be Met (Comment Required).		
1030	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 overview video should show the full vehicle including the license plate and other identifying characteristics (such as make, model, color, axles, etc.) to 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	Yes			
1031	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			
1032	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			
1033	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			
1034	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			
1035	Appendix A	The TCS shall use license plate image cameras to capture a minimum of two (2) 4 human readable front and two (2) 4 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 and overview images of all vehicles, including those with and without a valid ETC transponder, to the BOS.	Yes	Yes			
1036	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 3 years then archive the images to long term storage for at least 6 years.		Yes			
1037	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			
1038	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			
1039	Appendix A	Manual image review services will be performed in the Authority's BOS and is outside the scope of the TCS.		N/A			
1040	Appendix A	The TCS shall record the vehicle speed in the transaction.		Yes			
1041	Appendix A	No in-lane feedback on the status of the transponder shall be provided to drivers with an electronic toll transponder.		Yes			
1042	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			
1043	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			
1044	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			
1045	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			
1046	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 http://www.ritba.org/overweight-overwide/ 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 Plans	Approval of Quality Management Plan, Project Schedule, Project Management Plan, Responsibilities Matrix, and Configuration Management Plan	5%
Design Acceptance	Approval of the Business Rules Document, Requirements Traceability Matrix, and Detailed Design Document	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: • Training Plan • Maintenance Plan • Installation Plan • Master Test Plan and Individual Test Phase Plans • Back-Up and Disaster Recovery Plan	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%
Total Service		100%

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 September 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

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 two front plate images , and two rear plate images , one front plate ROI , one rear plate ROI , and one overview image 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 required license plates and overview images 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-06	License Plate Automation	Percentage of images that can be Fully Automated 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%	\$1,000 for every 0.50% below the Service Level
AC-07	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-08	Vehicle Framing Accuracy	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-09	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-10	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 th Business Day of the month covering the previous calendar month.		One (system-wide)	One Month	Not Applicable	Not Applicable	10 th 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

Table 8-8: Repair Times

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