

Appendix E

SRTA TISC Service Level Agreements

Roadside Systems Transition, Implementation and Maintenance

RFP No. 23-000

Appendix E - TISC Service Level Agreement

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1 GENERAL PROVISOS

The TISC Contract obliges the TISC to meet certain defined levels of performance in the execution of the Scope of Work. This section describes the minimum performance requirements the TISC is required to meet throughout the duration of the Contract. SRTA requires the TISC to continuously maintain and operate the ETCS in accordance with the standards of performance identified in these Performance Requirements and further, that the TISC fully meet these Performance Requirements.

TISC will be held responsible to continuously maintain and operate the ETCS in accordance with two performance levels for each SLA: Transition Level and Maintenance Level. The Transition Level SLA requirements have a reduced requirement for the Transition Period. The Maintenance Level SLA requirements are greater than or equal to the Transition Level SLA requirements and represent the desired performance level of the ETCS during its operation and maintenance.

Within both levels exist two different types of SLAs that determine the timing on when the levels begin and end. These two types are Roadside and Toll Facility Host (TFH) Type. Roadside Type SLAs are measured per Facility pair and are linked to the performance and functionality of the equipment and communications within the roadside system. TFH Type SLAs are independent of any one Facility and are linked to the performance and functionality of the TFH. TFH Type SLAs are measured on the overall system versus per Facility. The relationship between SLA levels and types and the timing of their measurement is described in detail below.

The TISC shall begin measurement and assessment of damages for the TFH Type SLAs at the Transition Level beginning no sooner than the Go-Live of the TFH. The TISC shall be responsible for meeting TFH Type SLAs at the Transition Level throughout the Transition Period until the TISC enters Operational Acceptance Testing for the first Toll Facility pair to be transitioned.

The TISC shall begin measurement of Roadside Type SLAs in the first full calendar month after the approval of the First Site Installation Test (FSIT) for the first Facility in a Facility Pair. As the Facility is transitioned, the TISC will be measuring Roadside Type SLAs with inputs from the legacy TSI system and the TISC's system. Thus, the assessment of damages for Roadside Type Transition SLAs shall begin in the first full calendar month after the approval of the last Site Commissioning Test (SCT) for the Facility. This process will occur twice for each Facility pair, once for each Facility in the pair.

The TISC shall be responsible for TFH and Roadside Type Transition SLAs on the first Facility Pair until it enters Operational Acceptance Testing (OAT). As entry criteria to OAT, the TISC must demonstrate that it is meeting all SLAs for that Facility Pair at the Maintenance Level requirements. After meeting this and all other entry requirements specified in the Project Delivery Section of the RFP, Section 4.8.6: Entry/Exit Criteria, the TISC will be responsible for conducting an OAT that meets all requirements specified in the Project Delivery Section of the RFP, Section 4.8.5.5: Operational Acceptance Test (OAT). During OAT, the TISC shall demonstrate that they are meeting all SLAs at the Maintenance level for the entire duration of the OAT period.

Upon successful completion of OAT and the granting of System Acceptance, the TISC shall be responsible for meeting the TFH Type SLAs at the Maintenance Level beginning in the first full month after System Acceptance and continuing for the entire duration of the contract. The TISC shall also be responsible for meeting the Roadside Type SLAs at the Maintenance Level for the Facility Pair that completed the OAT beginning in the first full month after System Acceptance and continuing for the entire duration of the contract.

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Throughout the Transition and Maintenance Period, the TISC shall demonstrate it is meeting the SLA requirements as defined in this appendix through the Monthly Maintenance Report (MMR) described in Section 1.5: Performance Reporting.

The TISC shall facilitate performance monitoring by reporting performance in clearly measurable and easy to understand terms and reports. The measurement of these service level agreements shall be automated where possible and shall be straightforward and data-driven, as approved by SRTA. The methods and results of the measurement process shall be fully subject to independent audit and shall be utilized by the TISC to trigger timely action to correct any deficiencies and failures to meet required availability, accuracy, and performance requirements. The TISC shall use best efforts to minimize the impacts that result from failure to meet the Performance Requirements, regardless of whether invoice adjustments are made. The TISC shall immediately notify SRTA of any failure observed by the TISC whereby actual loss of revenue occurs or the potential for losses exists and the possibility of impacting the customer.

Actual performance shall be defined and measured against the requirements and time periods in the SLA table below to assess the availability, accuracy, and performance of the delivered system. This Appendix addresses requirements for the following major levels of service:

1. Availability
2. Accuracy
3. System Performance
4. Maintenance (Response/Repair timing)
5. Help Desk
6. Security Incident

The sections below provide general conditions which apply to the SLAs described herein. Should a specific SLA section define terms or conditions which appear contrary to these general provisos, the terms or conditions within the specific SLA section take precedence.

1.1 Chargeable and Non-Chargeable Failures

For purposes of calculating availability and for maintenance performance (Response & Repair times) chargeable and non-chargeable failures are defined as follows:

1. Non-Chargeable Failures are those failures identified in the following section. Direct and liquidated Damages will not be assessed for non-chargeable failures.
2. Chargeable Failures are any failures not specifically identified as non-chargeable. Direct and liquidated damages will be assessed for chargeable failures.

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Non-Chargeable Failures

1. Force majeure, as defined in the Agreement
2. Vandalism
3. System component failures caused by environmental or operating conditions outside of the design standards of the equipment
4. Failures that are non-TISC roadway user induced (e.g., vehicle accidents)
5. Failure or outages induced by GDOT/SRTA personnel

1.2 Stop Clock Conditions

The TISC may be excused from its obligation to meet the performance and service level requirements set forth herein under certain conditions that shall be referred to as “Stop Clock Conditions.” Only the time during which such conditions are present shall be excluded from the timeframes used to measure the TISC’s performance as set forth below:

The TISC will exclude from its SLA calculations any time or errors arising from any of the following “Stop Clock Conditions”:

1. Loss of connectivity to all GDOT provisioned roadside Hub buildings if the loss of connectivity to all Hubs is caused by a third party not under the direct or indirect control of the TISC and not reasonably preventable by the TISC, including, but not limited to, fiber cuts not caused by the TISC. For purposes of this provision, the TISC’s employees, affiliates, subsidiaries, tel./data services providers, agents, suppliers, or subcontractors shall be deemed to be under the control of the TISC with respect to the equipment, services, or facilities to be provided under this Agreement.
2. When any of the following SRTA or GDOT contact/access problems arise, provided that the TISC makes reasonable efforts to contact SRTA’s Project Manager immediately upon the commencement of the Stop Clock period:
 - a. Access necessary to correct the problem at a SRTA or GDOT owned site is not available because access is improperly denied or not arranged by the site contact or SRTA representative, provided that the TISC properly scheduled the visit or access beforehand if advance notice was required.
 - b. GDOT construction activities that prevent TISC personnel from performing previously scheduled maintenance or repair of equipment or systems.
 - c. Incorrect site contact information which prevents access, provided that the TISC takes reasonable steps to notify SRTA’s Project Manager immediately of the improper contact information and takes reasonable steps to obtain the correct information.

If it is determined later that the cause of the problem was not SRTA’s fault or responsibility; or in the event of denied access, if the reason was determined to be proper, then the Stop Clock Condition shall not apply.

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3. Routine Scheduled Maintenance provided such schedule was provided to and approved by SRTA's Project Manager in advance and in writing; provided however, that in no event shall the Stop Clock Condition time period be extended beyond the standard routine scheduled maintenance time period unless extended in writing by SRTA.
4. Force Majeure events.
5. Time during which the TISC is not permitted to perform repair or maintenance work while waiting for:
 - a. The start of a maintenance window
 - b. Allowable lane closure
 - c. Permission from SRTA to begin the repair

Notwithstanding any other provision of the Contract Documents to the contrary, Stop Clock Conditions do not apply to:

- a. TISC's response time performance requirements as set forth herein, below.
- b. Testing or maintenance initiated by the TISC outside of routine scheduled maintenance windows.
- c. Power fluctuations caused by electrical utility providers, common carriers, the TISC, any TISC affiliates and/or subsidiaries, data services providers, or subcontractors.
- d. Time periods during which SRTA has made reasonable efforts to notify the TISC's Primary Point of Contact of a problem, but the TISC's Project Manager or Assistant Project Manager was not available or reachable. The Primary Point of Contact shall be the point of contact designated for the phase of the project the problem occurred in.
- e. Failure of the TISC to provide adequate facilities to ensure delivery of the contracted services will not be considered a valid Stop Clock Condition to the extent such failure of TISC contributed to the Stop Clock Condition.
- f. Any other reason or cause not expressly stated in items 1-5 of the Stop Clock Conditions list.

If the TISC asserts Force Majeure or failure of GDOT maintained infrastructure as an excuse for performance, TISC shall have the burden of proving (i) sole proximate cause to SRTA's satisfaction, (ii) that TISC took reasonable steps to minimize the delay and damages caused by events when known or should have been known, and (iii) that TISC timely notified SRTA of the actual occurrence which is claimed as grounds for a defense under this clause (if any).

Stop Clock shall terminate whenever the Stop Clock condition ends as determined by either:

1. The restoration of third-party connectivity
2. The SRTA or GDOT owned site is made available to the TISC
3. The end of GDOT construction activities preventing the TISC from performing maintenance

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4. The end of routine scheduled maintenance
5. Access to the system is made available to the TISC via maintenance window, lane closure, or SRTA permission
6. The Force Majeure event ends as agreed to by SRTA and the TISC
7. Agreement between SRTA and the TISC to set the End Time directly (e.g., to the nearest 15 minutes interval following the reported recovery)

The final determination of when a Stop Clock Condition termination is at SRTA's sole discretion.

1.3 SLA Stipulations

1. For any SLA that includes the collection of data at predetermined locations/intervals, if there is a pre-existing maintenance event that impacts the validity of the data, collection of data will be rescheduled for a later time within the measurement period when the maintenance event is completed. For example, this would be a maintenance event that was already in progress prior to the collection of data at the predetermined location and the specified interval of collection.
2. All exclusions or exceptions identified during the measurement of each SLA shall be removed from the calculations of the SLA's value.

1.4 Single Event Causing Cumulative Liquidated Damages

If the TISC can prove to SRTA's reasonable satisfaction that a single chargeable event causes the TISC to fail to meet more than one SLA (excluding Maintenance, Help Desk and Security Incident Repair and Response time SLAs), cumulative Liquidated Damages shall not be imposed, but instead the highest applicable Liquidated Damages relative to such occurrence shall apply. By way of example and not limitation, if the network subsystem goes down affecting multiple devices such as the TRDMS and the Traffic Sensors, the TISC shall include the outage time as part of the calculation for the availability, accuracy, and system performance of the TRDMS and Traffic Sensors but will be subject only to highest liquidated damages. If the TISC fails to repair the network outage according to the service levels set forth in Appendix D, the TISC shall be responsible for Liquidated Damages resulting from not meeting the repair time service levels in addition to the highest Liquidated Damages assessed for the availability, accuracy, or system performance.

1.5 Performance Reporting

The TISC is required to provide SRTA a TFH Monthly Maintenance Report (MMR) and two (2) Roadside MMR packages, one each for I-75 and I-85 Facility Pairs, that include the TISC's Performance Reports, and all supplemental data required to measure the SLAs. The required contents of the MMR packages, the timeline for MMR template approvals, and the submission deadline requirements are defined in the Operation and Maintenance Section of the RFP, Section 5.8.1: Monthly Maintenance Report. The MMR packages shall contain all information necessary for SRTA to verify the TISC performance as reported by the TISC. SRTA must receive and accept the results of MMR packages before an invoice will be considered for payment.

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The measurement and reporting methods for OAT, and for the Transition and Maintenance Periods may be the same and shall utilize system generated reports to communicate results. If the measurement and reporting methods for OAT and for the Transition and Operation and Maintenance Periods differ, the differences shall be clearly documented in both the OAT Plan and the MMRs.

During the Maintenance period, if the TISC fails to meet any quarterly SLA, the TISC shall report on this SLA monthly and shall be subject to the corresponding liquidated damages every month until the SLA is passed. Notwithstanding any failed SLA, subsequent quarterly or annual measurement dates shall remain as originally scheduled and shall not be affected by any additional monthly reporting required by this clause. SLAs that are reported monthly shall be exempt from this additional reporting requirement.

1.6 Sample Size Tables

Some SLAs included in this document require samples to be collected to demonstrate the required accuracy at the set confidence level. The following sample size tables should be used to determine the sample sizes required for all applicable SLAs at 80% confidence. In addition, the tables show the number of errors allowed within each sample set for the sample to pass the SLA, require more samples, or stop and remediate.

The sample size tables contain the following fields:

1. Required – The Service Level Agreement requirement value
2. Sample Set – The number of iterative sample sets completed to measure the SLA
3. Required Samples – The total amount of samples required in the sample set
4. Allowed Errors – The number of errors allowed in the sample set for the SLA requirement to be demonstrated at the specified confidence level
5. Errors (next sample set) – The number of errors at which the measured accuracy meets the SLA requirement, but not at the confidence level specified
6. Errors (stop, remediate) – The number of errors at which the measured accuracy does not meet the SLA requirement at confidence level specified

The TISC must meet the minimum sample size after all exclusions have been removed from the sample set. If the TISC must move to the next sample set, the TISC only needs to collect the number of additional samples that equals the difference between the next sample set's required samples and the current sample set's required samples. The allowed errors for each sample set are inclusive of errors incurred in prior sample sets (i.e., if one error was incurred in Sample Set 1, that error would count towards the allowed errors in Sample Set 2). The final row in each table represents the maximum allowed number of sample sets the TISC can collect when measuring the SLAs. In measuring the SLAs for the Transition Period, Operational Acceptance Testing, or Maintenance, the measurement must end either once the TISC reaches the maximum sample set allowed or if at any point the number of errors meets or exceeds the level at which the TISC must stop and remediate. If, on the final sample set, the number of errors incurred in the sample set is equal to or greater than the number of errors that require the TISC to proceed to the next sample set *and* less than the number of errors required to stop and remediate, the TISC shall assess liquidated damages in the amount equal to a single failure occurrence and denote the SLA as failed.

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The following is a narrative example of how to use the sample size tables: For a given measurement period, an accuracy SLA requires samples to be collected to demonstrate a 99.9% accuracy at 80% confidence. Referencing the tables, the number of samples required for the first sample set is 1,609. There are zero allowable errors for the first sample set. The samples are collected, and the accuracy is measured for this first sample set. There was one error identified in the first sample set. According to the sample size table, one error in the first sample set means the SLA meets the accuracy requirement but not the confidence level requirement. Therefore, the TISC must either 1) accept the liquidated damages for a single failure occurrence for not meeting the confidence or 2) continue to collect samples and measure the accuracy for set 2. For the purposes of this example, the TISC is assumed to proceed to set 2. For set 2, the required number of samples is 2,994. Therefore, the TISC collects $(2,994 - 1,609) = 1,385$ more samples. In these additional samples, three more errors were identified. The total number of errors from sample set 1 and 2 is four errors. According to the sample size table, if three errors or more errors occur in set 2, the TISC is required to stop and remediate. At four errors in this example, the SLA is failed, and the applicable damage amounts will apply to the failed accuracy percentage of $1 - (4/2994) = 99.87\%$. Alternatively, if no errors were identified in the additional samples collected for set 2, the SLA would have passed. Note: The TISC may collect more samples than the required amount for any sample set. Exact numbers were used in this example to illustrate the use of the sample size tables.

1.6.1 SLA Requirement – 95.00%

Required	Sample Set	Required Samples	Allowed Errors	Errors (next sample set)	Errors (stop, remediate)
95.00% Accuracy	Set 1	32	0	1	2
	Set 2	59	1	2	3
	Set 3	85	2	3	5
	Set 4	110	3	4	6
	Set 5	134	4	Stop and remediate	

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1.6.2 SLA Requirement – 97.00%

Required	Sample Set	Required Samples	Allowed Errors	Errors (next sample set)	Errors (stop, remediate)
97.00% Accuracy	Set 1	53	0	1	2
	Set 2	99	1	2	3
	Set 3	142	2	3	5
	Set 4	183	3	4	6
	Set 5	223	4	Stop and remediate	

1.6.3 SLA Requirement – 98.00%

Required	Sample Set	Required Samples	Allowed Errors	Errors (next sample set)	Errors (stop, remediate)
98.00Accuracy	Set 1	80	0	1	2
	Set 2	149	1	2	3
	Set 3	213	2	3	5
	Set 4	275	3	4	6
	Set 5	335	4	Stop and remediate	

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1.6.4 SLA Requirement – 99.00%

Required	Sample Set	Required Samples	Allowed Errors	Errors (next sample set)	Errors (stop, remediate)
99.00% Accuracy	Set 1	161	0	1	2
	Set 2	299	1	2	3
	Set 3	427	2	3	5
	Set 4	551	3	4	6
	Set 5	671	4	Stop and remediate	

1.6.5 SLA Requirement – 99.50%

Required	Sample Set	Required Samples	Allowed Errors	Errors (next sample set)	Errors (stop, remediate)
99.50% Accuracy	Set 1	322	0	1	2
	Set 2	598	1	2	3
	Set 3	855	2	3	5
	Set 4	1,102	3	4	6
	Set 5	1,343	4	Stop and remediate	

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1.6.6 SLA Requirement – 99.80%

Required	Sample Set	Required Samples	Allowed Errors	Errors (next sample set)	Errors (stop, remediate)
99.80% Accuracy	Set 1	804	0	1	2
	Set 2	1,497	1	2	3
	Set 3	2,139	2	3	5
	Set 4	2,757	3	4	6
	Set 5	3,360	4	Stop and remediate	

1.6.7 SLA Requirement – 99.90%

Required	Sample Set	Required Samples	Allowed Errors	Errors (next sample set)	Errors (stop, remediate)
99.90% Accuracy	Set 1	1,609	0	1	2
	Set 2	2,994	1	2	3
	Set 3	4,278	2	3	5
	Set 4	5,514	3	4	6
	Set 5	6,720	4	Stop and remediate	

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1.6.8 SLA Requirement – 99.95%

Required	Sample Set	Required Samples	Allowed Errors	Errors (next sample set)	Errors (stop, remediate)
99.95% Accuracy	Set 1	3,219	0	1	2
	Set 2	5,988	1	2	3
	Set 3	8,557	2	3	5
	Set 4	11,029	3	4	6
	Set 5	13,441	4	Stop and remediate	

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2 SUMMARY OF SLAS

SLA #	Description	Transition Level Requirement	Maintenance Level Requirement	Type	Measurement Frequency
AV1	Zone Controller Availability	99.90%	99.90%	Roadside	Monthly
AV2	Digital Video Audit System (DVAS) Camera Availability	98.00%	98.00%	Roadside	Monthly
AV3	Toll Facility Host Availability	99.50%	99.50%	TFH	Monthly
AV4	Roadside Network	99.90%	99.90%	Roadside	Monthly
AV5	Hub Internet Connectivity	99.90%	99.90%	Roadside	Monthly
AV6	Traffic Sensor Availability	99.50%	99.50%	Roadside	Monthly
AV7	Toll Rate Dynamic Message Sign (TRDMS) Availability	99.90%	99.90%	Roadside	Monthly
AV8	Toll Rate CCTV Cameras Availability	99.90%	99.90%	Roadside	Monthly
AC1	Lane Vehicle Detection Accuracy	99.50%	99.90%	Roadside	Monthly
AC2	Lane Vehicle Classification Accuracy	98.00%	99.80%	Roadside	Monthly
AC3	Lane AVI Read/Correlation Accuracy	99.50%	99.90%	Roadside	Monthly
AC4	Lane Image Correlation Accuracy	99.80%	99.90%	Roadside	Monthly

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AC5	Toll Point Lane Vehicle Speed Accuracy	+/- 5 percent error	+/- 3 percent error	Roadside	Quarterly
AC6	Traffic Sensor Vehicle Speed Accuracy	+/- 15 percent error	+/- 10 percent error	Roadside	Quarterly
AC7	Traffic Sensor Vehicle Volume Accuracy	+/- 10 percent error	+/- 5 percent error	Roadside	Quarterly
AC8	Image Capture/Readability Accuracy	99.80%	99.90%	Roadside	Monthly
AC9	Image Processing Accuracy	99.95%	99.95%	TFH	Monthly
AC10	Image Rejection Accuracy	99.00%	99.00%	TFH	Monthly
AC11	Trip Building Accuracy	99.99%	99.99%	Roadside	Monthly
AC12	Trip Toll Rate Assignment Accuracy	99.95%	99.95%	Roadside	Monthly
AC13	TRDMS Messaging Accuracy	99.99%	99.99%	Roadside	Monthly
SP1	Trip Building Time	8 hrs.	8 hrs.	Roadside	Monthly
SP2	TRDMS Messaging Time	5 secs	5 secs	Roadside	Monthly
SP3	Image Review Time	100% within 7 days	100% within 5 days	TFH	Monthly
SP4	System GUI Response Time	4 secs	4 secs	TFH	Monthly
SP5	Report/Search Generation Time (< 1,000,000 rows)	30 secs	15 secs	TFH	Monthly
SP6	Report Generation Time (> 1,000,000 Rows)	8 mins	5 mins	TFH	Monthly

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SP7	Automated Alert Notification Time	100% within 5 minutes.	100% within 5 minutes	TFH	Monthly
SP8	Trip Posting Time	100% within 8 hours	100% within 8 hours	TFH	Monthly
SP9	Submission of MMR	Submitted each month by the 14th calendar day of the month	Submitted each month by the 14 th calendar day of the month	N/A	Monthly
RR1	Repair & Response Time Priority 1	Response 15 mins Repair 3 hrs.	Response 15 mins Repair 3 hrs.	Roadside	Monthly
RR2	Repair & Response Time Priority 2	Response 15 mins Repair 6 hrs.	Response 15 mins Repair 6 hrs.	Roadside	Monthly
RR3	Repair and Response Time Priority 3	Response 15 mins Repair 24 hrs.	Response 15 mins Repair 24 hrs.	Roadside	Monthly
HD1	Helpdesk Response Time	30 mins	30 mins	TFH	Monthly
SI1	Security Incident Response Time Severity 1	60 minutes	60 minutes	TFH	Monthly
SI2	Security Incident Response Time Severity 2	60 minutes	60 minutes	TFH	Monthly
SI3	Security Incident Response Time Severity 3	1 business day	1 business day	TFH	Monthly
SI4	Security Incident Response Time Severity 4	2 business days	2 business days	TFH	Monthly

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3 AVAILABILITY

The following availability SLAs are required to be met by the TISC for the entire period of the contract. Availability SLAs will be measured and reported on by the TISC for the entire duration of OAT and monthly for the Transition and Maintenance Periods.

The Total Downtime and Expected Operations time included within the availability calculation shall not include planned system outages that occur from preventive maintenance and are scheduled and approved by SRTA ahead of the activity. The availability calculation shall not include downtime during any period when SRTA/GDOT does not allow the TISC to close a lane or otherwise work along the roadway unless such failure to approve is the result of the TISC not following GDOT's procedures in making the request. The actual downtime variable within the availability calculation shall be reconcilable with the downtime reported from work orders in the MOMS. The TISC shall include downtime from manually created work orders and SRTA identified outages into the calculation of the Availability SLAs. Failure of the system to detect outages is not a valid exclusion for downtime incurred by the undetected outage.

In cases where an SLA measures availability of a redundant subsystem/component (e.g., a zone controller or host or workstation with redundant network connections, others to be determined in design), failure of an individual redundant element shall not constitute a failure of the subject subsystem/component, assuming its required functionality is preserved.

Exclusions for any/all availability SLAs are defined per chargeable and non-chargeable failures defined in Section 1.1: **Error! Reference source not found..**

3.1 AV1 – Zone Controller

This SLA measures the availability of the Zone Controllers at each Toll Point. The Zone Controller redundant pair at each Toll Point is considered available if it can receive, process, and send Transaction data. This applies to the Zone Controller redundant pair and is not measured per individual Zone Controller (i.e., If one Zone Controller in the pair experiences an outage, and the other Zone Controller is properly functioning and available, no downtime is incurred. If both Zone Controllers in the pair experience an outage at the same time, downtime would apply).

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Transition Level	99.90%
Maintenance Level	99.90%

Measurement Level

This SLA is a Roadside Type SLA and is measured for each Toll Point's redundant Zone Controller pair.

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Transition Measurement Requirement

For each Toll Point's redundant Zone Controller pair in a Facility, the TISC shall measure the availability monthly to show the SLA is met at the Transition Level Requirement.

Operational Acceptance Test Measurement Requirement

For each Toll Point's redundant Zone Controller pair in a Facility, the TISC shall measure the availability during the OAT measurement period to show the SLA is met at the Maintenance Level requirement.

Maintenance Measurement Requirement

For each Toll Point's redundant Zone Controller pair in a Facility, the TISC shall measure the availability monthly to show the SLA is met at the Maintenance Level Requirement.

Damages

For every 15 minutes or any portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Zone Controller Availability \% (specific to each Toll Point's Zone Controller pair)} = \left[1 - \left[\frac{\text{Total Zone Controller pair downtime}}{(\text{Expected time of operations})} \right] \right] \times 100$$

1. SLA damages example: For a 30-day month at a single Toll Point [24hr x 30 days x (100%-99.90%)] = 0.72 hrs. = 43.2 min of allowable down time for each Zone Controller pair. In this example the Zone Controller pair was unavailable for 1 hr. (60 mins). The LD is calculated as follows:
 - a. From 43.2 min to 58.2 min is 1%
 - b. From 58.2 min to 60 min is 1%
 - c. The total LD for this example is 2% of the monthly maintenance fee

3.2 AV2 – DVAS Camera

This SLA measures the availability of the Digital Video Audit System (DVAS) cameras. The DVAS Cameras installed on all facilities will be considered available when they are providing video data of vehicles passing under a tolling point. This SLA excludes the Security CCTV cameras.

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Transition Level	98.00%
Maintenance Level	98.00%

Measurement level

This SLA is a Roadside Type SLA and is measured for each DVAS camera.

Transition Measurement Requirement

For each DVAS Camera in a Facility, the TISC shall measure the availability monthly to show the SLA is met at the Transition Level Requirement.

Operational Acceptance Test Measurement Requirement

For each DVAS Camera in a Facility, the TISC shall measure the availability for the OAT measurement period to show the SLA is met at the Maintenance Level requirement.

Maintenance Measurement Requirement

For each DVAS Camera in a Facility, the TISC shall measure the availability monthly to show the SLA is met at the Maintenance Level Requirement.

Damages

Associated Response/Repair time damages only.

Measurement Method

$$DVAS\ Camera\ Availability\ (at\ each\ camera)\ \% = \left[1 - \left[\frac{DVAS\ Camera\ downtime}{(Expected\ time\ of\ operations)} \right] \right] \times 100$$

3.3 AV3 – Toll Facility Host

This SLA measures the availability of the Toll Facility Host (TFH). The TFH will be considered available if it is online and functioning per the system requirements and design and is available for use by SRTA staff in their normal workplace locations. The TFH functionality includes image processing, trip

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building, congestion pricing, video management, reporting, roadway reversal, maintenance management, and roadway monitoring systems. Downtime measured by the SLA shall only include downtime generated from Priority 1 and 2 tickets. If concurrent issues/outages cause downtime to the TFH, the overlapping downtime shall be counted once.

Service Level Agreement

Transition Level	99.50%
Maintenance Level	99.50%

Measurement Level

This SLA is a TFH Type SLA.

Transition Measurement Requirement

The TISC shall measure the TFH availability monthly to show the SLA is met at the Transition Level Requirement.

Operational Acceptance Test Measurement Requirement

The TISC shall measure the TFH availability for the OAT measurement period to show the SLA is met at the Maintenance Level requirement.

Maintenance Measurement Requirement

The TISC shall measure the TFH availability monthly to show the SLA is met at the Maintenance Level Requirement.

Damages

For every 1 hour or portion thereof below the SLA that the TFH is unavailable, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance/warranty fee of each Facility that does not meet the SLA.

Measurement Method

$$\text{Toll Facility Host Availability \%} = \left[1 - \left[\frac{\text{Toll Facility Host system downtime}}{(\text{Expected time of operations})} \right] \right] \times 100$$

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1. This SLA includes software applications/processes that render any Toll Facility Host unavailable
2. External Interfaces are included, and the SLA only applies to TISC provided functionality
3. SLA damages example: For a 30-day month there is $[24\text{hr} \times 30 \text{ days} \times (100\%-99.50\%)] = 216$ mins of allowable down time for the TFH. In this example, the Trip building functionality was unavailable for 230 mins. and the congestion pricing was unavailable for 10 mins. The LD is calculated as follows:
 - a. For the combined trip building and congestion pricing downtime of 60 minutes:
 - i. From 216 min to 240 min, the total LD is 2% of the monthly maintenance/warranty fee

3.4 AV4 – Roadside Network

This SLA measures the availability of the Roadside Network. A Roadside Network is considered available if it is receiving and transmitting data. This SLA applies to all configured and active network switch interfaces (inclusive of alternate switch interfaces), including SRTA/GDOT fiber network links, on all TISC managed network devices, including all Toll and ITS system components. This SLA measures the availability of the combined primary and alternate (if available) Roadside Network switch interfaces (i.e., If the primary Roadside Network switch interface experiences an outage, and the alternate Roadside Network switch interface is properly functioning and available, no downtime is incurred. If the entire Roadside Network switch, including the primary and alternate interfaces, experiences an outage, downtime would apply).

Service Level Agreement

Transition Level	99.90%
Maintenance Level	99.90%

Measurement Level

This SLA is a Roadside Type SLA and is measured per each configured and active network switch on all TISC managed network devices, including all Toll and ITS system components.

Transition Measurement Requirement

The TISC shall measure the Roadside Network availability monthly to show the SLA is met at the Transition Level Requirement.

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Operational Acceptance Test Measurement Requirement

The TISC shall measure the Roadside Network Switch Interface availability for the OAT measurement period to show the SLA is met at the Maintenance Level requirement.

Maintenance Measurement Requirement

The TISC shall measure the Roadside Network Switch Interface availability monthly to show the SLA is met at the Maintenance Level Requirement.

Damages

For each configured and active network switch interface: For every 15 minutes or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Roadside Network Availability (at each network switch) \%} = \left[1 - \left[\frac{\text{Roadside network downtime}}{(\text{Expected time of operations})} \right] \right] \times 100$$

1. SLA damages example: See AV1

3.5 AV5 – Hub Internet Connectivity

This SLA measures the availability of internet connectivity at each hub. Internet connectivity at a hub is considered available if the hub is receiving and transmitting data between the roadside system, the TFH and operations centers at sufficient capacity to meet all system performance requirements. This SLA measures the availability of the combined primary and secondary (if available) hub switch interfaces (i.e., If the hub switch interface experiences an outage, and the secondary hub switch interface is properly functioning and available, no downtime is incurred. If the entire hub switch, including the primary and secondary interfaces, experiences an outage, downtime would apply).

Service Level Agreement

Transition Level	99.90%
Maintenance Level	99.90%

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Measurement Level

This SLA is a Roadside Type SLA and is measured for each hub location.

Transition Measurement Requirement

The TISC shall measure the internet connection availability monthly to show the SLA is met at the Transition Level Requirement.

Operational Acceptance Test Measurement Requirement

The TISC shall measure the internet connection availability for the OAT measurement period to show the SLA is met at the Maintenance Level requirement.

Maintenance Measurement Requirement

The TISC shall measure the internet connection availability monthly to show the SLA is met at the Maintenance Level Requirement.

Damages

For each hub location: For every 15 minutes or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Hub Internet Connectivity (at each hub location) \%} = \left[1 - \left[\frac{\text{Hub internet connectivity downtime}}{\text{(Expected time of operations)}} \right] \right] \times 100$$

1. SLA damages example - see AV1

3.6 AV6 - Traffic Sensors

This SLA measures the availability of Traffic Sensors. A Traffic Sensor is considered available if it is collecting and reporting speed and volume data that is consumed in near real-time by the Congestion Pricing System and Toll Operations Center System.

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Service Level Agreement

Transition Level	99.50%
Maintenance Level	99.50%

Measurement Level

This SLA is a Roadside Type SLA and is determined by averaging the availability across all Traffic Sensors.

Transition Measurement Requirement

The TISC shall measure the Traffic Sensor availability monthly to show the SLA is met at the Transition Level Requirement.

Operational Acceptance Test Measurement Requirement

The TISC shall measure the Traffic Sensor availability for the OAT measurement period to show the SLA is met at the Maintenance Level requirement.

Maintenance Measurement Requirement

The TISC shall measure the Traffic Sensor availability monthly to show the SLA is met at the Maintenance Level Requirement.

Damages

For every hour or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance fee. This will be measured as an average of the availability of all TISC maintained Traffic Sensors.

Measurement Method

$$\text{Traffic Sensor Availability \% (Average of all Traffic Sensors)} = \left[1 - \left[\frac{\text{Traffic sensor downtime}}{(\text{Expected time of operations})} \right] \right] \times 100$$

1. This SLA is calculated by summing the uptime across all Traffic Sensors in each Facility and dividing by the total available time for all Traffic Sensors in that Facility.

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2. SLA damages example: For a 30-day month, the total average downtime from 30 Traffic Sensor devices for Facility Pair A is 400 minutes. The total average operational time for all devices is (30 days * 24 hrs. * 60 mins.) = 43,200 minutes. The total allowable downtime at 99.5% is 216 mins. The LD is calculated as follows:
 - a. From 216 min to 276 min is 1%
 - b. From 276 min to 336 min is 1%
 - c. From 336 min to 396 min is 1%
 - d. From 396 min to 400 min is 1%
 - e. The total LD for this example is 4% of the monthly maintenance fee

3.7 AV7 – Toll Rate Dynamic Message Signs (TRDMS)

This SLA measures the availability of Toll Rate Dynamic Message Signs (TRDMS). A TRDMS is considered available if the sign is displaying the current toll rate or alphanumeric message. The TRDMS is considered unavailable if it fails to display a portion or all of the calculated rate and/or alphanumeric message when there is a rate plan scheduled, whether that be a standard, override, or failover rate plan schedule, and no override message has been sent to the sign.

Service Level Agreement

Transition Level	99.90%
Maintenance Level	99.90%

Measurement Level

This SLA is a Roadside Type SLA and is measured per TRDMS panel.

Transition Measurement Requirement

The TISC shall measure the TRDMS availability monthly to show the SLA is met at the Transition Level Requirement.

Operational Acceptance Test Measurement Requirement

The TISC shall measure the TRDMS availability for the OAT measurement period to show the SLA is met at the Maintenance Level requirement.

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Maintenance Measurement Requirement

The TISC shall measure the TRDMS availability monthly to show the SLA is met at the Maintenance Level Requirement.

Damages

For each TRDMS panel: for every 15 minutes or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

Measurement Method

$$TRDMS \text{ Availability } \% \text{ (each TRDMS panel)} = \left[1 - \left[\frac{TRDMS \text{ panel downtime}}{(Expected \text{ time of operations})} \right] \right] \times 100$$

1. SLA damages example - see AV1.

3.8 AV8 - Toll Rate CCTV Cameras

A Toll Rate CCTV site is considered available if the real-time CCTV images are viewable.

Service Level Agreement

Transition Level	99.90%
Maintenance Level	99.90%

Measurement Level

This SLA is a Roadside Type SLA and is measured per Toll Rate CCTV camera.

Transition Measurement Requirement

The TISC shall measure the Toll Rate CCTV Cameras availability monthly to show the SLA is met at each Toll Rate CCTV at the Transition Level Requirement.

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Operational Acceptance Test Measurement Requirement

The TISC shall measure the Toll Rate CCTV Cameras availability for the OAT measurement period to show the SLA is met at each Toll Rate CCTV at the Maintenance Level requirement.

Maintenance Measurement Requirement

The TISC shall measure the Toll Rate CCTV Cameras availability monthly to show the SLA is met at each Toll Rate CCTV at the Maintenance Level Requirement.

Damages

For each camera installation individually: For every 15 minutes or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance fee.

Measurement Method

$$\text{Toll Rate CCTV Camera Availability \% (each camera)} = \left[1 - \frac{\text{Toll Rate CCTV Camera downtime}}{\text{(Expected time of operations)}} \right] \times 100$$

1. SLA damages example - see AV1.

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4 ACCURACY

Accuracy SLAs are used to assess the correctness of the ETCS outputs. To determine accuracy, some SLAs require taking enough samples to demonstrate the requirement is met at a specified confidence level. Other accuracy SLAs are measured by comparison to external measurement systems or devices. The number of samples required at each SLA requirement within this section at 80% confidence is listed in Section 1.6: Sample Size Tables. SRTA may choose to verify results of the TISC's image or video review for any accuracy SLA that requires this type of review.

All SLAs measured per Lane shall include all Lanes per direction for each Facility.

AC1- AC4 apply to all vehicles traveling through a fully instrumented Lane (whether completely in or straddling the Lane) that are separated from other vehicles in the same travel lane by a minimum of 6 feet, at speeds from stop and go to 85 mph.

Any time that manual image review or video-based reviews are required to measure or verify an SLA, the TISC shall perform this image or video review. SRTA may choose to validate the results of the TISC's image or video review for any SLA that requires this type of review.

For each accuracy SLA, all SLA specific exclusions shall be enumerated by the TISC and submitted to SRTA for review and approval.

4.1 AC1 - Lane Vehicle Detection

This SLA measures the accuracy of vehicle detection at each Lane. Each vehicle passing through a Lane will be detected/reported once, and only once (no exception made for degradation or loss in the availability of the Automated Vehicle Detection and Classification (AVDC) System). Reference Section 1.6: Sample Size Tables for the sample size table corresponding to the accuracy and confidence level.

Service Level Agreement

Transition Level	99.50%
Maintenance Level	99.90%

Measurement Level

This is a Roadside Type SLA and is measured per Lane.

Transition Measurement Requirement

Each month during the transition period, the TISC shall measure the Lane Vehicle Detection accuracy of each Lane in service until at least six (6) Lanes have passed all Installation and Commissioning Tests at which point the TISC shall measure six (6) lanes from the I-85 Facility pair for the

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remainder of the Transition Period with a sample size sufficient to show with an 80% confidence that the SLA is being met at each Lane at the Transition Level Requirement. Similarly, the TISC shall measure the Lane Vehicle Detection accuracy of each Lane in service until at least four (4) Lanes have passed all Installation and Commissioning Tests at which point the TISC shall measure four (4) Lanes from the I-75 Facility pair for the remainder of the Transponder Period with a sample size sufficient show with an 80% confidence that the SLA is being met at each Lane at the Transition Level Requirement.

Operational Acceptance Test Measurement Requirement

All Lanes per Facility shall be tested during the OAT measurement period with a sample size sufficient to show with an 80% confidence that the Lane Vehicle Detection accuracy is being met at each Lane at the Maintenance Level requirement.

Maintenance Measurement Requirement

Each month during the maintenance period, the TISC shall measure the Lane Vehicle Detection accuracy at six (6) lanes from the I-85 Facility pair and four (4) lanes from the I-75 Facility pair as designated by SRTA with a sample size sufficient to show with an 80% confidence that the SLA is being met at each lane at the Maintenance Level requirement.

Damages

During the Transition Period, for each Lane, every 0.15% or portion thereof below the SLA the Liquidated Damages shall be 1% of the monthly maintenance fee.

During the Maintenance Period, for each Lane, every 0.1% or portion thereof below the SLA the Liquidated Damages shall be 1% of the monthly maintenance fee.

Measurement Method

$$\text{Lane Vehicle Detection (at each Lane) \%} = \left[1 - \left(\frac{\text{Number of missed and duplicate vehicles}}{\text{Total number of vehicles in sample}} \right) \right] \times 100$$

To measure the SLA, the TISC's DVAS cameras at all locations shall record sufficient video to support the sample size required above. The TISC shall compare this video data with system generated transaction reports to determine the accuracy of Toll Point vehicle detection. The TISC shall submit a report describing the results of this video audit, with all discrepancies clearly identified, and video files available for SRTA review. The TISC can propose alternative methods for how to measure this SLA, but any proposed alternative shall be approved at SRTA's sole discretion.

1. SRTA shall be able to designate which Lanes the TISC selects to measure each month during the Transition and Maintenance Period.

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2. The TISC shall ensure all Lanes are measured at least once during the Transition Period.
3. The TISC shall ensure all Lanes are measured on an annual basis during the Maintenance Period.
4. SLA damages example: Total number of vehicles in the sample set at 99.9% accuracy and 80% confidence for a Lane is equal to 1,609. TISC provided system misses/duplicates 3 vehicles in the sample – as determined by video review. The equation above yields 99.81% - missing the requirement by 0.09%. Damages will be 1% of monthly maintenance fee.

4.2 AC2 – Lane Vehicle Classification

This SLA measures the accuracy of vehicle classification at each Lane. Each vehicle passing through a Lane will have their classification (per SRTA's axle-based classification scheme) associated with the vehicle (no exception made for degradation or loss in the availability of the AVDC). This SLA applies only to the Facilities where vehicle classification is enabled. Reference Section 1.6: Sample Size Tables for the sample size table corresponding to the accuracy and confidence level.

Service Level Agreement

Transition Level	98.00%
Maintenance Level	99.80%

Measurement Level

This SLA a Roadside Type SLA and is measured per Lane.

Transition Measurement Requirement

Each month during the transition period, the TISC shall measure the Lane Vehicle Classification accuracy of each Lane in service until at least six (6) Lanes have passed all Installation and Commissioning Tests at which point the TISC shall measure six (6) lanes from the I-85 Facility pair for the remainder of the Transition Period with a sample size sufficient to show with an 80% confidence that the SLA is being met at each Lane at the Transition Level Requirement. Similarly, the TISC shall measure the Lane Vehicle Classification accuracy of each Lane in service until at least four (4) Lanes have passed all Installation and Commissioning Tests at which point the TISC shall measure four (4) Lanes from the I-75 Facility pair for the remainder of the Transition Period with a sample size sufficient show with an 80% confidence that the SLA is being met at each Lane at the Transition Level Requirement.

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Operational Acceptance Test Measurement Requirement

All Lanes per Facility shall be tested during the OAT measurement period with a sample size sufficient to show with an 80% confidence that the Lane Vehicle Classification accuracy is being met at each Lane at the Maintenance Level requirement.

Maintenance Measurement Requirement

Each month during the maintenance period, the TISC shall measure the Lane Vehicle Detection accuracy at four (4) lanes from the I-75 Facility pair as designated by SRTA with a sample size sufficient to show with an 80% confidence that the SLA is being met at each Lane at the Maintenance Level requirement.

Damages

During the Transition Period, for each Lane, for every 0.5% or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 0.5% of the monthly maintenance/warranty fee.

During the Maintenance Period, for each Lane, for every 0.1% or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 0.5% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Toll Point Vehicle Classification \% (at each Lane)} = \left[1 - \left(\frac{\text{Number of misclassified vehicles}}{\text{Total number of vehicles in sample}} \right) \right] \times 100$$

1. To measure the SLA, the TISC's DVAS cameras at all locations shall record sufficient video to support the sample size required above. The TISC shall compare this video data with system generated transaction reports to determine the accuracy of Toll Point vehicle classification. The TISC shall submit a report describing the results of this video audit, with all discrepancies clearly identified, and video files available for SRTA review. The TISC can propose alternative methods for how to measure this SLA, but any proposed alternative shall be approved at SRTA's sole discretion.
2. SRTA shall be able to designate which Lanes the TISC selects to measure each month during the Transition and Maintenance Period.
3. The TISC shall ensure all Lanes are measured at least once during the Transition Period.
4. The TISC shall select ensure all Lanes are measured on an annual basis during the Maintenance Period.
5. The measurement of AC2 may be performed in combination with the measurement for AC1.
6. SLA Damages example - see AC1.

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4.3 AC3 – Lane AVI Read/Correlation

This SLA measures the accuracy of transponder reads and correlation at each Lane. Each vehicle passing through a Lane that is equipped with a properly mounted transponder (in or on the vehicle) shall be detected and correlated with the correct AVI transaction. This SLA applies to vehicles equipped with up to two transponders (issued by SRTA or by SRTA's interoperable agencies). No exception to this SLA will be made for degradation or loss in the availability of the AVI. If a vehicle has more than one IAG or eGo Plus transponder mounted, this SLA does not apply.

Service Level Agreement

Transition Level	First Transponder Read	99.50%
	Second Transponder Read	Best Effort
Maintenance Level	First Transponder Read	99.90%
	Second Transponder Read	Best Effort

Measurement Level

This SLA a Roadside Type SLA and is measured per Lane.

Transition Measurement Requirement

Each month during the Transition Period, the TISC shall measure the Lane AVI Read/Correlation accuracy for all Lanes per Facility and for all Transactions created during the measurement period to show the SLA is being met at each Lane at the Transition Level Requirement.

Operational Acceptance Test Measurement Requirement

During OAT, the TISC shall test all Lanes per Facility and for all Transactions created during the OAT measurement period to show the SLA is met at each Lane at the Maintenance Level Requirement.

Maintenance Measurement Requirement

Each month during the Maintenance Period, the TISC shall measure the Lane AVI Read/Correlation accuracy for all Lanes per Facility and for all Transactions created during the measurement period to show the SLA is being met at each Lane at the Maintenance Level Requirement.

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Damages

During the Transition Period, for each Lane, every 0.15% or portion thereof below the SLA the Liquidated Damages shall be 1% of the monthly maintenance fee.

During the Maintenance Period, for each Lane, every 0.1% or portion thereof below the SLA the Liquidated Damages shall be 1% of the monthly maintenance fee.

Measurement Method

$$\text{Toll Point AVI Read Correlation \% (at each Lane)} = \left[1 - \left(\frac{\text{Number of miscorrelations and missed AVI reads}}{\text{Total number of Transactions}} \right) \right] \times 100$$

1. The TISC shall develop a transponder correlation report, or use an existing detailed transaction report, that will allow for the comparison of transactions by transponder ID and by license plate number. This report shall highlight all instances where a license plate is associated with more than a single transponder and where a vehicle with a known plate/transponder correlation (i.e., vehicles with multiple trips in the corridor with consistent license plate-to-transponder correlations) does not have its transponder read. These instances will respectively be considered “miscorrelations and missed AVI reads” (for use in the equation above).
2. SLA Damages example – see AC1

4.4 AC4 – Lane Image Correlation

This SLA measures the accuracy of image correlation at all Toll Points for each Lane. Each vehicle passing through a Lane will have all required images correlated with the correct vehicle (no exception made for degradation or loss in the availability of the AVDC/VTs). Reference Section 1.6: Sample Size Tables for the sample size table corresponding to the accuracy and confidence level.

Service Level Agreement

Transition Level	99.80%
Maintenance Level	99.90%

Measurement Level

This SLA a Roadside Type SLA and is measured per Lane.

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Transition Measurement Requirement

Each month during the Transition Period, the TISC shall measure the Image Correlation Accuracy for all Lanes and for all Transactions created during the measurement period to show that the SLA is being met at each Lane at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

During OAT, all Lanes shall be tested to show that the Image Correlation Accuracy SLA is being met at each Lane at the Maintenance Level requirement.

Maintenance Measurement Requirement

Each month during the Maintenance period, the TISC shall measure the Image Correlation Accuracy for all Lanes and for all Transactions created during the measurement period to show that the SLA is being met at each Lane at the Maintenance Level requirement.

Damages

During the Transition and Maintenance Period, for each Lane, for every 0.1% or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Image Correlation Accuracy \% (at each Lane)} = \left[1 - \left(\frac{\text{Number of image miscorrelations}}{\text{Total number of Transactions in sample}} \right) \right] \times 100$$

1. For verification, the TISC shall create an image correlation detail report which includes for each vehicle detected the Transponder ID read (if any), the ALPR result associated with the Transaction, any manual review result associated with the transaction, the final license plate result, and a link to the image set captured for that vehicle transaction.
2. The TISC shall create a transponder-to-plate verification list which includes the Transponder ID and the license plate result that is most often associated with the Transponder ID.
3. For transactions with a transponder, the image correlation detail report shall flag mismatches between the final license plate result reported for the transaction and the license plate most often associated with the Transponder ID from the transponder-to-plate verification list. The mismatches will be reviewed to exclude mismatches where it is apparent the license plates are the same, but a character was incorrectly read or inputted (e.g., license plate from transponder-to-plate verification list is ABC123 and the final license plate of the transaction is ABC128). True Mismatches count as image miscorrelations.

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4. The image link shall be used to validate that the miscorrelations are from different vehicles. Note, this SLA just confirms correlating images, it does not address image quality etc.
5. SLA damages example - see AC1.

4.5 AC5 – Toll Point Lane Vehicle Speed

This SLA measures the accuracy of vehicle speed in each Lane at a Toll Point. The SLA shall be measured by averaging the reported speeds from AVDC speed detection devices at each Lane and computing the percent error compared to speed measurements made manually or automatically by some externally calibrated method (e.g., radar gun, video analytics, or other electronic measurement device/system) at that same location during the same time frame.

Service Level Agreement

Transition Level	Per-direction and per-lane percent error no more than +/- 5%
Maintenance Level	Per-direction and per-lane percent error no more than +/- 3%

Measurement Level

This SLA a Roadside Type SLA and is measured per Lane at each Toll Point.

Transition Measurement Requirement

Quarterly during the Transition Period, the TISC shall use a speed measurement device/system) to take a minimum of 30 speed measurements at each sampled lane and compare that speed to the speed reported by the Toll Point for the same measurement period and location. The percent error measurement shall be assessed against the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

During OAT, all Traffic Sensor sites shall be tested by using a speed measurement device/system to take a minimum of 30 speed measurements at each lane for all traffic sensor locations and comparing that speed to the speed reported by the Toll Point for the same measurement period and location. The percent error measurement shall be assessed against the Maintenance Level requirement.

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Maintenance Measurement Requirement

Quarterly during the Maintenance Period, the TISC shall use a speed measurement device/system to take a minimum of 30 speed measurements at each sampled lane and compare that speed to the speed reported by the Toll Point for the same measurement period and location. The percent error measurement shall be assessed against the Maintenance Level requirement.

Damages

Associated Response/Repair time damages only.

Measurement Method

1. The TISC shall provide a report that compares the average speed data reported at each of the sampled Lanes to the average of the measurements taken during the same time period using the speed measurement device/system. All Toll Points where this report indicates that the absolute percent error is more than the requirement shall be highlighted. The TISC can propose alternative methods for how to measure this SLA based on the system architecture and functionality, including the use of data outputs from AVDC loops and lasers, but any proposed alternative shall be approved at SRTA's sole discretion.
2. If the TISC chooses to measure speed using a device that requires TISC personnel to perform the measurement on site, the TISC shall submit a list of determined sites to be safe enough to collect measurement samples for SRTA to review and approve.
3. Each quarter during the Transition and Maintenance Periods, 25% of test sites shall be selected by SRTA to be measured.
4. The TISC shall select ensure all Express Lanes are measured on an annual basis.

4.6 AC6 – Traffic Sensor Lane Vehicle Speed

This SLA measures the accuracy of vehicle speed in Lanes detected by Traffic Sensors for vehicles passing through the three Lanes nearest the Traffic Sensor device. The SLA shall be measured by averaging the reported speeds from the Traffic Sensor devices at each Lane and computing the percent error compared to speed measurements made manually or automatically through some externally calibrated method (e.g., radar gun, video analytics, or other electronic measurement device/system) at that same location during the same time frame.

Service Level Agreement

Transition Level	Per-direction and per-lane percent error no more than +/- 15%
Maintenance Level	Per-direction and per-lane percent error no more than +/- 10%

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Measurement Level

This SLA is a Roadside Type SLA and is measured per Lane detected by Traffic Sensors.

Transition Measurement Requirement

Quarterly during the Transition Period, the TISC shall use a speed measurement device/system to take a minimum of 30 speed measurements at each sampled lane and compare that speed to the speed reported by the Traffic Sensor for the same measurement period and location. The percent error measurement shall be assessed against the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

During OAT, all Traffic Sensor sites shall be tested by using a speed measurement device/system to take a minimum of 30 speed measurements at each lane for all traffic sensor locations and comparing that speed to the speed reported by the Traffic Sensor for the same measurement period and location. The percent error measurement shall be assessed against the Maintenance Level requirement.

Maintenance Measurement Requirement

Quarterly during the Maintenance Period, the TISC shall use a speed measurement device/system to take a minimum of 30 speed measurements at each sampled lane and compare that speed to the speed reported by the Traffic Sensor for the same measurement period and location. The percent error measurement shall be assessed against the Maintenance Level requirement.

Damages

Associated Response/Repair time damages only.

Measurement Method

1. The TISC shall provide a report that compares the average speed data reported at each of the Traffic Sensor sites in the Congestion Pricing System to the average of the measurements taken during the same time period using the speed measurement device/system. All Traffic Sensor sites where this report indicates that the absolute percent error is more than the requirement shall be highlighted. The TISC can propose alternative methods for how to measure this SLA based on the system architecture and functionality, but any proposed alternative shall be approved at SRTA's sole discretion.
2. If the TISC chooses to measure speed using a device that requires TISC personnel to perform the measurement on site, the TISC shall submit a list of determined sites to be safe enough to collect measurement samples for SRTA to review and approve.

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3. Each quarter during the Transition and Maintenance Periods, 25% of test sites shall be selected by SRTA to be measured each quarter.
4. The TISC shall select ensure all Lanes are measured on an annual basis.

4.7 AC7 – Traffic Sensor Lane Vehicle Volume

This SLA measures the accuracy of vehicle volume in Lanes detected by Traffic Sensors for vehicles passing through the three Lanes nearest the traffic sensor. The SLA shall be measured by averaging the reported volumes from the Traffic Sensor devices at each Lane and computing the percent error compared to volume measurements made manually or automatically some externally calibrated method (e.g., manual count, video analytics, or other electronic measurement device/system) at that same location during the same time frame.

Service Level Agreement

Transition Level	Per-direction and per-lane percent error no more than +/- 10%
Maintenance Level	Per-direction and per-lane percent error no more than +/- 5%

Measurement Level

This SLA a Roadside Type SLA and is measured per Lane detected by Traffic Sensors.

Transition Measurement Requirement

Quarterly during the Transition Period, the TISC shall count 30 vehicles at each sampled lane manually or with a volume detection device/system and compare that count to the volume reported by the Traffic Sensor for the same measurement period and location. The percent error measurement shall be assessed against the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

During OAT, all Traffic Sensor sites shall be tested by counting 30 vehicles in each lane manually or with a volume detection device/system and comparing that count to the volume reported by the Traffic Sensor for the same measurement period and location. The percent error measurement shall be assessed against the Maintenance Level requirement.

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Maintenance Measurement Requirement

Quarterly during the Maintenance Period, the TISC shall count 30 vehicles at each sampled lane manually or with a volume detection device/system and compare that count to the volume reported by the Traffic Sensor for the same measurement period and location. The percent error measurement shall be assessed against the Maintenance Level requirement.

Damages

Associated Response/Repair damages only.

Measurement Method

1. The TISC shall provide a report that compares the lane volume data from each of the Traffic Sensor sites as reported to the Congestion Pricing System to the volume measured using visual counts or volume detection device/system during the same time period. All Traffic Sensor sites where this report indicates that the absolute percent error is more than the requirement shall be highlighted. The TISC can propose alternative methods for how to measure this SLA based on the system architecture and functionality, but any proposed alternative shall be approved at SRTA's sole discretion.
2. If the TISC chooses to measure volume using a device that requires TISC personnel to perform the measurement on site, the TISC shall submit a list of determined to be safe enough to collect measurement samples for SRTA to review and approve.
3. Each quarter during the Transition and Maintenance Periods, 25% of test sites shall be selected at random to be measured.
4. The TISC shall select ensure all Lanes are measured on an annual basis.

4.8 AC8 – Image Capture/Readability Accuracy

This SLA measures the percentage of all captured images that are readable. Readable Images are defined as rear or front license plate images produced by the VTS in which both license plate numbers and license plate issuing jurisdiction can be reliably read electronically by ALPR and manually through human review. In addition, readable images should contain legible vehicle characteristics, such as vehicle make and model. Exclusions shall include all image rejection reasons that are outside the control of the TISC, such as missing plates, temporary plates, obstructed plates where characters are covered, and damaged plates where characters are not visible.

Service Level Agreement

Transition Level	99.80%
Maintenance Level	99.90%

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Measurement Level

This SLA is a Roadside Type SLA and is measured per VTS camera.

Transition Measurement Requirement

Each month during the Transition Period, each VTS Camera shall be tested for all images captured during the measurement period to show the SLA is being met at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

During OAT, each VTS camera shall be tested for all images captured to show the SLA is being met at the Maintenance Level requirement.

Maintenance Measurement Requirement

Each month during the Maintenance Period, each VTS Camera shall be tested for all images captured during the measurement period to show the SLA is being met at the Maintenance Level requirement.

Damages

During the Transition and Maintenance Period, for each VTS camera, for every 0.1% or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Image Capture/Readability \%} = \left[1 - \left(\frac{\text{Number of readable images}}{\text{Total number of images}} \right) \right] \times 100$$

1. The TISC shall provide a report denoting, for each image captured during the measurement period, whether the image was readable. Readability shall be determined by the final review results assigned to each image from the IPS. The report shall list the final review results for all images, including images that were unreadable due to excluded and non-excluded reasons.
2. This report shall include links to images for all images to allow SRTA to validate the TISC's results.
3. SLA damages example: A VTS camera produces 1,000,000 rear images in a measurement period, 10,000 were agreed to be exclusions (damaged/obscured plates etc.). Therefore, the resultant image set for readability evaluation was 990,000. Of those, 2,200 were determined to be unreadable by either ALPR/VSR automation or the human eye. Readability rate is $1 - [2,200 / ((1,000,000 - 10,000))] = 99.78\%$, failing to meet the SLA by 0.12%.

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Accuracy measured = 0.12% below requirement. Damages are 2% of the monthly maintenance/warranty fee for the first portion of 0.1% below the SLA requirement (99.90%); and 2% of the monthly maintenance/warranty fee for the remaining 0.02%. Total damages are 4% of the monthly maintenance/warranty fee.

4.9 AC9 - Image Processing

This SLA measures the percentage of image Transactions with the license plate number and jurisdiction correctly identified by the TISC's Image Processing System. Reference Section 1.6: Sample Size Tables for the sample size table corresponding to the accuracy and confidence level.

Service Level Agreement

Transition Level	99.95%
Maintenance Level	99.95%

Measurement Level

This SLA is a TFH Type SLA and is measured for a sample of image Transactions from all image Transactions assigned a final license plate number and jurisdiction result from all Facilities during the measurement period.

Transition Measurement Requirement

During the Transition Period, the TISC shall measure the Image Processing accuracy monthly for a sample of image Transactions assigned a final license plate number and jurisdiction result to show with an 80% confidence that the SLA is being met at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

During the OAT Period, the TISC shall measure the Image Processing accuracy for a sample of image Transactions assigned a final license plate number and jurisdiction result to show with an 80% confidence that the SLA is being met at the Maintenance Level requirement. Image Transactions for OAT shall be selected randomly among all lanes or as determined by SRTA.

Maintenance Measurement Requirement

During the Maintenance Period, the TISC shall measure the Image Processing accuracy monthly a sample of image Transactions assigned a final license plate number and jurisdiction result to show with an 80% confidence that the SLA is being met at the Maintenance Level requirement.

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Damages

For every 0.1% or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Image Processing Accuracy \%} = \left[1 - \left(\frac{\text{Number of incorrect reviewed image Transactions}}{\text{Total number of image Transactions in the sample set}} \right) \right] \times 100$$

1. The TISC shall receive SRTA approval for the methodology used to produce the sample image Transaction set for the SLA measurement performed during the Transition and Maintenance Period.
2. The TISC shall provide a report that, for each image Transaction in the sample set, compares the final plate number and jurisdiction determined by the IPS to the plate number and jurisdiction determined during the accuracy verification process of the SLA. The report shall indicate where either the plate or jurisdiction differ. This report shall include links to images for all image Transactions in the sample set(s) to allow SRTA to validate the TISC's results.
3. SLA damages example: Start with 3,219 image Transactions identified as meeting SRTA's selection criteria. Of these, 3,210 were accurate as reported by the initial image review process and 9 were found to have been incorrectly reported during prior image review. Accuracy rate is $\left(\frac{3,210}{3,219} \right) = 99.72\%$ (failing to meet the 99.95% requirement by 0.23%). Accuracy measured = 0.23% under the requirement. Damages are 2% of the monthly maintenance/warranty fee for each of the first two 0.1% amounts below the SLA (4% total); and 2% of the monthly maintenance/warranty fee for the remaining 0.03%. Total damage of 6% of the monthly maintenance/warranty fee.

4.10 AC10 - Image Rejection

This SLA measures the percentage of rejected image Transactions with the reject reason correctly identified by the TISC's IPS. Incorrect rejects occur in the following two ways: 1) Image Transactions are coded off when the license plate and jurisdiction are readable 2) the image Transaction is rejected with an inaccurate reject reason (i.e., Image Transaction was assigned a reject reason of Temporary Plate when the actual reason should have been Image Too Dark). Reference Section 1.6: Sample Size Tables for the sample size table corresponding to the accuracy and confidence level.

Service Level Agreement

Transition Level	99.95%
Maintenance Level	99.95%

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Measurement Level

This SLA is a TFH Type SLA and is measured for a sample of images Transactions from all image Transactions assigned a reject reason from all Facilities during the measurement period.

Transition Measurement Requirement

During the Transition Period, the TISC shall measure the Image Rejection accuracy monthly for a sample of Image Transactions assigned a rejection reason to show with an 80% confidence that the SLA is being met at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

During OAT, the TISC shall measure the Image Rejection accuracy for a sample of image Transactions assigned a rejection reason to show with an 80% confidence that the SLA is being met at the Maintenance Level requirement. Images for OAT shall be selected randomly among all lanes or as determined by SRTA.

Maintenance Measurement Requirement

During the Maintenance Period, the TISC shall measure the Image Rejection accuracy monthly for a sample of image Transactions assigned a rejection reason to show with an 80% confidence that the SLA is being met at the Maintenance Level requirement.

Damages

During the Transition and Maintenance Period, for every 0.25% or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Image Rejection Accuracy \%} = \left[1 - \left(\frac{\text{Number of incorrect rejected image Transactions}}{\text{Total number of image Transactions in the sample set}} \right) \right] \times 100$$

1. The TISC shall receive SRTA approval for the methodology used to produce the sample image Transaction set for the measurements performed during the Transition and Maintenance Period.
2. The TISC shall provide a report that, for each rejected image Transaction in the sample set, compares the reject reason determined during the original review process to the reject reason or plate number and jurisdiction determined during the measurement process. The report shall indicate where either the original image review rejected a human readable plate and jurisdiction, or the original image review assigned the wrong

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reject reason to image. This report shall include links to images for all image Transactions in the sample set(s) to allow SRTA to validate the TISC's results.

3. SLA damages example: Start with 299 image Transactions identified as meeting SRTA's selection criteria. Of these, 294 were accurate as reported by the initial image review process and 5 were found to have been incorrectly rejected during prior image review. Accuracy rate is $\left(\frac{294}{299}\right) = 98.32\%$ (failing to meet the 99.00% requirement by 0.68%). Accuracy measured = 0.67% under the requirement. Damages are 1% of the monthly maintenance/warranty fee for each of the first two 0.25% amounts below the SLA (2% total); and 1% of the monthly maintenance/warranty fee for the remaining 0.18%. Total damage of 3% of the monthly maintenance/warranty fee.

4.11 AC11 – Trip Building

This SLA measures the percentage of individual Transactions assembled correctly per Contract requirements into Trips to reflect vehicles' actual passages through the toll facility.

Service Level Agreement

Transition Level	99.99%
Maintenance Level	99.99%

Measurement Level

This SLA is a Roadside Type SLA and is measured for all Transactions sent to the TFH during the measurement period.

Transition Measurement Requirement

The Trip Building Accuracy shall be measured monthly for all transactions and Trips created and rated during the Transition Period at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

The Trip Building Accuracy shall be measured for all Transactions and Trips created during the OAT period.

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Maintenance Measurement Requirement

The Trip Building Accuracy shall be measured monthly, for all transactions and Trips created and rated during the Maintenance Period at the Maintenance Level requirement.

Damages

During the Transition and Maintenance Period, for every 0.1% or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Trip Building Accuracy \%} = \left(\frac{\text{Number of Transactions correctly formed into Trips}}{\text{Total number of Transactions eligible for Trip building}} \right)$$

1. The TISC shall develop a report that identifies Transactions generated at all Toll Points during the measurement period and shows the Trips that contain each Transaction. Any Transactions not correctly formed into Trips shall be highlighted and shall be removed from the “Number of Transactions correctly formed into Trips” in the above equation. Criteria for identifying Transactions not correctly formed into Trips shall be specified during the Design Phase (examples include multiple Trips with the same LPN or transponder formed within a certain timeframe and direction of travel, transactions reported to the TFH that were never included in any formed trip, etc.) All transactions belonging to Trips that were split, merged, written off (with agreed upon reason for write-off) or corrected by batch at the CBO by SRTA during the measurement period, regardless of whether the Trips occurred during the measurement period, shall count as transactions not correctly formed into Trips.
2. SLA damages example: For a 30-day month, the total number of Transactions for Facility Pair A is 1,150,000. Due to some system issue 2,000 of those Transactions are not built into a Trip. For the month, the Facility A Trip Building Time is $1 - (2,000 / 1,150,000) = 99.83\%$ which is 0.16% below the 99.99% requirement. The LD would then be 2% of the monthly maintenance/warranty fee for the first 0.1% beyond the 99.99% requirement and another 2% for the remaining 0.06% beyond the requirement. The total LD would be 4% of the monthly maintenance/warranty fee.

4.12 AC12 - Trip Toll Rate Assignment

This SLA measures the percentage of Trips assigned the correct toll rate that corresponds to the toll rate calculated for the entry time of the trip and the traveled section for the trip.

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Service Level Agreement

Transition Level	99.95%
Maintenance Level	99.95%

Measurement Level

This is a Roadside Type SLA and is measured for all trips built by the TFH during the measurement period.

Transition Measurement Requirement

The Trip Toll Rate Assignment Accuracy shall be measured monthly, for all Trips created and rated during the Transition Period at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

The Trip Toll Rate Assignment Accuracy shall be measured for all Trips created and rated during the OAT period at the Maintenance Level requirement.

Maintenance Measurement Requirement

The Trip Toll Rate Assignment Accuracy shall be measured monthly for all Trips created and rated during the Maintenance Period at the Maintenance Level requirement.

Damages

During the Transition and Maintenance Period, every 0.1% or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Trip Toll Rate Assignment Accuracy \%} = \left[1 - \left(\frac{\text{Number of incorrectly rated Trips}}{\text{Total number of Trips}} \right) \right] \times 100$$

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1. The TISC shall develop a report that compare the toll rate assigned to a Trip with the toll rate in effect as determined by the CPS. Any Trip with a toll rate that does not match the corresponding toll rate in effect shall be highlighted and removed from the “Number of correctly rated Trips” in the above equation.
2. SLA damages example - see AC11.

4.13 AC13 – TRDMS Messaging

This SLA measures the accuracy of the TRDMS panel displaying the toll rate or alphanumeric message in effect for the corresponding origin-destination pair and time interval.

Service Level Agreement

Transition Level	99.99%
Maintenance Level	99.99%

Measurement Level

This SLA is a Roadside Type SLA and is measured for all TRDMS messages at each TRDMS panel per Facility.

Transition Measurement Requirement

The TRDMS Messaging Accuracy shall be measured monthly for all TRDMS messages generated during the Transition Period at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

The TRDMS Messaging Accuracy shall be measured for all TRDMS messages generated during the OAT period at the Maintenance Level requirement.

Maintenance Measurement Requirement

The TRDMS Messaging Accuracy shall be measured monthly for all TRDMS messages generated during the Maintenance Period at the Maintenance Level requirement.

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Damages

During the Transition and Maintenance Period, for each sample set, for every 0.1% or portion thereof below the SLA, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{TRDMS Messaging Accuracy (at each TRDMS panel) \%} = \left[1 - \left(\frac{\text{Total number of incorrect TRDMS messages}}{\text{Total number of TRDMS messages}} \right) \right] \times 100$$

1. The TISC shall develop a report that compares the toll rates in effect as determined by the scheduled rate plans in effect for the measurement period with the toll rate as displayed by the TRDMS panel for matching origin-destination pair and time intervals. The toll rate as displayed by the TRDMS panel shall be verified by querying the sign for its currently displayed message and confirming that message matches the latest toll rate published to that panel. Any time the toll rate displayed on the TRDMS panel does not match the toll rate in effect, the sample shall be subtracted from the "Number of correct TRDMS messages" in the equation above.
2. SLA damages example - see AC8.

5 SYSTEM PERFORMANCE

System Performance SLAs measure the performance of various processes within the ETCS including trip building and report generation. For purposes of measuring system response times “during or near peak system load” times, SRTA defines peak system load times to be those times when the overall system (the TFH) is experiencing high processor, memory, and disk I/O utilization. This is not necessarily peak traffic time.

5.1 SP1 - Trip Building Time

This SLA measures the average elapsed time between the latest-occurring Transaction in each Trip (based upon the timestamp of the vehicle passing through a Toll Point) and time the Trip was completely built and available for transmission to SRTA's CBO. This timeframe is exclusive of any time that the Trip's Transactions spend in the image review subsystem.

Service Level Agreement

Transition Level	8 hours
Maintenance Level	8 hours

Measurement Level

This SLA is a Roadside Type SLA and is measured for all Trips and Trip types during the measurement period.

Transition Measurement Requirement

The Trip Building Time shall be measured monthly for all Trips built during the Transition Period at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

The Trip Building Time for shall be measured for all Trips built during the OAT period at the Maintenance Level requirement.

Maintenance Measurement Requirement

The Trip Building Time shall be measured monthly for all Trips built during the Maintenance Period at the Maintenance Level requirement.

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Damages

For each sample set's times taken as an average, for every 2 hours or portion thereof outside the SLA, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Trip Building Time} = \frac{\sum (\text{Time}_{(\text{Trip Available for Posting})} - \text{Time}_{(\text{Latest Occuring Transaction Creation Datetime})} - \text{Time Spent in Image Review})}{\text{Total number of Trips}}$$

1. The TISC shall develop a report that identifies the different time buckets in the trip building process. This report shall identify at a minimum the creation datetime of the latest transaction in a Trip and the time the Trip was available for transmission to the CBO.
2. Any time spent in image review shall be excluded from the measured duration.
3. SLA damages example: For a 30-day month, the total number of system-built Trips for Facility Pair A is 150,000. Due to some system issue 8,000 of those Trips take 24 hours to build while the remaining Trips take 7 hours to build. For the month, the Facility A Trip Building Time is ((7 hrs. x 148,000 trips) + (24 hrs. x 8,000 trips))/150,000 = 8.18 hrs. per Trip. The LD would then be 1% of the monthly maintenance/warranty fee for the .18 hr. beyond the 8-hr. requirement.

5.2 SP2 – TRDMS Messaging Time

This SLA measures the elapsed time between the prescribed transmission time from the CPS of a TRDMS rate message and the actual time the rate message was displayed on the TRDMS panel.

Service Level Agreement

Transition Level	5 seconds
Maintenance Level	5 seconds

Measurement Level

This SLA is a Roadside Type SLA and is measured per TRDMS panel per Facility.

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Transition Measurement Requirement

The TRDMS Messaging Time shall be measured monthly for all TRDMS messages transmitted during the Transition Period at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

The TRDMS Messaging Time shall be measured, for all TRDMS messages transmitted during the OAT period at the Maintenance Level requirement.

Maintenance Measurement Requirement

The TRDMS Messaging Time shall be measured monthly, for all TRDMS messages transmitted during the Maintenance Period at the Maintenance Level requirement.

Damages

For every 2 seconds or portion thereof outside the SLA for each individual DMS (for this SLA a TRDMS is defined as an LED Panel (Brick)), the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee. This SLA is measured/assessed on each individual TDMS.

Measurement Method

$$TRDMS \text{ Message Time (at each panel)} = \frac{\sum (Time_{(TRDMS \text{ Message Displayed})} - Time_{(Published \text{ Time of a TRDMS Message})})}{Total \text{ number of messages}}$$

1. The TISC shall develop a report that compares the time a toll rate is published to the sign panel, as determined by the CPS, with the time the sign panel was queried to confirm its displayed message matched that of the published toll rate.
2. Samples shall include all rates published on all operational TRDMSs during the measurement period.
3. SLA damages example - see SP1.

5.3 SP3 – Image Processing Time

This SLA measures the percentage of image Transactions that receive a final license plate number and jurisdiction result (inclusive of manually assigned, auto-assigned, and coded-off results) and are ready to submit to Trip Building within the prescribed duration from the creation time of the Transaction. The Image Review Time shall include weekends and holidays.

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Service Level Agreement

Transition Level	100% of image Transactions reviewed within 7 days
Maintenance Level	100% of image Transactions reviewed within 5 days

Measurement Level

This SLA is a TFH Type SLA and is measured for all image Transactions from all Facilities.

Transition Measurement Requirement

The Image Processing Time shall be measured monthly for all image Transactions during the Transition Period at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

The Image Processing Time shall be measured for all image Transactions during the OAT period at the Maintenance Level requirement.

Maintenance Measurement Requirement

The Image Processing Time shall be measured monthly for all image Transactions during the Maintenance Period at the Maintenance Level requirement.

Damages

For every 0.1% or portion thereof outside the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Image Review Time} = \frac{\text{Count}((\text{Time}_{(\text{Image Transaction Available to Trip Building})} - \text{Time}_{(\text{Image Transaction Created})}) < \text{Time Requirement})}{\text{Total number of Image Transactions}}$$

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1. The TISC shall develop a report that measures the time between the creation of an image Transaction and the time the final license plate and jurisdiction results are assigned, and the image Transaction is available for use in Trip Building. The report shall include all Transactions with images requiring review from all days in the measurement period. The report shall show the percentage of image Transactions where the time between creation and final result assignments surpass the lower and upper limit SLA values.
2. Images that exceed the upper limit of the SLA shall not be included in the calculation of the lower limit image review time percentage.
2. SLA damages example: For a 30 day-month, the percentage of image Transactions out of all image Transactions that received a final license plate and jurisdiction result within 5 days was 99.82%. The percent of image Transactions assigned a final result within 5 days failed to meet the SLA requirement of 100%. The LD is calculated as follows:
 - a. $(100.00\% - 99.82\%) = 0.18\%$. Each 0.1% or portion thereof below the SLA is 1% of the monthly maintenance/warranty fee. Therefore, the LD is 2% of the monthly maintenance/warranty fee.The total LD for this example is 2% of the monthly maintenance/warranty fee.

5.4 SP4 - System GUI Response Time

This SLA measures the time it takes to navigate between input fields and user interfaces in all systems delivered under the scope of the Project, including, but not limited to, the Trip Building, Reporting, Congestion Pricing, and Image Audit System user interfaces. GUI searches shall be omitted from this measurement.

Service Level Agreement

Transition Level	4 seconds
Maintenance Level	4 seconds

Type

This SLA is a TFH Type SLA and is measured for a sample of response time samples of TFH GUI by averaging the measured response time of the GUI access events performed.

Transition Measurement Requirement

The System GUI Response Time shall be measured monthly for 20 response time samples during peak system load times during the Transition Period at the Transition Level requirement.

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Operational Acceptance Test Measurement Requirement

The System GUI Response Time shall be measured for 60 response time samples during or near peak system load times during the OAT period at the Maintenance Level requirement.

Maintenance Measurement Requirement

The System GUI Response Time shall be measured monthly for 20 response time samples during peak system load times during the Maintenance Period at the Maintenance Level requirement.

Damages

During the Transition and Maintenance Period, for the average of all response time samples, every 1 seconds or portion thereof outside the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{System GUI Response Time} = \frac{\sum (Time_{(Screen\ updated)} - Time_{(Screen\ update\ requested)})}{\text{Total number of samples}}$$

1. The TISC shall develop a report that identifies and averages system response time per GUI access event. The TISC may implement system tools that capture user inputs, keystrokes, mouse clicks, and other data requests along with system responses to those user activities. This is not intended to be a “stopwatch” measurement. The TISC shall describe how they plan to mimic or identify peak system load times during which this test will be performed.
2. If the TISC believes that SRTA-provided workstations are introducing delays relative to the measurement of this SLA, the TISC at the TISC’s expense may provide a workstation at SRTA’s location upon which to perform the measurement within two (2) weeks of contesting the assessment of Liquidated Damage.
3. SLA damages example - see SP1.

5.5 SP5 – Report/Search Generation Time (< 1,000,000 records in the report/search)

Report/Search Generation pertains to the display of non-ad-hoc reports and the Trip, CPS, and Image GUI searches generated on all systems delivered under the scope of the Project. This SLA is measured from the time the user completes the report/search request in the UI to the time the report/search results are displayed on screen. Wildcard searches, such as "S%", or open field (no search criteria entered) searches, along with inadvertent or deliberate open-ended searches that require a full database table scan are omitted from this measurement.

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Service Level Agreement

Transition Level	30 seconds
Maintenance Level	15 seconds

Measurement Level

This SLA is a TFH Type SLA and is measured for a sample of response time samples of reports/searches by averaging the measured response time of the report/searches generated.

Transition Measurement Requirement

The Report/Search Generation Time for reports/searches with less than 1 million records shall be measured monthly for the 10 most frequently used non-ad-hoc reports and the three GUI searches during the Transition Period at the Transition Level requirement. Out of the reports and searches used for the SLA measurement, at least four of the reports/searches shall have between 100,000 to 500,000 rows and at least two of the reports/searches shall have between 500,000 and 1,000,000 rows.

Operational Acceptance Test Measurement Requirement

The Report/Search Generation Time for reports/searches with less than 1 million records shall be measured once each week of OAT (regardless of system loads during the measurement), for all non-ad-hoc reports and GUI searches provided by the TISC at the Maintenance Level requirement. Out of the reports and searches used for the SLA measurement, at least one quarter of the reports/searches shall have between 100,000 to 500,000 rows and at least one quarter of the reports/searches shall have between 500,000 and 1,000,000 rows.

Maintenance Measurement Requirement

The Report/Search Generation Time for reports/searches with less than 1 million records shall be measured monthly for the 10 most frequently used non-ad-hoc reports and the three GUI searches during the Maintenance Period at the Maintenance Level requirement. Out of the reports and searches used for the SLA measurement, at least four of the reports/searches shall have between 100,000 to 500,000 rows and at least two of the reports/searches shall have between 500,000 and 1,000,000 rows.

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Damages

During the Transition Period, for the average of all report/search samples, every 10 seconds or portion thereof outside the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

During the Maintenance Period, for the average of all report/search samples, every 5 seconds or portion thereof outside the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

Measurement Method

Report/Search Generation Time of reports/searches with < 1M Records Generation Time

$$= \frac{\sum (Time_{(Report/search\ available)} - Time_{(Report/search\ requested)})}{Total\ number\ of\ reports/searches}$$

1. All reports/searches measured for this SLA shall be available to SRTA ETCS end-users.
2. The TISC shall develop a report that demonstrates reporting system and GUI search performance per the equation above. The TISC may implement system tools that capture user inputs, keystrokes, and/or mouse clicks, along with reporting system and GUI search responses to those user activities (e.g., reporting tool performance links that can be used to measure the response performance for each tested report/search). This is not intended to be a “stopwatch” or manual measurement. The TISC shall describe how they plan to mimic or identify peak system load times during which this test will be performed.
2. If the TISC believes that SRTA-provided workstations are introducing delays relative to the measurement of this SLA, then TISC at TISC’s expense may provide a workstation at SRTA’s location upon which to perform the measurement within two (2) weeks of contesting the assessment of Liquidated Damage.
3. SLA damages example - see SP1.

5.6 SP6 – Report Generation Time (≥1,000,000 records in the report)

Report Generation pertains to the display of non-ad-hoc reports generated on all systems delivered under the scope of the Project. Measured from the time the user completes the report request in the UI to the time the report is displayed on screen. For measurement of this SLA, no more than three queries that will result in 1,000,000+ records returned will be conducted simultaneously.

Service Level Agreement

Transition Level	Within 8 minutes for 1,000,000 – 1,999,999 records returned and an additional 5 minutes per additional 1,000,000 rows.
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Maintenance Level	Within 5 minutes for 1,000,000 – 1,999,999 records returned and an additional 5 minutes per additional 1,000,000 rows.
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Measurement Level

This SLA is a TFH Type SLA and is determined by averaging the measured response time of the reports generated.

Transition Measurement Requirement

The Report Generation Time for reports with over 1 million records shall be measured monthly for no fewer than 3 SRTA identified non-ad-hoc reports returning more than 1,000,000 rows during the Transition Period at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

The Report Generation Time for reports with over 1 million records shall be measured once each week of OAT (regardless of system loads during the measurement), for no fewer than 5 non-ad-hoc reports returning more than 1,000,000 rows at the Maintenance Level requirement.

Operations Measurement Period/Sample

The Report Generation Time for reports with over 1 million records shall be measured monthly for no fewer than 3 SRTA identified non-ad-hoc reports returning more than 1,000,000 rows during the Maintenance Period at the Operation and Maintenance Level requirement.

Damages

During the Transition Period, for the average of all report samples, every 2 minutes, or portion thereof outside the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

During the Maintenance Period, for the average of all report samples, every 1 minutes, or portion thereof outside the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Report Generation Response Time of reports with } \geq 1M \text{ records} = \frac{\sum (Time_{(Report\ available)} - Time_{(Report\ requested)})}{\text{Total number of reports}}$$

1. All reports measured for this SLA shall be available to SRTA ETCS end-users.

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2. The TISC shall develop a report that demonstrates reporting system performance per the equation above. The TISC may implement system tools that capture user inputs, keystrokes, and/or mouse clicks, along with reporting system responses to those user activities (e.g., reporting tool performance links that can be used to measure the response performance for each tested report). This is not intended to be a “stopwatch” or manual measurement. The TISC shall describe how they plan to mimic or identify peak system load times during which this test will be performed.
3. If the TISC believes that SRTA-provided workstations are introducing delays relative to the measurement of this SLA, then TISC at TISC’s expense may provide a workstation at SRTA’s location upon which to perform the measurement within two (2) weeks of contesting the assessment of Liquidated Damage.
4. SLA damages example - see SP1.

5.7 SP7 - Automated Alert Notification Time

The Automated Alert Notification Time is the time it takes to notify SRTA's designated contact list via an automated notification for all alert notifications sent via Email or SMS. This time begins when the notification event initially occurs.

Service Level Agreement

Transition Level	100% of alert notifications within 5 mins
Maintenance Level	100% of alert notifications within 5 mins

Measurement Level

This SLA is a TFH Type SLA and is determined by averaging the notification time for all alert notifications sent in the measurement period.

Transition Measurement Requirement

The Automated Alert Notification Time shall be measured monthly for all alert notifications sent during the Transition Period at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

The Automated Alert Notification Time shall be measured for all alert notifications sent during the OAT period at the Maintenance Level requirement.

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Maintenance Measurement Requirement

The Automated Alert Notification Time shall be measured monthly for all alert notifications sent during the Maintenance Period at the Maintenance Level requirement.

Damages

During the Transition and Maintenance Period, for every 0.1% or portion thereof outside the SLA for the alert notification times, the TISC shall be subject to Liquidated Damages in the amount of 0.5% of the monthly maintenance fee.

Measurement Method

$$\text{Automated Alert Notification Time} = \frac{\sum (Time_{(Notification\ sent\ to\ SRTA)} - Time_{(Issue\ Occurance)})}{Number\ of\ notifications}$$

1. The TISC shall develop a report that communicates automated alert notification timeframes for all alert notifications per the equation above.
2. SLA damages example - see SP3.

5.8 SP8 – Trip Posting Time

The TFH shall post all trips to the CBO from the time the trip is available (i.e., the time of trip completion) to be sent to the CBO within the required time frame. This is exclusive of any SRTA-specified hold time or time spent in manual review per 4.11 AC11 - Trip Building System.

Service Level Agreement

Transition Level	100% of trips posted within 8 hours
Maintenance Level	100% of trips posted within 8 hours

Measurement Level

This SLA is a TFH Type SLA and is measured for all trips and trip types during the measurement period.

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Transition Measurement Requirement

The Trip Posting Time shall be measured for all trips and trip types created by the system monthly during the Transition Period at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

The Trip Posting Time shall be measured for all trips and trip types created by the system during the OAT period at the Maintenance Level requirement.

Operations Measurement Period/Sample

The Trip Posting Time shall be measured for all trips and trip types created by the system monthly during the Maintenance Period at the Maintenance Level requirement.

Damages

For each measurement period's times taken as an average, for every 1% or portion thereof outside the SLA, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance/warranty fee.

Measurement Method

$$\text{Trip Posting Time Percentage} = \frac{\text{Count}((\text{Time}_{(\text{Trip Sent to CBO})} - \text{Time}_{(\text{Trip Built})} - \text{SRTA Specified Hold Time} \leq 8 \text{ hours}))}{\text{Total number of trips}}$$

1. The TISC shall develop a report that communicates timing of events related to trips sent to SRTA's CBO in accordance with the equation above. All trips for the reporting period shall be included, with the trip delay time clearly indicated for each trip. The time required for the CBO to acknowledge the trips sent is excluded from the measured time.
2. SLA damages example - For a 30-day month, the total number of system-built Trips is 200,000. Due to some system issue 1,000 of those Trips take more than 8 hours to post to the CBO. For the month, the system Trip Posting Time percentage is $(1 - (1,000/200,000)) = 99.5\%$. The LD would then be 2% of the monthly maintenance fee for the 0.5% below the 100% requirement.

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5.9 SP9 - Submission of Monthly Maintenance Report

The TISC is required to submit a TFH Monthly Maintenance Report (MMR) and two (2) Roadside MMR packages, one each for I-75 and I-85 Facility Pairs to SRTA monthly. The MMRs shall meet all requirements of the Operation and Maintenance Section of the RFP, Section 5.8.1: Monthly Maintenance Report and provide accurate measurements of SLAs from the previous calendar month. The TISC shall produce the MMRs commencing the first full calendar month (Month 1) following TFH Go-Live for the TFH MMR and the Facility FSIT for the Roadside MMRs.

SERVICE LEVEL AGREEMENT

Transition Level	Reports submitted by the 15 th calendar day of the month
Maintenance Level	Reports submitted by the 15 th calendar day of the month

Measurement Level

N/A

Transition Measurement Requirement

The time to submit the MMR shall be measured monthly during the Transition Period at the Transition Level requirement.

Operational Acceptance Test Measurement Requirement

Not applicable.

Maintenance Measurement Requirement

The time to submit the MMR shall be measured monthly during the Maintenance Period at the Maintenance Level requirements.

Damages

For every 1 day or portion thereof outside the SLA, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance/warranty fee.

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Measurement Method

Monthly SLA Report Submittal Timeframe = $(Date_{(Day\ report\ was\ delivered)} - Date_{(First\ day\ of\ the\ reporting\ month)})$

1. The TISC shall develop a report that communicates all SLAs for the Project. This report shall include cover page(s), summary SLA metrics described individually for each SLA, and any notes that might be required to describe performance results. The TISC shall make available to SRTA all detailed data supporting performance calculations.
2. If a report is submitted outside of the SLA timeframe, Liquidated Damages shall be assessed for each day the report is late.
3. In the event SRTA rejects a report because SRTA reasonably believes one or more of the reported SLA measurements are reported inaccurately, TISC shall submit a corrected report within seven (7) days of notice of rejection. If the resubmitted report is either late or contains inaccuracies or both, Liquidated Damages shall be assessed effective upon the date of the first rejection, excluding SRTA's review time.
4. If more than one MMR package is late, LDs shall only be assessed for the MMR sent the latest.
5. SLA damages example: In this example, the TFH monthly report is submitted two days late, the I-85 Facility Pair MMR Report is submitted on-time, and the I-75 Facility Pair MMR Report is submitted three days late. The LD would be $[0.5\% \times \text{monthly maintenance/warranty fee} \times 3 \text{ days}]$.

6 RESPONSE & REPAIR TIME

The TISC shall provide sufficient personnel, tools, and other necessary resources to meet the Response and Repair time requirements for maintenance events. Response and Repair Time SLAs will be measured and reported on monthly during the Transition Period, for the entire OAT period, and monthly thereafter during the Maintenance Period. The SLA applies to all Priority 1, 2, and 3 maintenance events.

Response time shall be measured as beginning when the TISC receives notification of the maintenance events or failures and ending when a maintenance technician arrives at the site of the problem or acknowledges the associated alarm or alert in the MOMS application. Repair time shall be measured from the time when the TISC receives notification of the maintenance events or failures and ending when the failure condition is corrected, and the system is returned to normal operation. Repair time shall exclude any time during which a stop clock condition is in effect.

The TISC may utilize reporting capabilities native to the MOMS in support of measuring and reporting on Response and Repair Times. Events will be tracked on an individual basis and summarized for the SLA reporting. This report shall communicate, at a minimum, detailed descriptions (log excerpts) of all priority 1, 2, and 3 events with associated maintenance event, failure detection, notification time, response time when the technician arrives at the site of the problem or acknowledges the associated alarm failure, and the time duration between the event notification and response for each event. This data may be extracted from work orders, and all work orders associated with events shall be reported on as supporting data. The report will clearly indicate all response and repair times that exceed the SLA requirements.

The TISC must meet all Response & Repair time SLAs regardless of the cause of any power failure, including but not limited to power failure resulting from Force Majeure. The TISC shall deploy available mobile or permanent generators to all communication network hub buildings, Toll Point, and TRDMS sites affected by a power failure within the Priority 1 repair time requirement based on the deployment order defined in the System and Installation Requirements Section of the RFP, Section 2.1.2.1.2: Electrical Infrastructure.

The Response & Repair time SLAs are applicable to all TISC, and all TISC related third party entities that support Repair and Response capacities.

The Response time shall not have time excluded from it for any reason. Exclusions for Repair SLAs are defined per chargeable and non-chargeable failures defined in Section 1.1: Chargeable and Non-Chargeable Failures.

Service Level Agreements

The TISC shall meet the following Repair and Response Time SLAs with no difference in requirement for Transition, OAT, and Operation and Maintenance Periods.

Priority	Response Time SLA	Repair Time SLA
RR1 - Priority 1	15 minutes	3 hours

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RR2 - Priority 2	15 minutes	6 hours
RR 3 - Priority 3	15 minutes	24 hours

Measurement Level

This SLA is a Roadside Type SLA and is measured for all maintenance events per Facility.

Damages

For every 15 minutes or portion thereof outside the Priority 1 Response Time SLA per event, the TISC shall be subject to Liquidated Damages in the amount of 0.5% of the monthly maintenance fee. For every 30 minutes or portion thereof outside the Priority 2 and Priority 3 Response Time SLAs per event, the TISC shall be subject to Liquidated Damages in the amount of 0.5% of the monthly maintenance fee.

For every 45 minutes or portion thereof outside the Priority 1 Repair Time SLA per event, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance fee. For every 90 minutes or portion thereof outside the Priority 2 Repair Time SLA per event, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance fee. For every 480 minutes or portion thereof outside the Priority 3 Repair Time SLA per event, the TISC shall be subject to Liquidated Damages in the amount of 0.5% of the monthly maintenance fee.

Definitions:

Maintenance Support Priority Levels

- Priority 1:** Any failure that will result in loss of ability to accurately collect revenue; impact SRTA system users in a major way with no workaround; prevent the accurate creation of Trips from traffic traveling in the Express Lanes; prevent the accurate calculation and posting of toll rates; create a safety hazard; or create a customer-facing issue for SRTA, including loss of functionality that impacts Interoperable Agencies or loss of auditability.
- Priority 2:** Failure of a system component 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. Some workarounds or temporary fixes are available.
- 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.

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7 HELP DESK RESPONSE TIME

The TISC shall supply personnel with expertise in the support of the system hardware, software, and database management system(s) to provide a help desk function for all TISC and TISC third-party supplied systems and subsystems. The help desk is intended to act as a central point of contact for all technical support, including hardware and software questions, installation of updated versions of software, networking, network connection requests, and troubleshooting.

For SRTA-initiated Help Desk requests, the TISC shall respond to requests within the required timeframe for all priority levels. Help Desk Response Time SLAs shall be measured and reported on during the Transition Period, OAT, and monthly thereafter during the Maintenance Period. The TISC may utilize reporting capabilities native to the MOMS or the work order/ticketing system in support of measuring and reporting on Help Desk Response Times. There shall be no difference in maintenance response and repair time requirements between the Transition Period and the Maintenance Period.

Service Level Agreements

Transition Level	30 minutes
Maintenance Level	30 minutes

Measurement Level

This SLA is a TFH Type SLA and is measured for all Help Desk tickets submitted during the measurement period.

Damages

For every 10 minutes or portion thereof outside the SLA per helpdesk request, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance fee.

8 SECURITY INCIDENT RESPONSE TIME

This SLA is measured from the time a security incident is declared by an authorized agent of SRTA or the TISC until the response occurs. Severity is initially determined by the person declaring the incident.

A security incident is defined as an attempted or successful, unauthorized access, use, disclosure, modification, mishandling or destruction of an information system, information system user, or the information that the information system processes, stores, or transmits; interference with information technology operations; or violation of explicit or implied provisions embodied in SRTA's security policies and procedures. Outages caused by scheduled maintenance, or authorized, planned activities that cause expected outages as part of those activities are not included in this definition. Examples of information security incidents may include (but are not limited to):

- Unauthorized access or use of a system
- Unauthorized use of the system as a gateway to other systems
- Unauthorized use of any account
- Compromise of "restricted", "confidential", non-public information
- Execution of malicious code that destroys data
- Computer security intrusion (physical)
- Unauthorized change to computer or software
- Loss or theft of equipment used to store private or potentially sensitive information
- Denial of service attack
- Interference with the intended use of an information technology resource
- Insider Sabotage
- Mishandling of Information / Data Assets

The following actions constitute a response: The response time shall begin when the TISC detects a security incident and ends when the TISC notifies designated SRTA incident response personnel of the security incident. The response time shall also begin when SRTA detects and notifies the TISC of a security incident and ends when the TISC acknowledges the notification from SRTA.

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Service Level Agreements

Severity Level	Response Time
Severity 1	1 hour
Severity 2	2 hours
Severity 3	12 hours
Severity 4	24 hours

Measurement Level

This SLA is a TFH Type SLA and is measured for all security incidents reported during the measurement period.

Damages

Severity 1 - For every 30 minutes or portion thereof outside the SLA per security incident, the TISC shall be subject to Liquidated Damages in the amount of 2% of the monthly maintenance fee.

Severity 2 - For every 30 minutes or portion thereof outside the SLA per security incident, the TISC shall be subject to Liquidated Damages in the amount of 1% of the monthly maintenance fee.

Severity 3 - For every 2 hours or portion thereof outside the SLA per security incident, the TISC shall be subject to Liquidated Damages in the amount of 0.5% of the monthly maintenance fee.

Severity 4 - For every 4 hours or portion thereof outside the SLA per security incident, the TISC shall be subject to Liquidated Damages in the amount of 0.5% of the monthly maintenance fee.

Definitions:

Security Incident Severity Levels

Severity 1: Any event causing life-safety event/issue; critical impact to the security of data and information systems; a business/mission critical System, Service, Application System, Equipment or network component to be substantially unavailable or seriously impact normal

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business operations; an error or Outage that affect either groups of people, or a single individual performing a business/mission critical function.

The event is one that has a high impact on the operation of the affected application or other service and that cannot be circumvented (i.e., there is no workaround available). The event, due to the immediacy of its effect on critical business functions, requires immediate resolution. The event is one that potentially causes severe or catastrophic harm to the organization's public reputation and public confidence.

Severity 2: Any event causing some functions of a business-critical system, service, application system, equipment, or network component used by a department or group to be unavailable or to not perform according to expected metrics; and an error or outage affects a group or groups of people, or a single individual performing a critical business function.

The event can materially affect the organization, causing a substantial impact. The effect of the event is such that it does not require immediate resolution. The event is one that potentially causes serious harm to the organization's public reputation and public confidence.

Severity 3: Any event causing a group or individual to experience a situation accessing or using a system, service, application system or network component, or a key feature thereof, but the situation does not prohibit or majorly hinder business operations.

The event does not materially affect the organization or cause a substantial impact but has the potential to do so if not resolved expeditiously. The effect of the event is such that it does not require immediate resolution. The event is one that potentially causes minor harm to the organization's public reputation and public confidence.

Severity 4: Any event that may require an extended resolution time, but the individual or group has a reasonable workaround while waiting for the resolution.

The event does not have an adverse impact on the business operations or SRTA Customers because (i) of either the nature of the fault or the limited impact of the fault and (ii) an acceptable work around is already in place. The effect of the event is such that it does not require immediate resolution. The event is one that potentially causes no harm to the organization's public reputation and public confidence.