

Monroe Expressway

2026 Roadside Toll Collection System

Request for Proposals

Mandatory Pre-Proposal Scope of Services Meeting

July 1, 2026

11:00 a.m. to 12:00 p.m. ET

Online via Web Conference

Technical & Price Proposal Due Date

August 26, 2026 (4:00 p.m. ET)

Physical Delivery Address

North Carolina Turnpike Authority

2501 Aerial Center Pkwy

Morrisville, NC 27560

Attn: Eliza Davis

Issue Date: June 22, 2026

Updated through Addendum 3 (August 6, 2026)

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Part I. Administrative

1. Notice of Request for Proposals

TITLE: Monroe Expressway Roadside Toll Collection System - Request for Proposals

ISSUING DATE: 06/22/2026

ISSUING AGENCY: North Carolina Turnpike Authority

CONTACT PERSON: Eliza Davis

1.1. Background and Purpose

The North Carolina Turnpike Authority (NCTA) is requesting written Proposals from qualified proposing Contractors ("Proposers") interested in providing a transition to a modern, low-infrastructure toll collection system. The ideal system shall leverage current industry technologies to maximize revenue collection and be designed to grow over the life of the program.

The North Carolina Turnpike Authority (NCTA), a business unit of the North Carolina Department of Transportation (NCDOT), was formed in 2002 by the North Carolina General Assembly. The mission of NCTA is to supplement the traditional non-toll transportation system by accelerating the delivery of roadway projects using alternative financing options and facilitating the development, delivery, and operation of toll roads.

NCTA operates approximately 56 miles of tolled expressway facilities on the North Carolina state highway network, including the Triangle Expressway near Raleigh, the Monroe Expressway near Charlotte, and an additional 17 miles of tolled Express Lanes on I-485 near Charlotte. In addition, NCTA's toll collection program also provides back-office toll transaction processing and customer service for the I-77 Express Lanes in Charlotte, an NCDOT public-private partnership project. In addition, there are several toll projects under construction or development in North Carolina, including Complete 540 Phase II (an extension of the Triangle Expressway), the Mid-Currituck Bridge, US-74 Express Lanes, and I-77 Express Lanes South.

NCTA's administrative and project development work is performed by professional teams comprised of NCTA staff, NCDOT staff, and consultants. This arrangement provides management oversight while assuring that necessary expertise is available when needed to advance projects in an efficient and timely manner. NCTA has primary responsibility for this Request for Proposals (RFP) process including defining the requirements addressed in this RFP, the evaluation of the Proposals submitted by Proposers, and execution and oversight of the Contract.

1.1.1. NCTA Project Goals

NCTA's Project goals are as follows:

- A roadside toll collection system that requires lighter infrastructure with no in-pavement sensors for any functions and can interface with newer technologies while,
- Adhering to the Implementation Schedule, requiring completion of all toll zones to the new system as outlined in **Exhibit A: Project Implementation Schedule**.

1.2. NCTA Facilities

NCTA staff, NCDOT staff, and consultants provide management oversight for all NCTA projects from the following facilities: The NCTA Office Building, NC Quick Pass Storefronts, NC Quick Pass Operations Centers, the Metrolina Regional Transportation Management Center, and the Statewide Traffic Operations Center.

NCDOT/NCTA Transportation Building

The headquarters for the NCTA staff is located at 2501 Aerial Center Pkwy, Suite 200, Morrisville, NC 27560.

NC Quick Pass Storefronts

NCTA operates two storefronts in North Carolina, which are located in Monroe and Charlotte. The Monroe Storefront is located approximately two (2) miles from the Monroe Expressway, midway between the project termini. The Charlotte Storefront is located just inside the I-485 loop around Charlotte, near the midpoint of the I-77 Express Lanes. These storefronts are in the vicinity of NCTA toll facilities for customers to perform NC Quick Pass business activities in person. The storefronts are responsible for housing the following services:

- Customer account creation and closure, management, and maintenance.
- NC Quick Pass Transponder inventory distribution and maintenance.
- Account Conversion management; and
- Walk-in customer service (e.g., dispute resolution, account payments, and replenishments).

NC Quick Pass Operations Center

NCTA currently operates two (2) NC Quick Pass Operations Centers in North Carolina. One is in Rocky Mount, which is co-located with other NC state buildings. The second one is in Winston-Salem. The NC Quick Pass Operations Centers house the call center, account management activities, and back-office operations activities. The NC Quick Pass Operations Centers also provide office space for the CSC management team, NCTA agency and consultant staff.

Metrolina Regional Transportation Management Center (MRTMC)

Highly trained NCTA operators monitor and manage traffic operations and coordinate incident response and maintenance/construction work for the Monroe Expressway from the Metrolina Regional Transportation Management Center (MRTMC) located in Charlotte at 2327 Tipton Dr. These operators are co-located with NCDOT managed operators who oversee the Charlotte regional road network. The NCTA operators are responsible for monitoring the Monroe Expressway from 5:30 a.m. to 9:30 p.m., 5-days a week using closed-circuit TV (CCTV) cameras, vehicle detectors, and Toll Zone security cameras. Additionally, they monitor roadside toll technology and facilities.

Statewide Transportation Operations Center (STOC)

NCTA operators at the Statewide Transportation Operations Center (STOC) Traffic Management Center (TMC) monitor the Triangle Expressway and take over management of the Monroe Expressway during the hours the MRTMC is not staffed. The STOC is located at the North Carolina National Guard's Joint Force

Headquarters at 1636 Gold Star Drive in Raleigh. The operators have the same duties, responsibilities, and tools at their disposal as the operators at the MRTMC. The STOC is staffed 24-hours a day, 7 days a week, 365 days a year.

1.3. NCTA Toll Program

NCTA operates and manages the NC Quick Pass® Electronic Toll Collection (ETC) and Bill by Mail programs utilized for toll facilities in North Carolina.

NC Quick Pass Transponder Accounts

As of April 2026, there are over 768,870 active prepaid NC Quick Pass Transponder Accounts with over 1.52 million active Transponders. NC Quick Pass Transponder Account holders have multiple Transponder options to fit specific travel needs, including paying tolls in other states. In addition, NC Quick Pass Transponder users receive a discounted toll rate on North Carolina toll facilities.

NC Quick Pass maintains partnership agreements with E-ZPass®, Florida's SunPass® and Georgia's Peach Pass®. The partnership with E-ZPass allows more than 51 million drivers with E-ZPass Transponders to use toll facilities in North Carolina, and enables all 19 states to accept NC Quick Pass as a form of payment. Similar agreements with SunPass and Peach Pass offer numerous toll payment options for travelers in the southeastern United States.

Currently, approximately seventy-four percent (74%) of tolls on the Triangle Expressway and I-77 Express Lanes are paid via prepaid Accounts. On the Monroe Expressway, approximately sixty-one percent (61%) of tolls are paid via prepaid accounts, and on the I-485 Express Lanes, approximately sixty-eight percent (68%) of tolls are paid via prepaid Accounts.

NC Only Accounts (Registered License Plate Accounts)

As of April 2026, there are over 10,970 active prepaid NC Only Accounts. The NC Only Account type is a type of NC Quick Pass Account that allows customers without a Transponder to receive a discounted toll rate only on North Carolina toll roads. This Account type is for customers who only drive on North Carolina toll facilities.

Toll Invoice Accounts (Unregistered License Plate Accounts)

As of April 2026, there are over 2.39 million active Toll Invoice Accounts. Customers traveling toll roads in North Carolina without a Registered Account (or Interoperable Transponder) are invoiced at a higher toll rate through the Toll Invoice program. The registered owner of the vehicle is identified by license plate, and an invoice is mailed to the address registered with the NC Division of Motor Vehicles (NCDMV). If the bill is not paid within thirty (30) days from the date of the invoice, the vehicle's registered owner could incur fees, civil penalties, DMV registration holds, and/or be turned over to a collection agency.

NC Quick Pass Operational Back Office (OBO)

The NC Quick Pass Operational Back Office (OBO) provides a centralized image processing system, reporting analytics and dashboards for all future roadways. The OBO will manage transaction processing, transponder status file processing, and determining transponder priority based on NCTA Business Rules. The system will provide the following functionality:

- Secondary OCR for all transactions.

- Manual image review.
- Transponder file processing.
- Determining AVI versus image transaction; and
- Reporting and data warehouse.

NC Quick Pass Back Office System Technology and Operations

The NC Quick Pass Operations contractor provides customer service support using a separate contractor's existing Commercial Back Office System (CBOS). The CBOS manages all the North Carolina toll collection system functionality and serves as an Electronic Toll Collection (ETC) clearing house for all toll transactions produced in the State. The current system provides functionality for:

- Posting all lane transactions (ETC, image-based and interoperable) to NC Quick Pass Transponder, NC Only, and Toll Invoice accounts.
- Customer service and customer interaction (website, mobile app, Interactive Voice Recognition (IVR), email, text message, etc.
- Financial transactions and account replenishment.
- Financial and lane transaction reconciliations.
- Revenue management.
- Inventory management and tracking; and
- Reporting.

The CBOS maintains all NC Quick Pass Transponder, NC Only and Toll Invoice accounts. Numerous interfaces required for interoperability, license plate lookup, document mailing, banking, credit card processing, collections, etc. are in place supporting on-going business processes.

1.4. NCTA Contact Person

Eliza Davis is the contact person on this RFP. Any questions in regard to this RFP shall be directed in writing to ncta_monroe_rtcs_rfp@ncdot.gov.

1.5. Information Posting

It is the responsibility of all prospective Proposers interested in responding to this RFP to routinely check the NCTA website at <https://connect.ncdot.gov/business/turnpike> for any revisions, question responses, Addenda, and changes to schedule and announcements related to this RFP. NCTA also will develop an email distribution list of contact persons for the Proposers who submit a Proposal and will email this additional information to such contact persons; however, this does not relieve Proposers of the responsibility to be aware of all additional information related to this RFP posted via the websites. NCTA and NCDOT grant permission to use its logo on Proposal Submittals.

2. General Information

2.1. RFP Inquiries and Notices

Proposers shall submit RFP inquiries as instructed below.

2.1.1. How to RSVP to the Mandatory Pre-Proposal Scope of Services Meeting

As indicated in **Table I-1: Procurement Schedule**, there is a mandatory pre-proposal meeting. Parties interested in submitting a Proposal must attend the Mandatory Pre-Proposal Scope of Services Meeting. To attend the mandatory meeting, an interested party must register using this Microsoft form: <https://forms.office.com/g/PBHvjb9iqR>. After submitting the Microsoft form, an email will be sent to the attendee's email address which will contain an attachment with the Microsoft Teams meeting details.

NOTE: Meeting registration will not be accepted after the deadline referenced in **Table I-1: Procurement Schedule**.

2.1.2. Submitting Questions during the Q&A Period

If Proposers have any questions regarding this RFP, they shall be submitted using the Proposer Questions Form found in **Exhibit C-4** by the deadline referenced in **Table I-1: Procurement Schedule**. All answers to these submitted inquiries will be posted on the NCTA website at <https://connect.ncdot.gov/business/turnpike> by the due date referenced in **Table I-1: Procurement Schedule**. Only inquiries in writing will be accepted by NCTA, and only written responses will be binding upon NCTA.

2.1.3. Submitting Questions after the Q&A Period

After the question-and-answer period, any additional questions regarding this RFP shall be emailed to the NCTA Contact Person identified in Part I, Section 1.4. Only inquiries in writing will be accepted by NCTA, and only written responses will be binding upon NCTA. Any inquiries received after the deadline referenced in **Table I-1: Procurement Schedule** may or may not be answered by NCTA at NCTA's sole determination.

2.2. Policy Statement

This procurement shall be conducted in accordance with all applicable Federal and State laws and regulations, and the policies and procedures of NCTA, as those may be amended. All future amendments to any such laws, regulations and applicable NCTA policies and procedures shall be applicable to this procurement. See **Appendix B: North Carolina Turnpike Authority Policies and Procedures for the Procurement of Commodities and Services (February 2009)**.

2.3. Non-Solicitation Provision

From the date that this RFP is issued until the award of Contract is announced, Proposers shall only contact NCTA in the manner identified in Part I, Section 1.4 with respect to any facet of this procurement. Proposers shall not be permitted to contact any NCTA or NCDOT employee, agent, or Evaluation Committee member with respect to this procurement. Violation of this provision shall result in the disqualification of the Proposer's Proposal.

2.4. Cost Incurred Responsibility

All costs incurred by any interested party in responding to this RFP shall be borne by such interested party. NCTA shall have no responsibility whatsoever for any associated direct or indirect costs.

2.5. Right to Reject

NCTA retains the right and option to reject any and all Proposals for any reason at its sole discretion, including, but not limited to, the following: failing to attend the Mandatory Pre-Proposal Scope of Services Meeting, failing to include any of the required information in the specified order, as further detailed in **Part IV, Proposal Content**, or failing to strictly comply with any of the instructions or mandates contained in the RFP.

2.6. Right to Cancel

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

2.7. Right to Amend and Addenda

NCTA reserves the right to amend, insert, or delete any item in this RFP if it is determined to be in the best interest of NCTA. If it becomes necessary to revise any part of this RFP, a written Addendum to the solicitation will be sent via email to the RFP email list and will be posted to NCTA's website in accordance with Part I, Section 1.5 Information Posting. NCTA expects to issue the last Addendum no later than the date for NCTA Inquiry Responses and Addendum (if required) Issued provided in **Table I-1: Procurement Schedule**. NCTA will not be bound by, and the Proposer shall not rely on, any oral or written communication or representation regarding the RFP documents, except to the extent that it is contained in an Addendum to these RFP documents or in the questions and answers as posted on the NCTA web site. In the case of a conflict between Addenda the latest Addendum shall apply.

Proposers are required to confirm the receipt of all Addenda issued to this RFP by completing **Exhibit C-6, Acknowledgement of Receipt of Addenda** and including the completed form in the Technical Proposal Section 8.

2.8. Written Clarifications

NCTA may request written clarifications to Proposals. NCTA will identify in its request the due date for response. If the requested information is not received by the due date for response, the Proposer's scores may be adversely affected.

2.9. Oral and Referenced Explanations

NCTA will not be bound by oral explanations or instructions given by anyone at any time during the Proposal process or after Contract award. NCTA will not consider Proposer referenced information not included in the Proposal; however, NCTA may consider other sources in the evaluation of Proposals, such as references, financial ratings, Proposer oral presentations and engineer's estimates, for example.

2.10. Oral Presentations and Interviews

NCTA reserves the right to request oral presentations and interviews with Proposers if NCTA decides that oral presentation and interviews are in its best interests. If oral presentations and interviews are used, NCTA will develop a compliant list for the oral presentations and interviews based on the scores of the Technical Proposals. See Part I, Section 4 Procurement Evaluation Process for more details.

In advance of any oral presentations and interviews, Proposers will be given detailed instructions on what the format and content of the presentation and interview will be, including what functionality, if any shall be demonstrated.

2.11. Proposal Submittal Deadline

Complete and separate Technical Proposals and Price Proposals shall be delivered by mail or to the front desk of the NCTA Office Building location presented on the cover page of this RFP, before the due date and time provided in **Table I-1: Procurement Schedule**, where they will be logged in as received. NCTA will not accept Proposals delivered after the due date and time.

2.12. Submittal Responsibility

The responsibility for submitting a Proposal to NCTA on or before the stated time and date will be solely and strictly the responsibility of the Proposer. NCTA will in no way be responsible for delays caused by the United States mail delivery, common carrier or caused by any other occurrence.

2.13. Waivers

NCTA may, at its sole discretion, waive minor informalities or irregularities in Proposals received where such is merely a matter of form and not substance, and the correction or waiver of which is not prejudicial to other Proposers. Minor irregularities are defined as those that will not have an adverse effect on NCTA's interest and will not affect the price of the Proposals by giving a Proposer an advantage or benefit not enjoyed by other Proposers.

2.14. Modification or Withdrawal of Proposals

NCTA will permit modifications to a Proposal after Proposal Submittal until the specified due date and time for accepting Proposals provided in **Table I-1: Procurement Schedule**. The Proposal may be picked up by a representative of the Proposer provided that the request to modify is in writing, is executed by the Proposer or the Proposer's duly authorized representative and is submitted to NCTA. It is the Proposer's responsibility to resubmit a Proposal before the deadline in accordance with the instructions and requirements for Proposal submission detailed in this RFP.

A Proposer may withdraw a Proposal without prejudice prior to the Submittal deadline provided in **Table I-1**, provided that the request is submitted in writing to the contact person noted in Part I, Section 1.4 NCTA Contact Person, is executed by the Proposer or the Proposer's duly authorized representative and is submitted with NCTA.

2.15. Confidentiality and RFP Ownership

The North Carolina Turnpike Authority is a public agency of the State of North Carolina, subject to the North Carolina Public Records Act, Chapter 132 of the North Carolina General Statutes. NCTA may maintain confidential information, including any designated as trade secrets or otherwise proprietary, only in accordance with applicable Federal and State laws or regulations. NCTA, therefore, expects that Proposers will keep confidential information designations to a minimum. Any material labeled as confidential constitutes a representation by Proposer that it has made a reasonable effort in good faith to determine that

such material is, in fact, a trade secret under G.S. § 132-1.2. Proposer are urged and cautioned to limit the marking of information as a trade secret or as confidential so far as is possible.

Proposer, having formed a good faith opinion, upon consultation with legal or other knowledgeable advisors, that information submitted may contain a trade secret as defined in G.S. § 66-152 or other information exempted from the North Carolina Public Records Act pursuant to G.S. § 132-1.2, may so designate appropriate portions of Proposer Materials by marking the top and bottom of pages containing confidential information in boldface type "CONFIDENTIAL." NCTA, however, may serve only as a custodian of information a Proposer deems confidential. NCTA shall not act as an arbiter or defender of any claims related to assertions of confidential information. If a request is made for disclosure of information submitted, or an action is brought to compel NCTA to disclose information marked confidential pursuant to G.S. § 132-1 et seq. NCTA will notify the affected Proposer of such request or action.

In submitting Proposer Materials in response to this RFP, a Proposer agrees to: (i) defend its assertions of confidentiality by instituting appropriate legal proceedings, at its own expense and through its counsel, or intervening in an action brought against NCTA to compel disclosure, to defend its assertions of confidentiality; and (ii) hold the State and NCTA, and any officials or employees thereof harmless from any and all damages, costs, and attorney's fees awarded against the State and NCTA arising out of any such actions. Nothing in this section shall preclude the State or NCTA from participating in the defense of such actions, at its option and expense through its counsel. NCTA shall have no liability to a Proposer with respect to the disclosure of any information, including confidential information, subject to an order by a court of competent jurisdiction pursuant to G.S. § 132-9 or any other applicable law.

In accordance with G.S. § 136-28.5, bids and documents submitted in response to an advertisement, or this RFP shall not be public record until the NCTA issues a decision to award or not to award the Contract.

2.16. Contractual Obligations

NCTA will not be required to evaluate or consider any additional terms and conditions submitted with a Proposal. This applies to any language appearing in or attached to the document as part of the Proposer's Proposal. By execution and delivery of this RFP and Proposal, the Proposer agrees that any additional terms and conditions or changes to the terms and conditions, whether submitted purposely or inadvertently, shall have no force or effect unless such are specifically accepted by NCTA. Further, all exceptions shall be taken in accordance with the instructions set forth in Part IV, Section 1.1. Content of Technical Proposal (I. Proposal Section 7: Adherence to the Scope of Work and Requirements, Terms and Conditions and Requirements Conformance Matrix).

2.17. Proposer's Bid

By submitting a Proposal to NCTA, the Proposer agrees that the Contractor's Technical Proposal and Price Proposal shall remain effective one hundred and eighty (180) Calendar Days after the deadline for submitting the Proposal. If NCTA determines it is in the best interest, NCTA may request that Proposers extend the date through which the Price Proposals are valid. Requests by NCTA for time extensions of Price Proposal validity will not result in change to the prices as stated in the original Price Proposals unless so specified in the request to extend or subsequently agreed to by NCTA in writing.

2.18. Certificate to Transact Business in NC

2.18.1. Out-Of-State Contractors

As a condition of Contract award, each out-of-state Contractor that is a corporation, limited-liability company or limited-liability partnership shall have received, and shall maintain throughout the term of the Contract, a Certificate of Authority to Transact Business in North Carolina from the North Carolina Secretary of State, as required by North Carolina law.

If applicable, the Contractor shall provide the Certificate of Authority to Transact Business in North Carolina to NCTA within fourteen (14) Calendar Days upon Notice of Award.

2.18.2. Foreign Contractors

As a condition of Contract award, each foreign Contractor that is a corporation, limited-liability company or limited-liability partnership shall have received, and shall maintain throughout the term of the Contract, a Certificate of Authority to Transact Business in North Carolina from the North Carolina Secretary of State, as required by North Carolina law.

The Contractor shall provide the Certificate of Authority to Transact Business in North Carolina to NCTA within fourteen (14) Calendar Days upon Notice of Award.

Note: Foreign Contractors should also comply with applicable foreign vendor tax withholding requirements established by the Internal Revenue Service (IRS).

2.19. Historically Underutilized Businesses

2.19.1. Policy

Pursuant to North Carolina General Statute G.S. 143-48, it is State policy to encourage and promote the use of small, minority, physically handicapped, and women Contractors in purchasing Goods and Services. As such, this RFP will serve to identify those Contractors that are minority owned or have a strategic plan to support the State's Historically Underutilized Business (HUB) program by the utilization of diverse firms as 1st or 2nd tier Subcontractors.

2.19.2. Obligation

In compliance with Title VI, 23 CFR 200, 230, 635, 117(d) and (e) and 49 CFR Parts 21 and 26, the Proposer and Subcontractor shall not discriminate on the basis of race, religion, color, creed, national origin, age, disability or sex in the performance of this Contract. Failure by the Proposer to comply with these requirements is a material breach of this Contract, which will result in the termination of this Contract or such other remedy, as NCTA deems necessary.

2.19.3. Participation

Due to the Scope of Work and Requirements for this Contract, specific goals are not established. However, NCTA encourages the utilization of Small Professional Services Firms (SPSF) Subcontractors and/or suppliers on professional services contracts led by NCDOT.

NCTA invites and encourages participation in this procurement process by businesses owned by minorities, women, disabled, disabled business enterprises and non-profit work centers for the blind and severely disabled. If applicable, Proposers are required to complete **Exhibit C-7, HUB Supplemental Vendor Information Form** and include the completed form in the Technical Proposal Section 8.

2.19.4. Subcontracting

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

The Proposer, at the time of the Technical Proposal Submittal, shall submit a list of all known Subcontractors that will participate in the performance of the identified Work. The participation of each Subcontractor shall be submitted on a separate Subcontractor Form RS-2. In the event the Proposer has no Subcontractor participation, the Proposer shall indicate this on the Subcontractor Form RS-2 by entering the word 'none' or the number 'zero' and the form shall be signed and submitted with the Technical Proposal.

The List of Subcontractors Form AND the RS-2 Form are both provided in **Exhibit C-2, List of Subcontractors and RS-2 Form**. See form instructions for each requirement. For TIP, enter the "Type of Work"; for "Submitted by" enter Subcontractor name and name of person responsible for Subcontractor performance; for "Recommended by" enter name of prime Proposer and person responsible for delivery of Services. See instruction no. 7 on form. ***A Subcontractor Form RS-2 is required for all Subcontractors whether or not they are considered a SPSF entity.***

2.19.5. Directory of Approved Transportation Firms

For Subcontractors to be considered for SPSF utilization, a firm shall be certified as SPSF and prequalified through North Carolina's Prequalification Unit. Real-time information about firms that are prequalified and Approved through North Carolina's Prequalification Unit, is available in the Directory of Firms. The Directory can be accessed at <https://www.ebs.nc.gov/ContractorDirectory/default.html>.

2.19.6. Reporting Participation

When payments are made to Subcontractors, including material suppliers, firms at all levels (Contractor or Subcontractors) shall provide NCTA's contract administrator (the addressee for invoices under this Contract)

with an accounting of said payments. The accounting shall be listed on NCTA's Subcontractor Payment Information Form (Form DBE-IS). In the event the firm has no Subcontractor participation, the firm shall indicate this on the Form DBE-IS by entering the word 'none' or the number 'zero' and the form shall be signed. Form DBE-IS may be accessed on the NCDOT website at [https://connect.ncdot.gov/projects/planning/TransPlanManuals/MPO_Contractor%20_Payment_Form\(DBE-IS\).pdf](https://connect.ncdot.gov/projects/planning/TransPlanManuals/MPO_Contractor%20_Payment_Form(DBE-IS).pdf).

A responsible fiscal officer of the payee Firm, or Subcontractor, who can attest to the date and amount of the payments shall certify that the accounting is correct on the Form DBE-IS by affixing his/her signature. This information shall be submitted as part of the requests for payments made to NCTA.

2.20. Federal Aid Requirements

Due to the potential of Federal Aid in implementations of various portions of NCTA Facilities RFP, NCTA has provided related instructions and information in **Appendix A: Standard Special Provision Title VI**. Proposers shall also include the appropriate completed Non-Collusion Forms provided in **Exhibit C-5, Non-Collusion Forms** in Technical Proposal Section 8.

2.21. Insurance Requirements

The Contractor, at all times during the Term of this Agreement, shall maintain the ability to secure insurance in such form as is satisfactory to NCTA, and will furnish NCTA with continuing evidence of insurance viability as provided below. Insurance shall be secured according to Task Orders executed within this Contract. With respect to any insurance policy required pursuant to this Agreement, all such policies shall be issued by companies licensed to do business in the State of North Carolina and all such insurance shall meet all laws of the State of North Carolina. The Contractor shall at all times comply with the terms of such insurance policies, and all requirements of the insurer under any such insurance policies, except as they may conflict with existing North Carolina laws or this Contract.

NCTA shall be named as an "additional insured" on all applicable coverage. The Contractor shall provide NCTA with certificates issued by the insurer showing the required coverage to be in effect and showing NCTA to be an additional insured. Such policies shall provide that the insurance is not cancelable except upon thirty (30) Calendar Days prior written Notice to NCTA. The certificates and policies shall provide that in the event of any material change in or cancellation of the policies reflecting the required coverage, thirty (30) Calendar Days advance Notice shall be given to NCTA or as provided in accordance with North Carolina law. Material change includes but is not limited to change in limits, coverage, or status of the policy. Copies of all insurance policies and endorsements shall be provided to NCTA upon request.

NCTA reserves the right to review all insurance coverage and amounts of insurance coverage on an annual basis and to require the Contractor to adjust the insurance coverage and amounts of insurance coverage based on industry standards for contracts of this size and type. Contractor shall timely pay all premiums and deductibles when due for all insurance coverage required herein.

The Contractor shall not commence any Work until it has obtained the following types of insurance, and a certificate of such insurance has been received and Approved by NCTA. Nor shall the Contractor allow any Subcontractor to commence Work until all insurance required of the Subcontractor has been obtained. The

Contractor shall provide the required Certificates of Insurance to NCTA within fourteen (14) Calendar Days upon Notice of Award for the initial Technical And Price Proposal submitted to NCTA. Subsequent Certificates of Insurance shall be provided to NCTA within fourteen (14) Calendar Days after the Task Orders executed within this Contract.

During the term of the Contract, the Contractor at its sole cost and expense shall provide commercial insurance of such type and with such terms and limits as may be reasonably associated with the Contract. As a minimum, the Contractor shall provide and maintain the following coverage and limits in its Technical Proposal and throughout the Contract Term:

1. Worker's Compensation - The Contractor shall provide and maintain Worker's Compensation Insurance, as required by the laws of North Carolina, as well as employer's liability coverage with minimum limits of \$100,000.00, covering all of Contractor's employees who are engaged in any Work under the Contract. If any Work is sublet, the Contractor shall require the Subcontractor to provide the same coverage for any of his employees engaged in any Work under the Contract; and
2. Commercial General Liability Policy - Combined Single Limits: \$1,000,000.00 per person, \$3,000,000.00 per occurrence The Commercial General Liability Policy shall include contractual liability coverage and shall be on an "occurrence" basis. A Comprehensive General Liability Policy may be substituted for the Commercial General Liability Policy if the Comprehensive General Liability Policy has been endorsed to insure contractual liability, broad form property damage, and personal injury liability.
3. Business Automobile Liability Policy - To include liability coverage covering all owned, hired and non-owned vehicles used in connection with the Contract. Combined Single Limits: \$1,000,000.00 per person \$3,000,000.00 per occurrence; and
4. Professional Liability Policy- Any other provision herein to the contrary notwithstanding, the Professional Liability Policy shall be with a company authorized to do business in the State of North Carolina, affording professional liability coverage for the professional services to be rendered in accordance with this Contract in the amount of at least one million dollars (\$1,000,000). The Contractor shall maintain professional liability coverage for a minimum of three (3) years after completion of the Services rendered under this Contract.
5. Technology Errors & Omissions- The Contractor shall maintain technology errors & omissions liability (or technology professional liability coverage) insurance, covering liability for all professional products and services performed, including liabilities arising from acts, errors or omissions in rendering computer or information technology services including (1) systems analysis (2) systems programming (3) data processing (4) systems integration (5) outsourcing development and design (6) systems design, consulting, development and modification (7) training services relating to computer Software or Hardware (8) management, repair and Maintenance of computer products, networks and systems (9) marketing, selling, servicing, distributing, installing and maintaining computer Hardware or Software (10) data entry, modification, verification, Maintenance, storage, retrieval or preparation of data output with a limit not less than ten million dollars (\$10,000,000) per occurrence. This insurance shall provide coverage for Software copyright liability and contractual liability. Such Technology E&O insurance coverage may be met through or combined with the Professional Liability Insurance referenced in paragraph d; however, if combined then

the coverage requirement for Technology E & O insurance shall be equal or greater than the combined aggregate.

6. Cyber Liability Insurance- The Contractor shall maintain Privacy and Network Security (Cyber Liability) insurance covering liability arising from (1) hostile action, or a threat of hostile action, with the intent to affect, alter, copy, corrupt, destroy, disrupt, damage, or provide unauthorized access/unauthorized use of a computer system including exposing or publicizing confidential electronic data or causing electronic data to be inaccessible (2) computer viruses, Trojan horses, disabling codes, trap doors, back doors, time bombs drop-dead devices, worms and any other type of malicious or damaging code (3) dishonest, fraudulent, malicious, or criminal use of a computer system by a person, whether identified or not, and whether acting alone or in collusion with other persons, to affect, alter, copy, corrupt, delete, disrupt, or destroy a computer system or obtain financial benefit for any party or to steal or take electronic data (4) denial of service for which the insured is responsible that results in the degradation of or loss of access to internet or network activities or normal use of a computer system (5) loss of service for which the insured is responsible that results in the inability of a third-party, who is authorized to do so, to gain access to a computer system and conduct normal internet or network activities (6) access to a computer system or computer system resources by an unauthorized person or persons or an authorized person in an unauthorized manner with a limit not less than ten million dollars (\$10,000,000) per occurrence. This insurance shall include coverage for emotional distress and mental anguish. Such Cyber Liability insurance coverage may be met through or combined with the Professional Liability Insurance referenced in the above paragraph 4 or the Technology Errors and Omissions Insurance referenced in paragraph 5 above; however, if combined then the coverage requirement for Cyber Liability insurance shall be equal or greater than the combined aggregate.

Pertaining to the above paragraphs 4, 5, 6, if coverage is written on a claims made basis, such insurance shall be maintained in force at all times during the term of this Agreement and for a period of three (3) years thereafter for Services completed during the term of this Agreement. Additionally, if a sub-limit applies to any elements of coverage, the policy endorsement evidencing the coverage above shall specify the coverage section and the amount of the sub-limit. Providing and maintaining adequate insurance coverage described herein is a material obligation of the Contractor and is of the essence of this Contract. The limits of coverage under each insurance policy maintained by the Contractor shall not be interpreted as limiting the Contractor's liability and obligations under the Contract.

Subcontractors Insurance: The Contractor shall either require each Subcontractor to obtain and maintain Workers' Compensation Insurance and Commercial General Liability coverage similar to those required above in this section for the Contractor, or any other coverage deemed necessary to the successful performance of the Contract or cover Subcontractors under the Contractor's policies. Such coverage shall be in effect at all times that a Subcontractor is performing Work under the Contract. The Contractor shall have responsibility to enforce Subcontractor compliance with these or similar insurance requirements; however, the Contractor shall upon request provide NCTA acceptable evidence of insurance for any Subcontractor. The Contractor shall assume all reasonability for risks or casualties of every description, for any and all damage, loss or injury, to persons or property arising out of the nature of the Work, including but not limited to the negligence or failure of its Subcontractors (as well as Contractor's employees) to comply with Contract Documents.

2.22. Prevailing Wages

Contractor shall pay or cause to be paid to applicable workers employed by it or its Subcontractors to perform the Work not less than the prevailing rates of wages. Contractor shall comply and cause its Subcontractors to comply with all laws pertaining to prevailing wages. For the purpose of applying such laws, the Project shall be treated as a public work paid for in whole or in part with public funds (regardless of whether public funds are actually used to pay for the Project). It is the Contractor's sole responsibility to determine the wage rates required to be paid. In the event rates of wages and benefits change while this Contract is in effect, Contractor shall bear the cost of such changes and shall have no claim against NCTA on account of such changes.

2.23. Work Zone Safety Guidelines

NCDOT has taken steps to maintain a safe and healthy work zone. The Contractor is expected to follow the procedures and guidelines implemented by NCDOT as described in Part III, Section 3.10.8 General MOT Requirements and Conditions and Section 3.10.10 Compliance to Standards.

3. Schedule

Below, **Table I-1: Procurement Schedule** provides a planned schedule for this RFP process, listed in the order of occurrence. NCTA reserves the right to change any or all of these dates as it deems necessary or convenient in its discretion. In the event of such a date change, Proposers will be notified in accordance with Part I, Section 1.5 Information Posting.

Table I-1: Procurement Schedule

Milestone	Date
RFP Issued	June 22, 2026
RSVPs Due for the Mandatory Pre-Proposal Scope of Services Meeting	July 1, 2026 (10:00 AM ET) Interested parties are required to register for the meeting using the Microsoft form provided in Part I, Section 2.1.1.
Mandatory Pre-Proposal Scope of Services Meeting	July 1, 2026 (11:00 AM – 12:00 PM ET) The meeting will be held online via web conference. The meeting may be recorded by NCTA and all attendees must state name so the company may be counted as present. See further details below.
Proposer Questions Due	July 15, 2026 (4:00 PM ET)
NCTA Response to Questions	July 29, 2026
Technical AND Price Proposals Due	August 26, 2026 (4:00 PM ET)
Notification of Proposers Shortlisted	September 24, 2026
Oral Interviews & Presentations (<i>Shortlisted Proposers to be notified as to the specific schedule within the time identified</i>)	Week of October 5, 2026
Ranking of Shortlisted Proposers for Negotiations	October 16, 2026
BAFO (<i>if needed</i>)	Week of October 19, 2026
Notice of Award	Week of October 26, 2026

3.1. Mandatory Pre-Proposal Scope of Services Meeting

NCTA will convene a **MANDATORY** and **VIRTUAL** Pre-Proposal Scope of Services meeting for interested firms on the date and time presented in **Table I-1** above. Interested parties must register for the meeting using the Microsoft form linked in Part I, Section 2.1.1 by the date and time presented in **Table I-1**. NCTA has elected to host the meeting online via web conference only. The purpose of the meeting is to present details of the RFP, discuss the approach to the procurement, and provide attendees with an opportunity to ask questions about the RFP, the procurement approach, or NCTA requirements.

IMPORTANT NOTE: Attendance at the meeting is required for all Proposers who will submit Proposals for the Project. An affiliated entity of a firm that attended the Mandatory Pre-Proposal Scope of Services Meeting is eligible to submit a Proposal.

4. Procurement Evaluation Process

An evaluation and negotiation process will be conducted as set forth in this Section 4 using a Best Value process to allow NCTA to award the Contract to the Proposer providing the Best Value and recognizing that Best Value may result in award to other than the lowest price or highest technically qualified Proposal. By using this method, the overall ranking may be adjusted up or down by the Evaluation Committee when considered with or traded-off against other non-price factors. "Best Value" procurement methods are authorized by G.S. §143-135.9 and in accordance with NCTA Policies and Procedures adopted by the NCTA Board February 18, 2009.

Pursuant to G.S. §143-135.9, the award decision is made based on multiple factors, including: total cost of ownership, meaning the cost of acquiring, operating, maintaining, and supporting a product or service over its projected lifetime; the evaluated technical merit of the Contractor's offer; the Contractor's past performance; and the evaluated probability of performing the specifications stated in the solicitation on time, with high quality, and in manner that accomplishes the stated business objectives and maintains industry standards compliance. The intent of "Best Value" Information Technology procurement is to enable Contractors to offer and the Agency to select the most appropriate solution to meet the business objectives defined in the solicitation and to keep all parties focused on the desired outcome of procurement.

4.1. Technical Proposal Pass / Fail Screening

In response to this RFP, each Proposer shall submit a Technical Proposal in strict compliance with the Requirements outlined herein. Immediately following the Technical Proposal due date, as detailed in **Table I-1**, an NCTA representative shall validate the completeness of each Technical Proposal, including all Technical Proposal sections, correctly completed forms, and required information. Technical Proposals which are incomplete may be rejected.

Note: Proposers are advised that NCTA is not obligated to ask for, or accept after the Technical Proposal due date, data that is essential for a complete and thorough evaluation of the Technical Proposal.

4.2. Technical Proposal Evaluation

1. The evaluation process will consist of a quantitative scoring and ranking of the Technical Proposals to ascertain how well each Proposal meets NCTA's needs for the Project. The Technical Proposals will

be evaluated on their material content and their responsiveness and degree of adherence to Part III, Scope of Work and Requirements set forth in this document. The Evaluation Committee will review and evaluate the Technical Proposals and the other related Contract information submitted to ensure that the Proposer understands the **Part III, Scope of Work and Requirements** and has clearly expressed its intent to meet the Requirements of the Contract.

2. **Preliminary Technical Scoring.** Following Technical Proposal review, the Evaluation Committee will score the Technical Proposals with maximum potential technical score points for each Technical Proposal as shown in **Table I-2** below.
3. **Non-Compliant.** Any Technical Proposals scored below 70 out of 100 possible total points on the preliminary evaluation will be considered non-compliant and will not be considered further.
4. **Shortlist of Proposers.** Proposers who score above 70 during preliminary technical scoring may be eligible to be shortlisted. The Evaluation Committee will develop a shortlist of the top-ranked Proposers who will be invited to participate in oral presentations and interviews.
5. **Oral Presentations and Interviews with Shortlisted Proposers.** The oral presentations and interviews and any required demonstrations conducted therein will provide an opportunity for the Evaluation Committee to further its understanding of the Technical Proposals.
6. **Updated Technical Scoring.** After the oral presentations and interviews, the Evaluation Committee may update, in NCTA's sole discretion, the preliminary technical scoring. The updated scoring will consider both the Technical Proposal and the results of the oral presentations and interviews and demonstrations if conducted, with maximum potential technical score points for each Technical Proposal as shown in **Table I-2** below.

4.3. Technical Proposal Scoring

The overall Technical Proposals are scored as shown in **Table I-2** below:

Table I-2: Technical Proposal Elements and Maximum Possible Points Breakdown

Technical Proposal Elements	Maximum Possible Points
Proposal Section 1: Proposer Qualifications	5
Proposal Section 2: Key Team Qualifications	5
Proposal Section 3: Approach to Scope of Work and Requirements	30
Proposal Section 4: Approach to Project Plan, Implementation, Interfaces, and Testing	25
Proposal Section 5: Approach to Transition	10
Proposal Section 6: Approach to Operations & Maintenance	20
Proposal Section 7: Requirements Conformance Matrix, Terms and Conditions, Assumptions and Exceptions	5
Maximum Possible Technical Points	100

4.4. Price Proposal Submission

After compilation of the updated scores for Technical Proposal scoring following the oral presentations and interviews, the Evaluation Committee will open the sealed Price Proposals only for the Shortlisted Proposers.

4.5. Price Review and Scoring

The Price Proposals will be reviewed and scored as outlined below.

- a) The Evaluation Committee will use a table based on the maximum quality credit percentage to assign a Quality Credit Percentage to each Technical Proposal based on that Proposal's final technical score. The maximum quality credit percentage for this project will be 75%. The Evaluation Committee may assign point values to the nearest one-tenth of a point (e.g., 90.3). In this event, the Quality Credit Percentage will be determined by linearly interpolating within **Table I-3** shown below.

Table I-3: Quality Credit Percentage for Technical Proposals

Technical Score	Quality Credit (%)	Technical Score	Quality Credit (%)	Technical Score	Quality Credit (%)
100	75.00%	90	50.00%	80	25.00%
99	72.50%	89	47.50%	79	22.50%
98	70.00%	88	45.00%	78	20.00%
97	67.50%	87	42.50%	77	17.50%
96	65.00%	86	40.00%	76	15.00%
95	62.50%	85	37.50%	75	12.50%
94	60.00%	84	35.00%	74	10.00%
93	57.50%	83	32.50%	73	7.50%
92	55.00%	82	30.00%	72	5.00%
91	52.50%	81	27.50%	71	2.50%
				70	0.00%

- b) The Evaluation Committee will review the Price Proposals and apply the quality credit as defined above. ~~If the Price Proposal is within the acceptable range of the Engineer's Estimate or NCTA's Plan of Finance budget the Proposer with the lowest adjusted price will be selected.~~
- i. **Table I-4** below shows an example of the calculation involved in this process. In this example, Vendor C is the successful Contractor and Vendor E failed to qualify as their Technical Score was below 70.

Table I-4: Example of Quality Adjusted Price Ranking

	Technical Score	Quality Credit %	Price Proposal (\$)	Quality Value (\$)	Adjusted Price (\$)
Vendor A	94.0	60.00%	\$325,000.00	\$195,000.00	\$130,000.00
Vendor B	90.0	50.00%	\$290,000.00	\$145,000.00	\$145,000.00
Vendor C	92.0	55.00%	\$280,000.00	\$154,000.00	\$126,000.00
Vendor D	80.0	25.00%	\$200,000.00	\$50,000.00	\$150,000.00
Vendor E	69.0	0.00%			
Note 1: Maximum Technical Score Percentage is 75%					
Note 2: Minimum Technical Score to Qualify is 70					

- ~~c) NCTA reserves the right to request a Proposer to confirm or withdraw the Price Proposal which deviates from the average of all other qualified Price Proposals by more than 15%. If a Proposer confirms their Price Proposal which deviates from the average of all other qualified Price Proposals by more than 15%, NCTA reserves the right to disqualify the Price Proposal unless the Proposer provides supporting documentation sufficient to, in NCTA's sole discretion, explain the reason for the deviation.~~
- c) Any Price Proposal that is more than 15% below both the Engineer's Estimate and the average of all other qualified Price Proposals will be rejected.

d) If a Proposer's Price Proposal is more than 15% below either the average of all other qualified Price Proposals or the Engineer's Estimate, NCTA reserves the right, in its sole discretion, to disqualify the Proposal or request the Proposer to provide supporting documentation sufficient, in NCTA's sole discretion, to explain the reason for the deviation.

4.6. Negotiations and Best and Final Offers (BAFOs)

NCTA reserves the right to negotiate with multiple Proposers concurrently or serially at its sole discretion that are determined to be in a competitive range based upon the evaluation process described above. NCTA may select none, one, or more than one Proposer. Finalist Proposers may be requested to provide Best and Final Offers (BAFOs) in response. If BAFOs are requested, NCTA will evaluate the BAFOs and adjust its evaluation of the Proposer's respective Proposal accordingly. Further, should negotiations with one Proposer not be successful, NCTA reserves the right to negotiate with the next ranked Proposer or Proposers at NCTA's sole determination.

5. Award and Execution of Contract

5.1. Notice of Award

Following evaluation and negotiations, NCTA may execute a Contract with the successful Proposer. NCTA will notify the successful Proposer in writing via a Notification of Award letter via email.

The successful Proposer will have fourteen (14) Calendar Days after receipt of the Notification of Award to furnish the performance and payment bonds, insurance, and the certificate to transact business in NC (if applicable) as required in the Notification of Award letter. If the successful Proposer defaults or otherwise is unable to enter into a Contract with NCTA, then NCTA may begin negotiations with the next highest ranked Proposer or Proposers as further set forth in Part I, Section 4.6, Negotiations and Best and Final Offers.

NCTA will issue an original Contract for execution by the successful Proposer. After the Contract is executed by NCTA, a duplicate copy will be sent back to the Contractor.

Bonding Requirements. All payment and performance bonds will be handled using the following procedures.

Payment and Performance Bonds:

- a. Proposer shall submit evidence that it is capable of obtaining Contract payment and performance bonds in an amount equal to 100 percent of the Contract Proposal Price for the Implementation Phase and for one year of Operations and Maintenance as further set forth in the paragraphs immediately below. The Operations and Maintenance Phase commence following the completion of the Go-Live. A surety letter submitted with the Price Proposal is acceptable evidence of meeting this bond requirement. The form for this letter is included as **Exhibit C-10: Surety Commitment Letter**. The completed letter shall be included in the Price Proposal submission.
- b. The initial bonds shall be in the amount of 100 percent of the total Project Implementation, Installation and System Acceptance Phase price as set forth in the Proposer's Price

Proposal Sheet 1 Project Summary Grand Total for Implementation, Installation and System Acceptance Phase (cell E16). This bond amount will be decreased after the Project enters the Operations and Maintenance Phase and the Operations and Maintenance Bond has been secured as detailed below. The Implementation Phase Bonds may be annually renewable, to be renewed each year at the anniversary of Contract execution.

- c. Bonding shall be continuous in that the Operations and Maintenance Bond associated with the Project must be provided prior to the release of the Implementation Phase Bond for that roadway. The initial bonding level for the Operations and Maintenance Phase shall be provided at 100 percent of Year 1 of Operations and Maintenance. For purposes of the Surety Commitment (**Exhibit C-10**) bonding levels are as shown as the sum of Sheet 5 RSS Maintenance (7x) cell D4 plus Sheet 6 TRH Maintenance cell D4 plus Sheet 7 Facility Maintenance (7x) cell D4 and may be annually renewable, to be renewed each year at the anniversary date of Final Acceptance through the end of the Contract. The value of the bond for each year beyond Year I shall be in the amount of 100 percent of the estimated Operations and Maintenance Costs for the upcoming Operations and Maintenance Year.

6. Proposer Debrief

Once a Contract has been awarded, all Proposers will be afforded the opportunity for a debriefing with NCTA regarding the relative merits of their Technical and Price Proposal submittals.

7. Protest Procedure

Each Proposer, by submitting its Proposal, expressly recognizes the limitation on its rights to protest contained herein, expressly waives all other rights, and remedies, and agrees that the decision on any protest, as provided herein, shall be final and conclusive. These provisions are included in these RFP documents expressly in consideration for such waiver and agreement by the Proposers. If a Proposer disregards, disputes, or does not follow the exclusive protest remedies set forth in these RFP documents, it shall indemnify, defend, and hold NCTA and NCDOT, and their respective Board members, directors, officials, employees, Agents, representative, and consultants, harmless from and against all liabilities, expenses, costs, fees, and damages incurred or suffered as a result of such Proposer actions. The submission of a Proposal shall be deemed the Proposer's irrevocable and unconditional agreement with such indemnification obligation.

1. Any request for a protest meeting shall be in writing and filed with the NCTA Executive Director at the address specified below and shall be received within thirty (30) consecutive Calendar Days from the date of the Contract award. Any protest not set forth in writing, including oral objections, is not a protest and shall be null and void.

North Carolina Turnpike Authority
2501 Aerial Center Pkwy, Suite 200
Morrisville, NC 27560
Attn: NCTA Executive Director

2. All protests shall include the following: 1) Name and Address of Protestor; 2) RFP Name and date of issuance; 3) Specific reasons for protest; and 4) Supporting exhibits, evidence, or documents to support the protest.
3. If the protest does not contain this information or if the Executive Director determines that a meeting would serve no purpose, the Executive Director may, within ten (10) consecutive Calendar Days from the date of receipt of the letter, respond in writing to the Proposer and refuse the protest meeting request.
4. If the protest meeting is granted, the Executive Director shall attempt to schedule the meeting within thirty (30) consecutive Calendar Days after receipt of the letter, or as soon as possible thereafter. Within ten (10) consecutive Calendar Days from the date of the protest meeting, the Executive Director shall respond to the Proposer in writing with the Executive Director's decision.
5. The Executive Director may appoint a designee to act on the Executive Director's behalf regarding these protest procedures.
6. Protest Submittal Requirements – See **Appendix B: North Carolina Turnpike Authority Policies and Procedures for the Procurement of Commodities and Services (February 2009)**.
7. All Proposals shall be irrevocable until the final administrative and judicial disposition of a protest.

Part II. Defined Terms & Acronyms

1. Defined Terms

Term	Definition
Acceptance	Approval of a Phase or a test by NCTA, based on meeting certain conditions and test requirements, including Approvals, set forth in Part III, Scope of Work and Requirements and the Agreement.
Access Control and Security Monitoring Systems (ACSMS)	A system to manage physical access to facilities while continuously monitoring security-related events.
Addendum or Addenda	A document created to capture any clarification, update, amendment, addition, deletion or modification made to the RFP during the procurement process.
Agreement	Also referred to as the "Contract." It is the written Contract between NCTA and the respective Contractor covering all parts of this Project.
Agreement Term	The duration of the Agreement, including any authorized renewals and extensions. Also referred to as "Contract Term."
Amendment	Change in the Agreement executed in writing made by adding, altering, or omitting a certain part or terms.
Appendix	A collection of supplementary material for reference purposes only.
Approve	The term "Approve" and its variations (e.g., "Approval" or "Approved"), when capitalized in this Agreement refer to acceptance of a process, vendor, document, condition, action or Deliverable in writing by NCTA. Approval by NCTA shall not be construed to mean endorsement or assumption of liability by the NCTA nor shall it relieve the Contractor of its responsibilities under the Agreement.
Attachment	Any documentation, appended to this Contract, which does not establish a requirement for Deliverables.
Business Day	A day, excluding NCTA observed Holidays, Saturdays, and Sundays.
Calendar Day	Every day, including weekends and Holidays, beginning at 12:00:00 a.m. and ending at 11:59:59 p.m.
Commercial Back Office System (CBOS)	Customer account management system including all business interfaces to process payments for prepaid accounts, invoice customers, process payments for post-paid customers, and maintain customer accounts. The CBOS also interfaces with Interoperable Agencies in participating programs and to specialized third-party aggregators such as mobile applications, fleet, or commercial drivers.
Contract	See "Agreement."

Term	Definition
Contract Documents	All of the documents that make up the Contract, including but not limited to: • Executed Agreement, including RFP, all executed RFP Addenda, BAFO, and Amendments; • Part I, Administrative; • Part II, Defined Terms and Acronyms; • Part III, Scope of Work and Requirements, as conformed; • Part V, Terms and Conditions; • Contractor's Technical Proposal • Contractor's Price Proposal • Other Proposer Materials
Contract Term	See "Agreement Term."
Contractor(s)	The person, firms, corporation or entities undertaking the execution of the Work with whom NCTA has entered into an Agreement.
Deliverable(s)	Deliverables, as used herein, shall comprise all Hardware, Contractor Services, professional services, Software and provided modifications to the Software, and incidental materials, including any goods, Software or Services access license, data, reports and Documentation provided or created during the performance or provision of Services hereunder and as further defined in Part V, Terms and Conditions, Section 3.7.7.
Department/Division of Motor Vehicles (DMV)	An authority responsible for motor vehicles registrations and provides ownership data to NCTA for vehicle owner identification. See "NCDMV."
Equipment	See "Hardware."
Evaluation Committee	The Committee NCTA will use to evaluate Proposer Materials as described in this RFP, to determine the Best Value Proposer.
Exhibit	A supplement to this Contract that establishes requirements for Deliverables.
Express Lane	A limited access expressway lanes or roadways separated from adjacent general-purpose lanes and employing payment of tolls to manage demand.
Extra Work Orders	Changes resulting in additions or deletions to the type or value of Services provided pursuant to this Agreement as directed by NCTA.
Go-Live	The date in which live toll revenue collection operations commence. When the first Toll Zone of the Project is commissioned and RTCS systems are sending correct data transmission to and from the NCTA OBO in full revenue service and successfully collecting revenue at the Toll Zone.
Hardware	An all-inclusive term to mean the Equipment, Hardware, associated peripherals, associated firmware, electrical and other materials and supplies necessary or furnished by the Contractor to provide Services pursuant to the Contract Documents.
Holidays	Days that are designated by NCTA as Holidays for purposes of this Agreement.

Term	Definition
Implementation Phase	The phase of the Project begins at Implementation Phase Notice to Proceed and ends at System Acceptance. Also known as "Implementation". The Implementation Phase and Operations and Maintenance Phase will overlap.
Intelligent Transportation System (ITS)	A broad range of diverse technologies, including information processing, communications, control and electronics, which, when applied to our transportation system, can save time, money and lives.
Key Performance Indicators (KPIs)	Technical performance measurements or metrics used to evaluate Contractor performance.
Liquidated Damages	Damages, whose amount the parties designate during the formation of a contract, for the injured party to collect as compensation upon a specific breach.
Maintenance	Services performed by the Contractor pursuant to Part III, Scope of Work and Requirements . May also be referred to as "Maintenance Services".
Maintenance Services	The Maintenance and related Services required to be furnished by the Contractor, pursuant to the Contract Documents. See "Maintenance Phase".
NCTA Designated Representatives	Person or persons authorized by NCTA to represent NCTA in all dealings with the Contractor.
North Carolina Department of Transportation (NCDOT)	A governmental agency in North Carolina responsible for building, repairing, and operating highways, bridges, and other modes of transportation, including ferries in the U.S. state of North Carolina.
North Carolina Division of Motor Vehicles (NCDMV)	See "Department/Division of Motor Vehicles (DMV)."
North Carolina Turnpike Authority (NCTA)	A Business Unit of NCDOT, responsible for supplementing the traditional non-toll transportation system serving the citizens of North Carolina by accelerating the delivery of roadway projects using alternative financing options and facilitating the development, delivery and operation of an integrated, creative system of toll roads.
Notice	A formal communication addressing legal and Contractual matters, not applicable to daily Implementation and Operation and Maintenance communications.
Notice to Proceed (NTP)	The written authorization by NCTA designating the date and time for the Contractor to commence Work on a specific phase of the project.

Term	Definition
Operational Back Office (OBO)	NCTA provided system that validates transactions received from the Contractor TRH in accordance with the Attachment 1: NCTA Business Policies, performs business processes including license plate image review, transaction filtering prior to sending transactions to the CBOS, and determines if the vehicle is part of a toll agency's prepaid program or if a bill will need to be sent to the registered owner of the vehicle through a post-paid invoicing program. The Contractor shall provide Transactions in accordance with the NCTA OBO ICD found in Attachment 7: OBO ICD.
Operations and Maintenance Phase	The Project phase which begins upon Go-Live , the start of revenue collection. Also known as "Maintenance" and "Operations". Services performed under this Agreement, which may include Maintenance, Image Review and Transaction Processing.
Order of Precedence	The order in which Agreement documents control in the event of a conflict or ambiguity in such documents.
Performance Requirements	The required level of performance standards for this Contract as set forth in Part V, Terms and Conditions and Part III, Scope of Work and Requirements.
Plan(s)	Contractor Deliverable that identifies approach to a particular aspect of the Work submitted for Approval in accordance with Part III, Scope of Work and Requirements.
Price Proposal	Contractor pricing provided in response to this RFP and in accordance with the instructions provided herein.
Project	The total Work set forth in Part III, Scope of Work and Requirements and as further set forth and detailed in the Agreement Documents. When used in the context of a specific Toll Facility, this will be a specific Project that will be contracted to selected providers.
Proposal	See "Proposer Materials."
Proposer	An entity that has submitted Proposer Materials in response to this RFP.
Proposer Materials	Documentation submitted by the Proposer in response to this RFP.
Quality Assurance (QA)	A process which occurs after the final Work product is complete, to ensure the Work was completed as expected and required.
Quality Control (QC)	A process which occurs before a final product is produced or presented, to ensure the Work product is accurate.
Request for Proposal	Also referred to as the "RFP," this document describes the procurement process and provides the scope of services. The RFP forms the basis for the Agreement.

Term	Definition
Requirements	Each of the required Work activities in numbered form as set for in Part III, Scope of Work and Requirements that the Contractor shall perform, including but not limited to technical, functional, Project management, Operations and Maintenance and Performance.
Requirements Traceability Matrix (RTM)	The structured collection of information that summarizes the requirements of the RTCS submitted by the Contractor for Approval by NCTA and that serves to track completion of Design, development and testing as further described in Part III, Scope of Work and Requirements.
Roadside Support System (RSS)	The RSS is the roadside equipment that is used to provide information about the vehicle to collect. Currently, RSS is made up of in lane technologies that detect and classify vehicles, capture Radio Frequency Identification (RFID) by way of a Transponder affixed to the vehicle for prepaid account holders and capture license plate images by way of cameras as the method of identifying customers without prepaid accounts – this latter method also serves as a backstop when RFID does not work, and is used for toll collection enforcement.
Roadside Toll Collection Systems (RTCS)	The entirety of the system provided under this RFP, which includes the RSS and TRH.
Services	The duties and obligations undertaken by the Contractor to fulfill, the Part III, Scope of Work and Requirements, terms and conditions of the Agreement.
Software	All computer programs, media, procedures, rules and associated Documentation pertaining to the control and operation of the data processing and data storage for the System, as further set forth in Part III, Scope of Work and Requirements. Software includes all associated features and functions described in Part III, Scope of Work and Requirements, including all Updates, derivative works, enhancements, modifications or Upgrades thereto, and all error corrections, patches and bug fixes provided by the Contractor and which is made part of the System, as well as all related or ancillary data files, modules, libraries, tutorial and demonstration programs, and other components thereof, all source and object code, firmware and all Documentation.
Subcontractor	Any person, firm or corporation, other than the Contractor's employees, who contracts to furnish labor, or labor and materials, at the Site(s) or in connection with the Services, whether directly or indirectly, on the Contractor's behalf and whether or not in parity with the Contractor.
Submittal	All Documentation and any items of any nature submitted by the Contractor to the NCTA's Project Manager for review and Approval pursuant to the terms of this Agreement.

Term	Definition
System Maintenance	Part of the Contractor-provided support of the Hardware Systems and System Software during the Operations and Maintenance Phase.
Technical Proposal	A Proposer's written response to the RFP, which provides a straightforward, concise description of the Proposer's ability to meet the Requirements of the RFP.
Toll Facility	A collection of Tolling Locations within limits of a roadway or roadway segment.
Toll Zone	A single Tolling Location covering one direction of traffic.
Tolling Location	One or more Toll Zones located in close proximity covering tolling in opposite directions of traffic.
Toll Transaction	ETC or Billed-By-Mail (also known as Image) transaction data that is used to create record for all vehicles and other required ancillary data required to meet all Requirements in this Scope of Work. Toll Transactions shall include all data as required to meet the Scope of Work and transmit all data defined in Attachment 7: OBO ICD .
Transponder	In-vehicle radio frequency device, supported by NCTA (e.g. NC Quick Pass) and those of NCTA's interoperability partners, read by the RSS RF antenna(s) and reader Equipment in in a toll lane.
Transaction Reconciliation Host (TRH)	Receives and records transaction and images from RSS before forwarding to OBO. TRH will interact with the RSS to support additional features detailed in the Scope of Work.
Transition Impact Fees	Estimated transaction losses that occur during the transition from the legacy RTCS to the replacement RTCS. The Contractor shall compensate NCTA for the transaction loss through application of these fees.
Updates	Generally, refers to a patch released for existing Software to fix any identified bugs, errors or security issues; may also include providing support for new Hardware, as well as performance tuning.
Upgrade	Generally, refers to transforming existing Software to a new version; provides new features and functionalities rather than fixing existing bugs, errors or security issues but does not include significant new functionality.
Work	See "Services."

2. Acronyms

Acronym	Meaning
ACSMS	Access Control and Security Monitoring Systems
AET	All Electronic Tolling Lane Type

Acronym	Meaning
AI	Artificial Intelligence
ALPR	Automated License Plate Recognition
ATS	Automatic Transfer Switch
AVDC	Automatic Vehicle Detection and Classification
AVI	Automatic Vehicle Identification
AWS	Amazon Web Services
BOM	Bill of Materials
CAD	Computer Aided Design
CBOS	Commercial Back Office System
CCTV	Closed Circuit Television
COTS	Commercial-Off-The-Shelf
CSC	Customer Service Center
CSWRD	Conformed Scope of Work and Requirements Documents
C540	Complete 540
DB	Database
DMS	Dynamic Message Sign
DR	Disaster Recovery
DPS	Dynamic Pricing System
DVAS	Digital Video Audit System
DW	Data Warehousing
EL	Express Lanes
ERD	Entity Relationship Management
ETC	Electronic Toll Collection
ETL	Extract, Transform, and Load
FAT	Factory Acceptance Test
FCC	Federal Communications Commission
FHWA	Federal Highway Administration
FIFO	First-In/First-Out
FPSL	Full Plate Status List
FTSL	Full Transponder Status List
GP	General Purpose
GUI	Graphical User Interface
HOV	High Occupancy Vehicle
HVAC	Heating, Ventilation, and Air Conditioning
IAG	Inter-Agency Group (E-ZPass governing group)
ICD	Interface Control Document
ICPS	Image Capture and Processing System
IEEE	Institute of Electrical and Electronics Engineers
IP	Internet Protocol
ISP	Internet Service Providers
ITP	Interface Test Plan
ITS	Intelligent Transportation System
ITSL	Incremental Transponder Status List
ITSM	IT Service Management
IVS	Image Verification Services
KPI	Key Performance Indicator

Acronym	Meaning
LAN	Local Area Network
LC	Lane Controller
LOV	Low Occupancy Vehicle
MAN	Metro Area Network
MIR	Manual Image Review
ML	Machine Learning
MMFO	Multi-Mode Fiber Optic
MOMS	Maintenance Online Monitoring System
MOT	Maintenance of Traffic
MPR	Multi-Protocol Reader
MRTMC	Metrolina Regional Transportation Management Center
MTBF	Mean Time Between Failure
MTP	Master Test Plan
MUTCD	Manual on Uniform Traffic Control Devices
NC	North Carolina
NCDIT	North Carolina Department of Information Technology
NCDOT	North Carolina Department of Transportation
NCTA	North Carolina Turnpike Authority
NDA	Non-Disclosure Agreement
NEC	National Electrical Code
NTP	Notice to Proceed
OBO	Operational Back Office
OCR	Optical Character Recognition
ODBC	Open Database Connectivity
OIT	Onsite Installation Testing
OSHA	Occupational Safety and Health Administration
PDF	Portable Document Format
PDU	Power Distribution Units
PII	Personally, Identifiable Information
PM	Project Manager
PMP	Program Management Plan
QA	Quality Assurance
QC	Quality Control
RDMS	Rapid Data Management System
RF	Radio Frequency
RFI	Request for Information
RFID	Radio Frequency Identification
RFP	Request for Proposal
ROI	Region of Interest
RSS	Roadside Support System
RTCS	Roadside Toll Collection System
RTM	Requirements Traceability Matrix
RTO	Recovery Time Objective
SAT	System Acceptance Test
SDDD	System Detailed Design Document
SFTP	Secure File Transfer Protocol

Acronym	Meaning
SHP	State Highway Patrol
SIT	Site Installation Test
SLD	Straight Line Diagram
SMS text	Short Message Service
SNMP	Simple Network Management Protocol
SOV	Single Occupant Vehicles
SOW	Scope of Work
SPD	Surge Protector Devices
SRTCS	Statewide Roadside Toll Collection System
STIP	Statewide Transportation Improvement Project
STOC	Statewide Transportation Operations Center
TL	Tolling Location
TMC	Transportation Management Center
TRS	Toll Rate Sign
TRH	Transaction Reconciliation Host
TSL	Transponder Status List
TTRR	Time to Respond and Repair
UL	Underwriters Laboratories
UPS	Uninterruptible Power Supply
US	United States
USB	Universal Serial Bus
VEL	Violation Enforcement List
VLAN	Virtual Local Area Network
VOD	Vehicle Occupancy Detection
VPN	Virtual Private Network
WAN	Wide Area Network
WBS	Work Breakdown Structure
WWV	Wrong Way Vehicle
WWVD	Wrong Way Vehicle Detection
ZC	Zone Controller

Part III.

Scope of Work and Requirements

1. Project Overview

The Monroe Expressway Project pursuant to this RFP is to replace the legacy RTCS with a new RTCS that meets the Project goals. The selected Contractor would be responsible for the design, installation, commissioning, operations, and maintenance of the new RTCS for the Monroe Expressway system.



Figure 1: Monroe Expressway, U.S. 74 By-Pass Location Map

The Monroe Expressway is an 18-mile all-electronic toll road located in the southeast Charlotte metropolitan region connecting Union County to Mecklenburg County. The toll road, designated as the U.S 74 By-Pass, is a 4-lane highway that travels between the towns of Stallings and Marshville, both located within Union County (project termini). The four-lane roadway (two lanes in each direction) opened to traffic on November 27, 2018. The Monroe Expressway has seven toll locations and 14 toll zones (one in each direction). The roadside support system identifies vehicles based on three vehicle classifications and two methods of payment (transponder or license plate). It also supports toll collection enforcement. See Figure 1 above.

2. Summary of Scope of Work

The Scope of Work (SOW) involves design, installation, commissioning, and operations and maintenance of the new RTCS for the Monroe Expressway. The RTCS is the overall system provided as part of this Agreement and includes the RSS and TRH, which encompasses all toll collection systems functions.

The RSS shall be located at the existing tolling locations and shall include, but not be limited to, the following:

- Zone Controller (ZC);
- Automated Vehicle Identification (AVI) system;

- Image Capture & Processing Systems (ICPS);
- Automatic Vehicle Detection and Classification (AVDC);
- IT Service Management (ITSM) systems; and
- Supporting electronics, devices, and associated communications Equipment.

The Contractor TRH is expected to include the following:

- Redundant toll host system (including transaction processing and reporting);
- Interfaces for all applicable external elements;
- Integrated Digital Video Audit System (DVAS);
- Audit application for transaction reconciliation;
- Operations reports and analytics;
- IT Service Management systems (ITSM);
- All required local wide area (LAN), and wide area networks (WAN);
- Access Control and Security Monitoring Systems (ACSMS); and
- Facilities Management tracking.

The RTCS procured under this Contract **does not** include:

- Operational Back Office (OBO)
- Customer Service Center facilities or associated staffing
- Commercial Back Office System (CBOS)
- Transponders; and
- Construction of the gantries, toll Equipment pads, conduit, line power, pavement and other Toll Zone infrastructure at the RSS tolling points.

Contractor shall coordinate its RTCS with NCTA's OBO provider for design, delivery and operations and maintenance, as defined by this RFP.

The Contractor shall coordinate with NCTA's legacy Toll System Integrator for the Monroe Expressway during implementation, testing, transition, of the new RTCS and decommissioning of the legacy RTCS and the removal of the legacy RTCS Equipment.

The Contractor shall be responsible for furnishing and mobilizing all required Equipment, facilities, and resources to carry out this SOW and to meet Contract Requirements. These may include but are not limited to:

- Mobilization;
- Local office space in the proximity of the Project to support both Implementation and Operations and Maintenance Phases;
- Installation Equipment storage;
- Demobilization and remove all site debris;
- All permits, licenses, fees, insurance and bonds;
- Application or modification of FCC Radio Station Authorizations;
- Coordination and cooperation with NCTA, third parties such as construction contractors, and E-ZPass Group agencies;
- Maintenance of Traffic (MOT);

- Development and production of documentation,
- Design drawings, plans, and schedules;
- Training;
- Testing; and Radio Frequency Site Surveys and Interference Mitigation; and
- Safety.

The Contractor shall conform to NCTA Business Policies found in **Attachment 1**. The Requirements intend to permit the Contractor the flexibility in the design and development of the RTCS to reflect innovation and state-of-the-art proven technology that is fully capable of meeting the required operational, performance, and Contractual Requirements. Further, NCTA intends to provide the Contractor with a set of Performance Requirements, as detailed in Section 7 of this Part III, Scope of Work and Requirements.

3. Roadside Toll Collection System Project, Design, Testing and Implementation Documentation Requirements

3.1. General Documentation Requirements

The Contractor is required to provide various Project Hardware, Software, Requirements, design, testing, installation, and maintenance documentation that include Contractor-developed documentation and third-party documentation. All documentation provided under this Contract shall meet the Requirements described below.

1	The Contractor shall use an NCTA-provided online, electronic document management system (such as SharePoint) that is accessible to both NCTA and the Contractor by username and password, to control all project-related documents, submissions, and drawings.
2	The Contractor shall maintain a Deliverable tracking list that accurately tracks all Contractor submissions, NCTA's review comments, resubmissions, and final Approval.
3	Each document shall be properly titled, date updated, numbered by revision and version, and shall incorporate signature blocks for authorship and Approvals. The Contractor shall provide a logical indexing system making use of documents metadata for ease of access for NCTA to locate documents in the electronic document management system.
4	Updated submissions of the document shall also include the red-lined version showing all revisions to the document since the last submission.
5	The Contractor shall submit a minimum of a preliminary draft, a final draft, and a 100% final to NCTA for review and Approval. NCTA will provide new comments in two iterations, provided that the Contractor provides the Deliverables in accordance with the Project Schedule. Additional iterations may be necessary to resolve comments. All final documents shall incorporate all NCTA's review comments to NCTA's satisfaction. Each subsequent submission of a Deliverable shall also include NCTA's comments review log with the resolution of each comment updated by the Contractor.

6	NCTA will review and approve all documents submitted under the Contract. For documents containing less than one hundred (100) pages, NCTA will review and provide comments on preliminary draft documents within ten (10) Business Days. For documents containing more than one hundred (100) pages, NCTA will review and provide comments on preliminary draft documents within fifteen (15) Business Days. NCTA will review and provide comments on all final drafts and final documents within ten (10) Business Days. When multiple documents are submitted to NCTA simultaneously, or within one week of each other, the number of Business Days required for review shall be adjusted to reflect the overlapping submissions.
7	The Contractor shall submit an electronic version of all Contractor-developed documentation for NCTA review and Approval unless directed by NCTA to provide hard copies. Acceptable electronic formats are Microsoft Office 365 Suite (or other Approved format), unsecured PDF and professional CAD applications for Contractor-prepared documentation.
8	The Contractor is required to update documentation as changes occur through the Implementation and Maintenance Phase and shall maintain a document submittals list on the electronic document management site identifying all versions of documents, the date submitted, the nature of changes and provide relevant updates to NCTA as they are published.
9	The documentation package for all submittals as applicable shall include all required electronic media to install, operate, and maintain the RTCS/Deliverable/document being supplied.

3.2. RTCS Project Management Plan

The Contractor shall employ a project management system that is sufficiently detailed to enable NCTA to review and confirm that the Contractor has the necessary management, staff, and controls in place to meet the Requirements of the Contract. This project management system shall be detailed in full in the Project Management Plan, which shall be followed for each Project awarded by Task Order under this Contract.

3.2.1. Program Management Plan

The Program Management Plan describes how the Contractor plans to implement and manage the Project, including staffing, scheduling, and communication procedures for controlling all correspondence, submittals, and other communications between the Contractor and NCTA, and communications with NCDOT, legacy Toll System Integrator and other third-party entities.

10	The Program Management Plan shall, at a minimum, include the following elements:
	a) Project scope and key Deliverables;
	b) a description of the management and organization of the program, an organization chart, identification of key team personnel and their responsibilities, percentage commitment to the Project, task leads for each functional area and location and identification of the resources and key personnel during the Contract to be used in fulfilling the Requirements of the Contract;
	c) Project team (Contractor, Subcontractors, NCTA, NCTA representatives, NCDOT) contact information;

	d) a succession plan for key personnel (if key personnel need to leave the project, all successors should be familiar with the Project and be able to engage in the Project immediately without delay); e) a description of the Project planning, documentation and reporting methods to be utilized, both for use within the Contractor's staff and externally to NCTA and other entities; f) a description of the process for communication, escalation, and resolution of project issues with NCTA; g) meeting schedules with NCTA and other entities including the form of the meeting; h) inclusion of the Approved Project Schedule; i) a description of the process for reporting, updating and tracking the Project Schedule and Project performance; j) a description of the coordination process with NCTA, and NCDOT during the tolling facility infrastructure Implementation Phase; k) a description of the coordination process with NCTA, and NCDOT during the installation drawing review process; l) approach to change management, consistent with Contract Requirements, including a description of the process for documenting and submitting change requests, the Approval process and how the change management approach shall be integrated into daily Project management; m) approach to document control, including Software NCTA will use to access the documents; n) detailed plan for software change management process to be followed throughout implementation and operations; o) approach to risk management; p) approach to QA and QC; q) documenting the invoice submission, invoice backup information, verification, and Approval process; r) a section with all Approved Project forms including but not limited to, meeting agenda, meeting notes, action items tracking log, monthly progress report, and invoices; and s) an emergency contact list and succession plan.
11	The Contractor shall identify the tools and products used to manage the Project, including the Software development lifecycle and the internal controls instituted by the Contractor to guarantee successful delivery of the Project.
12	The Contractor shall develop and submit the communication procedures to NCTA for review and Approval that address the following, including but not limited to: a) Correspondence - correspondence shall be identified as to originator and designated receiver and include the form of transmission; b) Document Control - tracking of document versions and changes including naming conventions; c) Invoices - all invoices shall be submitted with accompanying backup information as required by the Contract and consistent with NCTA processes and invoicing and auditing policies. The Contractor shall work with NCTA to develop the appropriate invoice and back-up materials as a part of the PMP development;

	d) Submittals - all submittals shall be delivered as an enclosure to the Contractor's submittal letter. Each submittal letter shall be limited to a single subject or item. The Contractor's letter shall identify the contract number, contract name, and subject of the submittal;
	e) Contract Number and Contract Name - all items of correspondence, invoices, submittals and documentation shall contain the contract number and the designated contract name, and;
	f) Comments Log - process for validating that all comments provided by NCTA on Contractor Deliverables are successfully addressed.

3.2.2. Requirements Traceability Matrix

13	The Contractor shall provide a Requirements Traceability Matrix (RTM) within thirty (30) Business Days after the issuance of the Contract unless otherwise agreed to by NCTA and the Contractor in writing. The RTM shall include, but not limited to:
	a) listing and categorization of all functional and technical Requirements;
	b) identification of the source of all Requirements;
	c) additional derived requirements required to verify by inspection, test, demonstration or analysis Requirements for this Contract.
	d) identification of the design section of the SDDD that addresses the Requirement; and
	e) identification of the test procedure that addresses the Requirement.
14	The Contractor shall maintain the RTM throughout the Project and submit an updated RTM along with any new document or document update that impacts content of the RTM.

3.2.3. Staffing and Key Personnel

15	The Contractor is responsible for maintaining and assigning a competent and qualified professional who speaks fluent English to meet the requirements of the Contract.
16	The Contractor shall ensure key personnel is readily accessible to NCTA or their authorized representatives during the Contractor's performance of this Contract.
17	The Contractor is required to provide sufficient staff at all times to meet the Project Requirements and Contract. The following are designated as key personnel for this Project and are subject to the Approval, replacement, and removal requirements of NCTA for key personnel.
	a) Project Principal – responsible for the overall conduct and performance of the Project; oversight of the Project; the performance of the Contractor Project Manager and a point of contact for any escalated project issues that cannot be resolved by the Contractor Project Manager. The Project Principal shall have experience in AET projects in the last five (5) calendar years.
	b) Contractor Project Manager – responsible for all daily work, the overall execution and delivery of the Project and the Contractor contact person on the Project. The Contractor Project Manager shall have worked as a Project Manager in All-Electronic Roadside tolling. The Contractor Project Manager shall be one hundred percent (100%) dedicated to the Project during the Implementation Phase of the Project, and fifty percent (50%) dedicated during the Operations & Maintenance Phase of the Project.

	c) Technical Manager - responsible for the management of all the design, development and implementation of the technology solution and resources related to the RTCS and interfaces to a NCTA provided OBO. The Technical Manager shall serve as the overall RTCS solution architect, including management of Software development, backlog, on-going Hardware/Software maintenance, Equipment and systems and information security as required to satisfy the requirements of the Contract. The Technical Manager shall be one hundred percent (100%) dedicated to the Project during the design, development, and commissioning of the Project. The Technical Manager shall have worked in an equivalent position for similar transaction processing projects that include cloud or virtual machine host deployments.
	d) Installation Manager – responsible for the installation and commissioning of the RTCS and its external interfaces. The Installation Manager shall work primarily in the applicable project area but shall need to attend regular meetings at the NCTA Raleigh offices and be available in Raleigh or project vicinity, with adequate notice, Monday through Friday from 8 a.m. eastern to 5 p.m. eastern or additional days or times as required to complete the work. During the installation of the Project, the Installation Manager shall be one hundred percent (100%) dedicated to the Project. The Installation Manager shall have worked in an equivalent position on similar toll projects.
	e) Maintenance Manager – responsible for the Maintenance Services of the RTCS and its external interfaces. The Maintenance Manager shall work primarily in the applicable project area but shall need to attend meetings at the NCTA Raleigh offices, with adequate notice, Monday through Friday from 8 a.m. eastern to 5 p.m. eastern or additional days or times as required to complete the work. During the Operations and Maintenance Phase, the Maintenance Manager shall be one hundred percent (100%) dedicated to the Project. The Maintenance Manager shall have worked in an equivalent position on similar toll projects.
	f) Quality Assurance Manager – responsible for consistent quality throughout the design, development, testing, and implementation of the Project through good QA and QC practices. The Quality Assurance Manager shall have worked on projects of similar scope and size.
	g) Test Manager – responsible for the overall planning and implementation of the Project’s testing program. The Test Manager shall be one hundred percent (100%) dedicated to the Project during the development of testing plans and procedures and during the testing of the Project. The Test Manager shall have worked in an equivalent position similar all-electronic roadside toll collection, and transaction processing projects.

3.2.4. Cooperation with Other Contractors and Providers

18	The Contractor shall cooperate to the fullest extent with NCTA and NCDOT to ensure the Project Implementation and Maintenance Services do not conflict with or cause any interruption in capability, service or safety issues to the traveling public or customers.
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19	The Contractor shall cooperate with NCTA, NCDOT, existing contractors, and external parties, as directed by NCTA, to support any activity related to the RTCS Implementation, including but not limited to: a) NCTA employees; b) NCTA Designated Representatives; c) other third parties, as directed by NCTA; d) law enforcement; e) inspectors; f) auditors, and; g) all contractors.
20	The Contractor shall cooperate with and immediately notify NCTA of any customer complaints and RTCS defects identified in the toll lanes or facilities that come to the Contractor's attention during implementation, testing, or maintenance.
21	The Contractor shall provide and maintain a current emergency contact list for NCTA's use at all times for handling emergencies and escalations. The emergency contact list shall name primary and secondary (multiple secondary contacts as applicable) points of contact for each anticipated emergency type. The emergency contact list shall name the Contractor's preferred points of contact in order of precedence and shall include, at a minimum, the Contractor's project manager, installation manager, technical manager, and other support staff. The purpose of the emergency contact list is to ensure the Contractor can be reached outside normal working hours to address urgent matters.

3.2.5. Monthly Report and Progress Meeting During the Implementation Phase

Monthly project reports and progress meetings shall enable NCTA and the Contractor to monitor the status, progress, and quality of the work performed on the project and to take proactive steps to ensure the successful delivery of the Project.

22	The Contractor shall provide and maintain a schedule for monthly progress meetings at a location designated by NCTA. The meeting shall be scheduled no later than the 20 th Calendar Day of the following month and shall cover progress up to the 15 th of the current month.
23	No less than five (5) Business Days prior to the meeting, the Contractor shall submit a draft monthly progress report to NCTA for the period covering the previous reporting period. NCTA will review and comment on the progress report prior to or during the meeting.
24	The Contractor shall obtain Updated installation status prior to the monthly meeting and include such Updates in the Project Implementation Schedule which shall be submitted with the monthly progress report
25	The format of the monthly progress report shall be agreed upon as one of the initial project tasks upon NTP and shall be incorporated by the Contractor into the Project Management Plan.
	The monthly progress report shall include but not be limited to the following items:

26	a) a summary outlining progress and status, and percentage of work performed for each task as compared to planned activities in the Project Schedule. Comments shall be included where appropriate. The summary shall also identify key milestones met and missed in the period.
	b) an analysis of all critical path tasks, potential risks associated with the tasks, and proposed contingency/workaround plan to circumvent or mitigate delays to the Project.
	c) identification of any Approved changes to Approved milestone dates and Approved Project Schedule, clearly noting the details and identifying the Contract Amendment.
	d) a discussion of schedule compliance and an updated Project Schedule showing current status against the baseline Approved Project Schedule. Past due tasks shall be updated, and actual dates shall be recorded for completed tasks.
	e) construction/installation coordination status;
	f) an updated action items list that tracks the status of all outstanding action items, activities and issues that need decision/resolution;
	g) an updated Deliverables list showing submission dates, current version, current review status, responsible party, and due date;
	h) a payment request, if applicable. Payment requests shall identify the payment milestone, number, and dollar amount. Payment requests shall be made for completed and Approved milestone payments only;
	i) a list of change requests (Contractor and NCTA initiated) and their status;
	j) the previous monthly final meeting minutes; and
	k) a six (6) week look-ahead schedule.
27	No more than five (5) Business Days after the meeting, the Contractor shall submit the final monthly progress report and draft meeting minutes for NCTA's review and Approval.

3.2.6. Project Meetings

28	In addition to the monthly progress meeting, weekly or bi-weekly project status meetings, as applicable and Approved by NCTA, and other regularly scheduled installation and ad-hoc project meetings shall be required during the course of the Project to address specific Deliverables, work items, maintenance procedures, and issues as they arise.
29	The Contractor shall perform the following tasks related to all meetings, including but not limited to: a) develop and coordinate the Project meeting schedule; b) distribute notices of project meetings in accordance with document control requirements; c) prepare the agenda in coordination with NCTA; d) attend the meeting with all required staff in attendance; e) prepare minutes of the meeting and forward them to NCTA within five (5) Business Days after the meeting date; and f) maintain an action item list for each type of meeting, identifying issues that need to be resolved at the project level.

3.2.7. Project Schedule

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

30	The Contractor shall provide and maintain a detailed Project Schedule for the Project in Microsoft Project format (Project 365 or above) that lists all project activities and tasks in the Contract, including but not limited to: a) requirements; b) design; c) development; d) testing; e) installation; f) transition; and g) deployment and acceptance of the RTCS.
31	The Project Schedule shall include coordination with NCDOT, existing contractors, and NCTA and shall clearly document all interfacing tasks.
32	The Project Schedule shall identify all milestones and tasks, starting with the NTP through the date of acceptance for the entire duration of the contract.
33	The Project Schedule shall be resource loaded, shall include all draft submissions and review cycles, and shall include all tasks required of NCTA, NCDOT and other contractors with critical tasks.
34	The Project Schedule shall identify all critical path tasks and shall be used to manage the Project.
35	The baseline for the Project Schedule shall be submitted to NCTA for Approval ten (10) Business Days after NTP. Once Approved, the baseline Project Schedule shall only be modified by Contract Amendment.
36	The Contractor shall maintain status and update the Project Schedule at least once a month, as identified in the requirements for the monthly progress report.
37	The Contractor shall obtain Approval from NCTA for any and all changes to the Approved Baseline Project Schedule and associated milestones. In accordance with the Contract process for changes and amendments, schedule changes are not considered Approved unless an Amendment is executed.

3.3. System Detailed Design Document

NCTA expects the Contractor to propose a baseline product for the RTCS, and that some custom development shall be required. To ensure the design requirements for the RTCS are fully understood by NCTA and the Contractor, a series of requirements and design review steps are specified following a sequential design process or waterfall model, as presented in **Figure 2: System Design Approach**.



Figure 2: System Design Approach

Requirements derived during the design process shall become part of the Contract Conformed Scope of Work and Requirements Documents (CSWRD) including the Requirements Traceability Matrix (RTM), the System Detailed Design Document (SDDD), and the Master Test Plan (MTP). The RTM allows for verification that the requirements are addressed in the design and documented in the SDDD as well as verification that requirements are traced to test procedures that validate the developed RTCS meets the Contract Requirements. The RTM shall be the basis for all design, development, and testing efforts and documentation to be developed by the Contractor to meet the Requirements set forth in this Contract.

38	The Contractor shall establish and maintain an effective Software design and development program along with a documented Software development life cycle to ensure compliance with the Requirements of the Contract.
39	Prior to conducting any workshops, requirements reviews, focus group meetings, and design reviews, the Contractor shall develop the necessary documentation for NCTA review and submit such documentation ten (10) Business Days prior to such meetings.

3.3.1. System Detailed Design Review

Based on the RTM and Business Policies documents, the Contractor shall design the RTCS and the SDDD for NCTA to review and provide comments. The Contractor shall conduct a review meeting with NCTA demonstrating how the RTCS design shall meet the Contract Requirements. Upon the submittal of an Updated SDDD, one more review cycle shall take place.

40	The NCTA Business Policies for NC Quick Pass and Roadside and the RTM shall be used to develop the SDDD.
41	The Contractor shall schedule design meetings with NCTA to understand the design requirements fully.
42	The Contractor shall demonstrate pre-production working products (such as beta versions) during the design review process, and stakeholders shall be walked through the workflow, utilizing screens and data flow diagrams.
43	The Contractor shall trace how the RTCS design meets the SDDD, the NCTA Business Policies, and the Contract Requirements using the RTM.
44	The RTM shall map all requirements to Contractor documentation and/or testing as applicable.

3.3.2. System Detailed Design Document (SDDD)

45	The Contractor shall develop and submit a System Detailed Design Document (SDDD) that describes the design specifications of all Hardware and Software provided as part of the RTCS to meet the Approved Contract Requirements. The SDDD shall demonstrate that the Contractor understands the functional, technical, and Performance Requirements of the RTCS and has the processes, Hardware and Software design in place to provide a high-quality and reliable product that meets the Requirements of the Contract.
46	The Contractor shall provide detailed drawings of Equipment rack space layout for NCTA review/Approval (verification) for consistency with the toll Equipment pad design.
47	The SDDD shall include the use of diagrams, figures, tables, and examples, and it shall apply to all environments, including production, Quality Assurance, training, and testing environments.
48	The SDDD shall include but not be limited to: a) System architecture, including overall system design concept; b) lane layout electrical and logic diagrams; c) the requirements for all peripheral device Interfaces and control; d) roadside server design, including sizing and processing calculations; e) storage system design, including sizing and processing calculations; f) data backup systems design, including sizing and processing calculations; g) network sizing and design details including IP scheme; h) Uninterruptable Power Supply (UPS) sizing information detailing all Equipment on the UPS(s) and their total power requirements; i) high availability design, including servers, storage, network, database, and application; j) Disaster Recovery (DR) design, including servers, storage, network, database, data resiliency, and application. k) business continuity design, including cameras, AVI Equipment, and other associated Equipment near a tolling point in the case of catastrophic damage to the gantry at a damaged Toll Zone; l) Hardware dependencies and inter-dependencies; m) detailed infrastructure Software design, n) detailed operating systems design; o) detailed peripherals configurations, including requirements for all peripheral device Interfaces and control; p) all internal RTCS Interfaces; q) all custom-developed Software; r) all Software provided by the Contractor or a third party; s) Software dependencies and inter-dependencies; t) detailed database design, schema and data modeling, including sizing and processing calculations; u) Entity Relationship Diagram (ERD); v) data flow diagrams, state diagrams and data queues;

	w) module level descriptions and interaction among various modules;
	x) detailed description to the module and/or process level for all the functions according to the functional requirements of the RTCS;
	y) lane logic and vehicle framing design and rules with illustrations;
	z) degraded mode of operations and impacts of failures on system operations;
	aa) transaction audit and pre-processing;
	bb) transaction processing design, including sizing and processing calculations;
	cc) detailed interface specifications between all Software components;
	dd) design RTCS system interfaces including electronic interface to the NCTA provided OBO;
	ee) detailed data management design and processes, including summarization, archiving and purging;
	ff) all user interfaces (including reports and screen formats);
	gg) system data dictionaries;
	hh) application performance monitoring design;
	ii) access/identity security methodology;
	jj) environmental specifications;
	kk) specification sheets for all Equipment;
	ll) Details of all system alarms and assigned priorities;
	mm) a logical division and an index of all contents within the SDDD, and;
	nn) upon the completion of the Software development, and prior to the start of the RTCS formal testing, the Contractor shall submit the final updated SDDD that includes all changes/clarifications made during the Software development and validation activities.
49	The Contractor shall submit an updated SDDD on an annual basis throughout the Contract Term that includes all changes/clarifications made during the just-completed year. The Contractor shall use the Approval of System Acceptance as the anniversary date to deliver an SDDD as described above.

3.4. Installation Drawings

Equipment shall be installed on existing infrastructure and overhead structures/toll gantries.

50	The Contractor shall provide the installation requirements including acceptable tolerances for the system Equipment, including all related plans and documents. The Contractor shall be fully responsible for the accuracy of its installation requirements.
51	The Contractor shall prepare and submit the RTCS Installation Design Requirements package to NCTA for review in accordance with the Approved Project Schedule.
52	The Contractor shall develop a half-size (11" by 17") set of drawings providing sufficient and accurate detail to install the system components.

53	In addition, the drawing shall contain notes and other detail defining specific processes that cannot be graphically depicted. The notes shall also be used to delineate specifications, tolerances, special conditions, or any other factor required to install and integrate a fully functional system.
54	The Contractor shall indemnify all related parties as more fully described in the Part V, Terms and Conditions for any damages that result from reliance on the installation requirements provided by the Contractor.
55	The Contractor shall submit shop drawings detailing the installation design that shall be used onsite for installation work. Detailed drawings shall be provided for each site where Equipment procured and supplied under the Contract shall be installed.
56	The drawings shall include but not be limited to the following: a) lane Equipment layout for each tolling location type; b) placement of the Equipment on the toll gantry; c) lane geometry and dimensions of actual size and placement of all roadside Equipment; d) Equipment brackets mounting detail to the mounting arm; e) a detailed drawing showing the Equipment mounting brackets and details of their installation to the gantry; f) specifications and tolerances; g) detailed installation drawing for each piece of Equipment; h) details related to the range of Equipment adjustments; i) conduit and cable schedule showing all conduits, cables, and wires used for each RSS location; j) detailed conduit layout for power and communications; k) all junction boxes and panels; l) any specific infrastructure limitations m) placement of overhead sensors; n) details describing the termination process for each termination; o) lightning and surge suppression system; p) a graphical diagram of the network connectivity and data flow; q) detailed interconnection diagrams for all systems; r) detailed electrical schematics; s) detailed communications layout; t) Equipment rack layout, including power panels and connection to the UPS; u) detailed cabinet and Equipment rack layout and interconnections; v) detailed cabinet and Equipment rack space requirements; w) a detailed diagram of the network connectivity, including IP scheme; x) server set-up and configuration; and

	y) other Hardware installation and connections.
57	The Contractor shall use only the latest Approved drawing version for installation.
58	The Contractor shall provide the installation requirements for the Equipment, including all related plans and documents. The Contractor shall certify the installation requirements provided as accurate and appropriate for its intended purpose, to the satisfaction and Approval of NCTA.
59	During installation, the Contractor shall maintain a redline version of the drawing package that is submitted to NCTA upon the completion of the installation.
60	Documentation shall include memos denoting changes or modifications to Requirements.
61	The Contractor shall submit detailed component level network drawings showing all WAN, LAN and VLAN connections, including connection to the TRH, NC Quick Pass Operations Center, MRTMC, NCTA OBO and the STOC, as applicable.
62	The Contractor shall submit detailed network drawings showing all WAN, LAN and VLAN connections, including all interface connections and IP addresses for all Equipment on the network.
63	The Contractor shall secure the services of a fully qualified engineering design firm(s) for the purpose of performing any necessary infrastructure-related engineering design (civil, structural, electrical, mechanical, and architectural) and the preparation of related plans and documentation under the Contract for any design that impacts life safety. The Contractor shall submit the name of the engineering design firms in its proposal for NCTA Approval. Any changes to the engineering firm shall be submitted to NCTA for Approval.
64	All design work shall be performed under the direct supervision of a licensed engineer of the appropriate discipline in the State of North Carolina. All design professionals shall be licensed and authorized to practice in the State of North Carolina.
65	The Contractor's design submittals typically shall not be required to be signed / sealed by a licensed engineer. However, should the Contractor provide custom manufactured infrastructure that is structural in nature or other structure(s) or appurtenances (e.g., Equipment mounting brackets, Equipment arms, etc.) that have the potential to impact life safety, the Contractor shall secure the services of a fully-qualified engineering design firm(s) licensed in North Carolina for the purpose of performing engineering design and the preparation of related plans and documentation under the Contract.
66	In addition, any electrical work performed in an occupied building shall require the seal of a licensed engineer of the appropriate discipline in the State of North Carolina.

3.5. Bill of Materials (BOM)

67	The Contractor shall include the Bill of Materials (BOM) for all Equipment and Hardware supplied for the RTCS. The second manufacturer source, if available, for all Equipment and Hardware shall be included with any exceptions noted and explained.
68	The Contractor shall submit detailed bill of materials for the TRH including configuration instructions, including storage device mirroring, virtual private clouds or virtual machine hosts, back-up devices and configuration, and network configuration, security provisions, and testing.

69	Prior to purchase of any Equipment and as part of its design, the Contractor shall submit the final BOM to NCTA for Approval. No Equipment shall be purchased by the Contractor prior to Approval of the BOM and the design, unless otherwise authorized in writing by NCTA authorized representative.
70	The Contractor shall provide an initial BOM and Updates to the BOM whenever Equipment and Hardware changes occur and at a minimum on a semi-annual basis over the Contract Term. All Equipment and Hardware changes shall be subject to the Approval of NCTA.

3.6. Master Test Plan

71	The Contractor shall provide a Master Test Plan (MTP) no later than sixty (60) Calendar Days after NTP. The Master Test Plan shall also describe how The Contractor shall execute each of the test activities as outlined in these requirements. The MTP shall describe testing planned by the Contractor in each test, including entry and exit test criteria, test tools, test roles and responsibilities. The Master Test Plan shall detail how issues will be identified, documented, categorized and tracked for resolution throughout the project. The Master Test Plan shall detail how the Contractor will perform version control and their approach to regression testing application. The Contractor shall provide test procedures for OIT, SIT, and SAT at least thirty (30) Calendar Days prior to the start of each respective test. The Contractor shall provide a test report following the completion of each test, detailing the results, any observed issues and issue resolutions, including both completed and planned changes. The Contractor is responsible for all costs associated with testing outside of NCTA oversight and OBO support.
72	The Master Test Plan shall detail the Contractor's plan to perform each of these tests: a) Factory Acceptance Test (FAT); b) Onsite Installation Testing (OIT); c) Site Installation Test (SIT); d) System Acceptance Test (SAT).
73	The Contractor shall demonstrate performance of the system with a combination of vehicles and test transactions and simulated data provided by the Contractor. The Contractor shall provide a list of all simulators planned to be used in its Master Test Plan (MTP). The Contractor shall provide access to all test simulators and schedule a workshop at least thirty (30) Calendar Days prior to the start of FAT to demonstrate how the simulator works and validate the inputs, processes and outputs of such simulator prior to its use on the system.
74	The Contractor shall plan and execute a test known as Factory Acceptance Test (FAT). The FAT shall validate that the system meets all functional requirements defined in this RFP and associated Business Policies through the application of use cases. The Contractor shall develop a test plan that represents the functionality of the full system end to end under real world conditions. The FAT shall include record exchanges with the OBO. FAT shall be completed and Approved by NCTA before the Contractor can move forward with installation of the first toll location. The FAT shall be conducted at the Contractor's test facilities in the continental US.

75	The Contractor shall plan and execute a test known as Onsite Installation Test. (OIT). The purpose of the OIT is intended to validate that the system meets all functional requirements defined in this RFP when installed at the first location on the Monroe Expressway. The OIT shall also configure the system to verify that the RTCS can meet all NCTA Business Policies. The Contractor shall propose any exceptions or functions that shall be simulated in the MTP. OIT shall be completed and Approved by NCTA before the Contractor can move forward with the installation of the remaining toll locations.
76	The Contractor shall develop and implement a Site Installation Test (SIT). The purpose of the SIT is intended to validate that the installed system performs to the standards demonstrated previously in the FAT and OIT phases. This test will focus on location specific functional parameters to ensure the location has been installed and configured according to the validated design. Once SIT is completed at all locations on the project, the Contract will enter the Operations and Maintenance Phase.
77	The Contractor shall plan and execute a performance test known as System Acceptance Test (SAT) immediately following the completion of SIT or OIT at all locations and system Go-Live. The purpose of the SAT is intended to validate that the system meets all performance requirements defined in Section 6 of Part III, Scope of Work and Requirements and does not present any critical issues for a period of sixty (60) continuous Calendar Days. The Contractor shall utilize the Monthly Performance Reports as evidence for this test.

3.6.1. Interface Test Plan

78	The Contractor shall provide an Interface Test Plan (ITP) prior to FAT for the NCTA OBO interface that shall connect to the NCTA systems. The Interface Test Plan shall describe all testing required to transfer data to NCTA to meet the Requirements set forth in this Contract.
79	The Contractor shall demonstrate data exchanges between the RTCS and the NCTA OBO interface during FAT. The results from FAT shall be provided in the form of test cases, test procedures and actual test data from its interfaces that NCTA can use for its internal testing. The test cases shall be provided in the ITP and Approved by NCTA and should cover, at a minimum: a) success testing for normal transaction posting that test NCTA Business Policies; b) failure testing when data fails to be sent or received from the Contractor system, and; c) exception scenarios that include system behaviors in the NCTA OBO ICD that demonstrate error or failure reporting.

3.7. Training Program and Plan

The Contractor shall provide comprehensive training for all aspects of the RTCS. The training should include, but not be limited to the operations, system monitoring, problem detection and resolution, reconciliation and audit, and maintenance of the RTCS. The training program shall recognize and incorporate the plan for NCTA to operate the toll collection system. As such NCTA operations staff shall be fully trained to successfully perform all aspects of the RTCS operations.

80	The Contractor shall develop and submit a Training Plan for NCTA Approval in accordance with the Approved Project Schedule that describes the approach to training both Contractor and NCTA personnel in the following roles supervisors, auditors, administrators, end-users, data analysts, and support personnel.
81	The Training Plan shall describe the plan for training new personnel and shall outline the required operational/maintenance and system knowledge for each position to be gained from the training.
82	For each position/user type, the plan shall include a training instructor guide, training manual, and other materials to be used in training. The Training Plan also shall include a schedule for follow-up training and continuing education for staff.
83	The Training Plan shall provide a plan for cross-training staff from other areas of operations or management for the peak period, emergency, or temporary assignments to provide for staff redundancy. The Training Plan also shall include the training schedule for regular staff training and continuing education/training.
84	The Training Plan shall address the following areas including but not limited to:
	a) overall description of the training program;
	b) training techniques;
	c) training delivery schedule;
	d) names and descriptions of each training class;
	e) purpose of each training class;
	f) who should attend the class;
	g) qualification requirements for the trainer;
	h) minimum qualifications for personnel attending the class;
	i) duration of the class;
	j) training materials, including syllabus, schedule, training goals, manuals, guides, other support materials and techniques to be used;
	k) data preparation, such as users and test transactions;
	l) trainee assessment and scoring methods;
	m) trainee surveys and feedback;
	n) required Equipment; and
	o) facility requirements.
85	Courses shall be limited to a maximum of eight (8) hours per Business Day for NCTA staff trained.
86	The Contractor shall be responsible for maintaining a training database baseline and supporting data files that can be restored at the beginning of each training session.
87	The Contractor shall provide up to 5 separate training modules to address the training needs of NCTA program to support the project. Multiple sessions of some or all modules may be required, based on demand and class size limitations. The Contractor and NCTA will determine specific training modules during the system design. *Examples of training modules might be: Maintenance Technician Training, NCTA Auditor Training, System Overview Training, and TMC Operator Training.

88	The Contractor shall be solely responsible for supplying all items necessary, including but not limited to training documentation, Software, Hardware, and any other Equipment required to complete the delivery of the training program.
89	The Contractor's program shall include but not be limited to instruction, presentation material, models/devices, manual, diagrams and component manuals and catalogs as required.
90	The Contractor's training shall be hands on and use actual Hardware and Software in the training environment.
91	The Contractor shall agree that NCTA staff, or their representatives, may attend any training sessions and may make recordings and/or copies of all training program materials for their use in training new employees.
92	The Contractor shall provide comprehensive training for the Contractor maintenance staff, including but not be limited to, the following:
	a) a thorough understanding and operating knowledge of the ITSM system is required of all maintenance personnel;
	b) an in-depth understanding of the RTCS, design, and operations, including all Equipment, Software, interfaces, file transfers, and interconnections;
	c) use of maintenance documentation such as maintenance manuals, drawings, Contractor manuals, and parts list;
	d) functions of the RTCS monitoring tools used to manage the system monitoring tasks;
	e) preventive maintenance of all systems and sub-systems;
	f) Troubleshooting, diagnostics, repair, testing, and maintenance follow up;
	g) system logs, errors logs, and processing of exceptions;
	h) system dataflow and workflow queues;
	i) review of the data and analysis;
	j) discussion on the areas of responsibility;
	k) special use maintenance and monitoring tools; and
	l) queries and reports.

3.8. Manual Requirements

Various manuals shall be provided as described below to allow NCTA to understand the operations of the RTCS and interface to the NCTA provided OBO. New manuals developed under this Contract that are not standard commercial catalogs or manuals, shall meet the Requirements set forth in this Section 3.8 of Part III, Scope of Work and Requirements.

93	The Contractor shall submit the Project manuals to NCTA for review and Approval in accordance with the Approved Project Schedule.
94	Each manual shall include but not be limited to a title sheet; revision history; table of contents; list of illustrations (if applicable); and list of reference drawings and exhibits (if applicable).
95	All manuals shall have a consistent look and feel and shall be professionally written and presented in clear and organized fashion.

96	All manuals prepared for NCTA under this Contract shall be produced, or editable, using Microsoft Office 365 formats, as applicable. In addition, electronic copies of manuals shall be provided in native file format and unsecured PDF, if requested by NCTA.
97	Any special Software required to produce scalable typefaces or other graphs shall be provided by the Contractor as part of the documentation for the manuals.

3.8.1. Manual Submissions

98	The Contractor shall submit electronic copies of all manuals listed in Table III-1: List of Manuals below.
99	All manuals shall be maintained in electronic format in the NCTA-provided document management system.

Table III-1: List of Manuals

Manual Name
RTCS Maintenance Manual including any host systems provided by the Contractor
RTCS Reconciliation and Audit Manual
RTCS User Manual

3.8.2. RTCS Maintenance Manual

100	The Contractor shall submit the RTCS Maintenance Manual prepared for properly trained technical personnel assigned to the maintenance of the Hardware and Software installed as part of this Project.
101	The RTCS Maintenance Manual shall document information required to support roadside maintenance and repair activities, including but not limited to: a) RSS Equipment layout for each tolling location; b) schematics and layouts of the Hardware in the cabinets, Equipment racks, and the interconnection diagrams; c) parts lists required to service each piece of Hardware installed under this Project; d) a general and detailed description and concepts of RSS, and TRH operations and functions; e) detailed RTCS monitoring activities, specialty tools, and schedule; f) detailed Software monitoring activities and troubleshooting procedures; g) maintenance instructions to repair and replace parts and modules; h) mechanical functions and installation of all Hardware; i) listing of all event and error logs;

	j) testing and basic troubleshooting procedures; and
	k) preventative, pervasive, and corrective maintenance procedures.
102	The RTCS Maintenance Manual shall document information required to support including but not limited to:
	a) all monitoring screens, notifications and data that needs to be checked;
	b) listing of all jobs/process, their dependencies, and their schedule;
	c) listing of all folders and directories that need to be checked;
	d) details related to the activity that needs to be checked;
	e) frequency of the validations;
	f) actions to take when results are not as expected;
	g) notification and escalation process;
	h) basic troubleshooting procedures; and
	i) creation of work orders in ITSM system.
103	The RTCS Maintenance Manual shall provide a description of the tools and Software for personnel to record the monitoring activity and instructions to use the tools/Software.
104	The RTCS Maintenance Manual shall document information required to maintain and repair activities including but not limited to:
	a) detailed Hardware maintenance activities and schedule;
	b) detailed database maintenance activities and schedule;
	c) detailed Software monitoring activities and schedule;
	d) detailed monitoring procedures for file transfers and exception handling;
	e) detailed procedures and processes for all maintenance activities;
	f) detailed procedures for backup, archiving and purging of data;
	g) detailed procedures for testing Disaster Recovery systems;
	h) detailed schedule for desktop and peripheral preventive maintenance activities;
	i) the detailed schedule for all preventative maintenance activities;
	j) technical contact lists for all external interfaces and NCTA system integrators;
	k) Large-size logic diagrams and mechanical assembly diagrams do not have to be reduced or incorporated into the manuals if these drawings are provided with the manuals and presented in a useable and durable form;
	l) technical contact lists for Hardware and Software providers; and

	m) details and copies of all third-party system support agreements.
105	Standard service manuals for commercial products used for the Equipment shall be acceptable if they contain sufficient information to service and maintain the Equipment properly. This information shall be included in the RTCS Maintenance Manual.
106	Photographic documentation of Equipment with appropriate labels and callouts are satisfactory if they contain sufficient information to identify components, parts, and features properly.

3.8.3. RTCS Reconciliation and Audit Manual

107	The Reconciliation and Audit Manual shall detail all procedures used to reconcile the data within the RTCS and audit the toll operations.
108	The reconciliation of transactions and revenue within the RTCS and reconciliation of transactions to the NCTA OBO shall be fully described.
109	Investigation of variances, discrepancies, unusual occurrences, and system exceptions processing shall be described.
110	A detailed description of the screens, reports, and functions shall be provided and shall allow a qualified auditor to access, understand, and work with all financial aspects of the RTCS.
111	A complete description of all audit procedures and a non-technical description of the screens, reports, and functions shall be provided.
112	The manual shall contain illustrations and pictorial diagrams to demonstrate the step-by-step operations required for performing the audit and reconciliation functions.
113	The manual shall contain QC and audit procedures to ensure that the Performance Requirements are met.
114	Samples of all reports and analytics shall be included in an attachment to the Reconciliation and Audit Manual with any specific instructions that may be applicable to a given report and analytics. Reports and analytics included in the submittal shall have correct and accurate data, and this manual shall be used to train the auditors to validate the RTCS.

3.8.4. RTCS User Manual

The Contractor shall develop and provide a comprehensive set of system documentation and user manuals for the RTCS users. At a minimum, the documentation shall include all user and training manuals, screen layouts, reports definitions, and data flow diagrams.

115	The Contractor shall provide an RTCS User Manual to be used by NCTA staff to operate the RTCS as well as for training purposes.
116	The Contractor shall develop a separate manual for each job category that details all the processes, procedures, and policies developed by the Contractor and Approved by NCTA required to fulfill the requirements of each specific job description.
117	The manual shall include screen images detailing the step-by-step activities that need to be completed in order to fulfill a specific functionality.
118	The manual shall not include any information that could jeopardize the integrity of toll operations or the toll collection system.

119	Each user manual shall include but not be limited to:
	a) step-by-step actions to take to complete an operation;
	b) screen images detailing the step-by-step activities needed to fulfill a specific functionality;
	c) flowcharts to provide NCTA staff with a clear understanding of the workflow;
	d) all screens, reports, and data fields, clearly explained using sample formats applicable to the RTCS; and
	e) samples of all reports and analytics, included in the manual or as an attachment to the RTCS User Manual, with any specific instructions that may apply to a given report or analytics.

3.8.5. Third-Party Documentation

Third-Party documentation includes standard commercial documentation for third-party provided Hardware, Software, Services, and materials.

120	The Contractor shall catalog all third-party documentation and include the catalog with the third-party document submissions.
121	The Contractor shall provide and maintain the standard, commercially available, Updated documentation for third-party provided Hardware, Software, services, and materials provided under this Contract. This set of third-party documentation shall be retained at the NCTA offices for the duration of this Contract and upon the termination of the Contract.
122	All Updated documents shall show the revisions and include a version of the clean document.
123	An electronic copy of all third-party COTS Hardware and Software installation and user manuals, with Updates, shall be provided to NCTA. Acceptable electronic formats are Microsoft Office 2019 Suite (or most current version), unsecured PDF and professional CAD applications.
124	Documentation shall include sufficient detail to describe the configuration of the Software as it was installed by the Contractor for the RTCS. These should include any customization or modifications made to the Software or configurations specific to the NCTA environments.

3.9. Disaster Recovery Plan

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

125	The Contractor shall develop and submit a Disaster Recovery Plan and subsequent Disaster Recovery (DR) procedures that describe the approach, as well as activities and procedures that take place in the event of a disaster for each element of the RTCS.
126	The Disaster Recovery Plan shall document the Contractor's approach to recovering from a disaster, including but not limited to:
	a) events that constitute a disaster and party responsible for the declaration of a disaster;
	b) assessment of disaster risks;

	c) mitigation of disaster risks;
	d) preparations in the event of a disaster;
	e) disaster declaration and DR process to invoke;
	f) organization chart illustrating DR team members, roles and responsibilities;
	g) notification contact list, including contact information;
	h) notification protocol;
	i) sites and Equipment for DR, presented in a diagram format;
	j) DR process initiation and completion checklist;
	k) Software and data replication processes;
	l) detailed logistical processes for activation of DR site and systems;
	m) detailed technical processes for activation of DR site and systems;
	n) detailed procedures for failover and failback of the host including a checklist for ensuring that it failed over and failed back properly;
	o) detailed operational functions for activation of DR site; and
	p) detailed technical processes for reactivation of primary site (or moving to a new primary site if the original primary site is destroyed), operations and systems.
127	The Disaster Recovery Plan shall be tested no less than annually with NCTA participation. The Contractor shall schedule the test no less than twenty (20) Calendar Days prior to the start of the Disaster Recovery Plan test.
128	The Disaster Recovery Plan test shall be successfully executed and Approved by NCTA once before entering operations.
129	The Disaster Recovery Plan shall include an emergency response management plan, and the Contractor shall follow the procedures set forth in this plan when an emergency situation is invoked.
130	The Contractor shall respond to any emergency and repair the RTCS, as notified by NCTA or otherwise, that may arise that has already or could potentially damage the RTCS. The Contractor shall be prepared to put forth all necessary resources to divert or correct an emergency condition.
131	Such emergency conditions shall be handled in accordance with the policies and procedures established by NCTA. The following are a few examples of emergency conditions: a) weather-related; b) vehicle accident; c) conditions that invoke the Disaster Recovery Plan; d) third-party (power outage or communication failure); e) vandalism that causes parts of the RTCS to be inoperable; and f) detection of security breaches, discovered vulnerabilities and activities that pose a security threat to the toll collection system.
132	The Contractor shall be responsible for outlining and documenting Disaster Recovery Architecture for NCTA's review and Approval. The architecture shall describe the Contractor's approach to disaster recovery, including disaster recovery procedures, in a cloud-based or virtual machine host environment should an event occur that disables or disrupts the RTCS.

3.10. Installation and Transition Plan

In accordance with **Attachment 12: Transition Requirements** and this RFP, the Contractor shall submit an Installation and Transition Plan that identifies its approach to installation and drawing package submissions, and covers the major elements of the installation, including coordination with the legacy Toll System Integrator and other existing systems.

3.10.1. Installation Program

The Contractor shall have an installation program that addresses all aspects of the installation of the RTCS, inclusive of the RSS and TRH, including all installation design, submissions, and coordination.

133	The Contractor is responsible for the design, procurement, installation, cabling, configuration, check-off, and testing of all Hardware, Equipment, communications, and Software and fixtures provided by the Contractor as part of the RSS at each of the tolling locations.
134	All RSS cabinets required for this Project shall be provided <u>new</u> by the Contractor.
135	The Contractor shall work with NCTA to test the WAN and the connections to the NCTA OBO. Testing shall include expected traffic loads and all types of production operation data.

3.10.2. Contractor Coordination

The Contractor shall coordinate all installation activities with NCTA, other contractors, any Subcontractors, and NCDOT to ensure all RTCS Equipment specifications are addressed in the design and installation of all roadway infrastructure.

136	The Contractor shall coordinate all installation activities with NCTA, NCDOT, and any existing contractors where applicable.
137	Prior to the start of any installation activities the Contractor, including any Subcontractors, shall complete the safety orientation governed by NCDOT standards provided by the Contractor.

3.10.3. Installation Requirements

138	The Contractor shall develop an Installation Plan that documents all installation-related activities for the project. The Installation Plan shall be the master document from which the elements of the RTCS shall be installed.
139	The Installation Plan shall include and define, at a minimum, the following items: a) The installation schedule detailing all activities, shifts, and resources for the installation of the RTCS including third-party activities. Once the baseline schedule is Approved by NCTA, the Contractor shall provide Updates during the installation periods identifying all schedule changes and work progress in the form of percentage completions shall be submitted to NCTA for Approval. b) The minimum resource allocation requirement for any installation and segment including sequencing of Toll Zone installation, testing and Go-Live.

	c) How the Contractor manages delivery and staging of the RTCS Equipment to be installed, including any staging, installation, and testing performed by the Contractor or third-party facilities and their subsequent delivery and installation at the production sites.
	d) The coordination between other contractors, including the legacy Toll System Integrator, and other service providers.
	e) Coordination of any travel lane or shoulder lane closures with NCTA and NCDOT Division 5 for the duration of the Project.
	f) Coordination activities as applicable to other third-party entities for the various interfaces.
	g) Testing of the Contractor-provided LAN and WAN communications for connection to the NCTA provided OBO.
	h) QC, QA inspection, and testing processes including validation of Contractor installation to the Requirements of the Contract installation drawings.
	i) The order in which Equipment items are to be installed with estimated durations.
	j) Special or unique installation requirements.
	k) A detailed component list and a description of how each item version number and serial number shall be recorded for each installation and configuration into the ITSM system.
	l) The Contractor shall submit detailed instructions on the installation and configuration of the operating system, database, third-party Software, and application Software on the servers as customized for NCTA operations.
	m) A record keeping method such as the daily work reports identifying, at a minimum, the date, location, weather conditions, staff on site and classification, tasks completed, visitors, MOT, issues and resolution, and communications to other parties. These daily reports shall be delivered at the end of each work week to NCTA for review during the upcoming week installation meeting.
	n) Contractor Organization Chart defining key team personnel, roles and responsibilities, and contact information. All Subcontractors shall be identified.
	o) Contingency Plan: A detailed contingency plan shall be prepared for reopening closures to public traffic. A general contingency plan shall be included in the Installation Plan; however, a site-specific contingency plan shall be submitted to NCTA before work at the job site begins.

3.10.4. RSS Installation Requirements

140	The Contractor's installation responsibilities for the RSS shall include but not be limited to:
	a) Furnish and install clean, uninterruptable power to all RSS Equipment on the overhead structures/toll gantries and in the toll Equipment cabinets.
	b) Furnish and install separate ground wires for the RSS, Surge Protection Devices (SPD), junction boxes, pull boxes, conduits, and other such items as required by the installation standards and requirements.

c)	Furnish and install all connecting conduit from wire ways and conduits provided and installed by others and/or stubbed out conduits to the Equipment on the toll gantries. There is preexisting conduit from the toll Equipment pads to the foundation of overhead structures/toll gantries that shall be used.
d)	Furnish and install all wiring for all in-lane Equipment and connections to the Equipment racks in roadside cabinets. This includes the proper termination of all power, communication, and RF cables and/or wiring (copper or fiber-optic) required to connect the individual components into a fully operational system as specified by the manufacturer.
e)	Furnish, and install the cables necessary for terminating and connecting the RSS Equipment on the toll gantry to the electronics in the Equipment cabinets. Cable lengths shall include sufficient service loops to facilitate maintenance.
f)	Furnish and install all Equipment Cabinets and Equipment racks required for the in-lane electronics and toll network communications in the toll Equipment cabinets.
g)	Furnish and install all electronics and other devices in their respective Equipment racks as required to provide a fully operational system.
h)	Furnish and install all Zone Controller computers and other servers (Hardware and Software) into the Equipment racks and test the connection between the Zone Controller and the TRH.
i)	Furnish and install all Equipment mounting brackets to support structures for the installation of all RSS Equipment on the overhead structures/toll gantries.
j)	Furnish and install the AVDC system Equipment, overhead mounted Equipment and controllers as specified by the manufacturer. Includes all NCTA Approved materials, Equipment and supplies required to complete the system.
k)	Calibrate and test the AVDC system in full accordance with the manufacturer's guidelines.
l)	Furnish and install the AVI system Equipment, overhead mounted Equipment and controllers as specified by the manufacturer. Includes all cabinets and other NCTA Approved materials, Equipment and supplies required to complete the system.
m)	Calibrate and test the AVI system in full accordance with the manufacturer's guidelines.
n)	Time synchronize the new RSS with the AVI system, including the provision of required cables as needed.
o)	Validate all cable and wire terminations via a test process to ensure that the cable is connected to the correct location on each end and that the cable/wire is properly terminated.
p)	Power up and provide a field check out/installation acceptance test of all systems, to be witnessed and Approved by NCTA or its Designated Representative. Provide the completed installation checklist as described in this SOW and Requirements.
q)	Furnish and install the ICPS Equipment, including cameras, ICPS illumination, and any video controller Equipment, sensors, Software, controllers/servers, or specialty Equipment associated with the ICPS. Configure and tune the cameras to meet the Performance Requirements of the SOW and Requirements.
r)	Calibrate and test the ICPS in full accordance with the manufacturer's guidelines and to meet the image processing requirements specified in the SOW and Requirements.

	s) Furnish, install, calibrate, and test the DVAS cameras and Equipment.
	t) All other items, materials, and Equipment to complete installation in accordance with the Contract.

3.10.5. Installation Checklists

141	The Contractor shall develop an installation checklist that tracks the progress and completion of all RTCS installation activities for the RSS and TRH.
142	The checklist shall be the document detailing those items required for the installation crew and technical team to complete the installation process for all Equipment and components, including terminations, connections, and configurations.
143	A copy of the checklist signed and Approved by the Contractor, attesting to the completeness of the installation, shall be provided to NCTA after the completion of the installation activities for each lane at each Tolling Location.
144	The Contractor shall conduct a final inspection of all installations and certify the installation work.
145	NCTA reserves the right to obtain the services of a certified engineer to witness the Contractor inspection and conduct an independent inspection. The Contractor shall coordinate and support such inspections at each tolling location.
146	The checklist shall identify all non-conformances, discrepancies, and exceptions, and the Contractor shall be responsible for all corrections.
147	The checklist shall document all changes identified during the installation process, and all such changes shall be Approved by NCTA or its designated representative.

3.10.6. Electrical Work

148	Electrical work to be performed under this Contract shall include, but not be limited to the following general items of work: a) Provide and install Surge Protection Devices (SPD) as required to protect all toll collection Equipment and electronics. b) Install junction boxes and terminate new cable and conduit attachment devices, where applicable. c) Bond all conduits, manhole frames, and other conductive items to the grounding system in conformance with the NEC.
149	All electrical work shall be performed in accordance with the applicable regulations and Approved by NCTA and NCDOT. Appropriate NEC compliance shall be adhered to with all electrical articles for installation pertaining to wiring, enclosures, and other electrical Equipment in hazardous locations. UL labels shall be provided for all electrical panel boards, enclosures, and accessories.
150	All electrical Equipment shall be inspected prior to installation for defects that could damage the Equipment or harm personnel. Any Equipment found to have defects shall not be installed but shall instead be replaced with a fully functioning replacement.

151	All electrical Equipment shall be properly grounded for safety. Equipment shall be furnished with grounding pads or grounding lugs. All ground connections shall be cleaned immediately prior to connection.
152	The Contractor shall provide all grounding material required for installation of the Contractor Equipment and all installations shall be in compliance with the applicable standards.

3.10.7. FCC Licensing and Radio Frequency (RF) Site Survey

153	The Contractor shall prepare, and timely submit, any Federal Communication Commission (FCC) radio station license application or modification for all existing and new tolling locations required for the operation of the RSS.
154	The Contractor shall perform a radio frequency (RF) site survey at each of the toll locations to ensure that no significant local signals will have an impact on RSS function and/or performance.
155	The Contractor shall record and provide a report on the findings of the RF site survey to include identification of any potential RF signal interference with the RSS and recommended mitigation strategy.

3.10.8. General MOT Requirements and Conditions

156	The Contractor shall cooperate with NCTA and NCDOT, as applicable, to minimize the required number of lane closures and to maximize the use of other scheduled lane closures. The Contractor shall transmit all lane closure requests to NCTA for Approval.
157	The Contractor shall work with NCTA and agree to a reasonable plan for scheduling and approving lane closures, including a procedure for advance notice of cancellations of lane closures and allowable conditions for such cancellations as described in this SOW and Requirements.
158	For all lane closures, the Contractor shall conform to the latest versions of the NCDOT Standard Specifications for Roads and Structures and the NCDOT Roadway Standard Drawings for regulations for MOT activities during the maintenance period. The NCDOT Standard Specifications for Roads and Structures and the NCDOT Roadway Standard Drawings are located at: https://connect.ncdot.gov/resources/Specifications/Pages/default.aspx
159	By 12:00 p.m. Tuesday, the Contractor shall submit to NCTA and NCDOT a written closure schedule that details the schedule of planned closures for the following week period, defined as Sunday 12:00 p.m. through the following Sunday 12:00 p.m.
160	The closure schedule request shall show the locations and times of the proposed closures. The closure schedule shall be submitted in the format requested by NCTA and NCDOT and shall be made in accordance with NCDOT lane closure requirements and in observation of the lane closure restriction for designated legal holidays. All lane closure restrictions and requirements are detailed in Attachment 8: Lane Closure Restrictions to this RFP.

161	Closure schedules requests submitted to NCTA with incomplete or inaccurate information shall be rejected and returned for correction and resubmittal. The Contractor shall be notified by NCTA and/or NCDOT of disapproved closures or closures that require coordination with other parties as a condition of Approval.
162	Closure schedule request amendments, including adding additional closures, shall be submitted by 12:00 p.m. to NCTA and NCDOT, in writing, at least three (3) Business Days in advance of a planned closure. Approval of closure schedule amendments shall be at the discretion of NCTA. NCTA will be notified of canceled closures two (2) Business Days before the date of the closure. Closures that are canceled due to unsuitable weather may be rescheduled at the discretion of NCTA.

3.10.9. Installation and Transition Coordination and Meetings

The Contractor shall coordinate all installation activities with NCTA to ensure all RSS Equipment specifications are addressed in the design and installation of all roadway infrastructure. During installation and transition meetings, it shall be required that NCTA be represented to clearly define and develop the installation requirements, methodology, timetables, test plans, roles, and contingency plans.

163	The Contractor shall schedule, manage, and attend weekly installation meetings during the active design and installation of the Project and report on the progress of the installation. The Contractor shall identify and communicate any issues regarding system installation and transition immediately upon discovery to NCTA.
164	The Contractor shall ensure that the appropriate personnel is present at these meetings who can represent the Contractor's interest and provide the information necessary in a meaningful manner.
165	Prior to the meeting, the Contractor shall Update the installation schedule based on the construction schedule, and all changes shall be identified.
166	The Contractor shall prepare and distribute a meeting agenda at least forty-eight (48) hours prior to the scheduled meeting. The meeting agenda shall consist of those items pertaining to the installation and schedule for the previous and current week's installation efforts and for an agreed to "look ahead" period. The meeting agenda should include any potential risk items identified and corresponding mitigation efforts.
167	It is the Contractor's responsibility to make sure all issues that arose during the installation activity for the week are addressed and resolved or are scheduled for resolution.
168	At these meetings, the Contractor shall also be prepared to address any issues or questions raised by other contractors, and NCTA or its representatives.
169	The Contractor shall document the meeting discussions and distribute the meeting minutes within one (1) Business Day to everyone from the team invited to the meeting. It shall be up to the recipients of the meeting minutes to distribute to other interested parties. The Contractor shall also record and maintain an action items list that tracks all installation-related issues.

3.10.10. Compliance to Standards

The Contractor shall adhere to all installation standards, applicable laws, ordinances, and codes as required.

170	The Contractor shall meet all electrical codes, traffic control, seismic considerations, calibration, configuration, and environmental requirements of and including but not limited to: a) Equipment manufacturer's; b) National Electrical Code (NEC); c) UL standards; d) NCTA; e) NCDOT; f) FHWA; g) MUTCD; h) IEEE (Institute of Electrical and Electronics Engineers); i) OSHA requirements; and j) any local authorities having jurisdiction.
171	The Contractor shall adhere to the latest NCDOT Roadway Standard Drawings and the latest NCDOT Standard Specifications. The NCDOT Standard Specifications for Roads and Structures and the NCDOT Roadway Standard Drawings are located at: https://connect.ncdot.gov/resources/Specifications/Pages/default.aspx
172	The Contractor shall be responsible for all costs associated with any permits, plan reviews, and inspections related to RSS work.
173	It shall also be the Contractor's responsibility to procure all documentation required to install and adhere to the proper installation standards, law, ordinance, or codes.
174	The Contractor shall procure services of Subcontractors qualified to work in this industry. If a Contractor's component requires a Contractor-Approved installer, the Contractor shall use an Approved component installer, including qualified Contractor staff.

3.10.11. Transition Requirements

3.11. RTCS Transition Plan

175	The Contractor shall provide a Transition Plan for NCTA Approval that addresses the transition of the new RTCS into revenue collection operations. Refer to Attachment 12: Transition Requirements for all topics to be included in the transition plan.
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3.12. Maintenance Plan

The Contractor shall submit a Maintenance Plan that describes how the Contractor plans to maintain the entire System including Level I, II, and III Maintenance and any required coordination with NCTA and NCDOT

in accordance with the Requirements of the Contract. The Contractor shall have appropriate documentation available to all maintenance and Software support personnel, as required to perform their respective duties.

3.12.1. Maintenance Plan

176	The Maintenance Plan defines the approach to services, staffing, and resources to fulfill the maintenance requirements. The Maintenance Plan shall include:
	a) organizational structure, organizational chart, and job descriptions and responsibilities;
	b) detailed matrix of responsibilities (NCTA and Contractor);
	c) staffing plan;
	d) approach to staffing and training;
	e) detailed system monitoring requirements;
	f) coverage and personnel locations;
	g) third-party system support agreements overview;
	h) schedule of all system maintenance activities;
	i) all system maintenance related communication methods;
	j) maintenance procedures, communication protocols, and Approval processes for system and Software Upgrades, scheduled maintenance activities, Software releases, change management and scheduled downtime;
	k) maintenance procedures and communications protocols for unscheduled downtime;
	l) communication protocol for coordination with NCTA operations and third-party entities;
	m) communication protocol for coordination with NCTA's legacy Toll System Integrators;
	n) trouble reporting processes;
	o) escalation processes;
	p) spare parts levels and reorder thresholds, Equipment and Software warranty tracking and return material processes;
	q) monitoring the ITSM dashboards;
	r) monitoring maintenance performance for compliance to Performance Requirements;
	s) sample maintenance reports;
	t) Equipment obsolescence/replacement/refresh schedule;
	u) Upgrades to third-party Software and tools;
	v) process in place to meet maintenance Performance Requirements; and
	w) pervasive methodology and activities.

177	The Maintenance Plan shall detail the Contractor's Software maintenance and warranty program including the approach to services, staffing, and resources to fulfill the Software maintenance requirements including but not limited to:
	a) all Software maintenance related communication methods;
	b) approach to receiving and prioritizing Software defects (bugs);
	c) reporting, categorization, prioritization, remediation and disposition of Software defects;
	d) maintenance procedures, communication protocols, and Approval processes for Software Upgrades, Software releases, testing, scheduled maintenance activities, change management and scheduled downtime;
	e) Software Updates and testing to comply with interoperability specification changes, and third-party interface changes;
	f) Software and security Updates, remediation and testing to be compliant to NCTA Audit Requirements; and
178	The Maintenance Plan shall detail the Contractor preventative maintenance program in accordance with this SOW and Requirements.
179	The Contractor shall provide a preventive maintenance schedule as part of the Maintenance Plan. The schedule shall detail the preventive maintenance to be performed on each Equipment item and system. The schedule shall provide a description of the work to be performed, expected duration, and the frequency.

3.13. As-Built Documentation

3.13.1. As-Built System Detailed Design Document

180	After the Approval of the System Acceptance Test (SAT) and prior to NCTA acceptance of the RTCS, the Contractor shall submit the As-Built SDDD that includes all Software and Hardware changes made during the RTCS development, implementation, and testing.
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3.13.2. As-Built Drawings

181	The Contractor shall Update the latest drawings with red lines as changes are incorporated during the installation and check-out process. At the completion of the installation of the RTCS, the Contractor shall gather all red line drawings into a single package.
182	The red-line drawings shall be verified and then incorporated into a final As-Built Drawing package. This final As-Built Drawing package shall include installation drawings, shop drawings and sketches, and other drawing types that may have been used to install the RTCS.
183	All other documentation used regarding the installation shall also be finalized and submitted as part of the As-Built Drawing submittal.

3.14. End of Contract Transition Plan

The Contractor acknowledges that the services it provides under the terms of the Contract are vital to the successful operation of the RTCS and that said services shall be continued without interruption. Upon the end of the Contract, a successor (NCTA, or a new contractor) may be responsible for providing these Services. The Contractor agrees to exercise its best efforts and cooperation to affect an orderly and efficient

transition to a successor in accordance with Part V, Terms and Conditions. The Contractor shall provide an end of Contract Transition Plan no later than one hundred twenty (120) Calendar Days after Go-Live for NCTA review and Approval. The end of Contract Transition Plan shall be updated at least sixty (60) Calendar Days prior to the End of the Contract or notice by NCTA of termination of the Contract.

184	Upon NCTA's written notice, the Contractor shall furnish transition services prior to the end of the Contract Term. The Contractor shall develop with the successor contractor or NCTA staff, a Contract Transition Plan describing the nature and extent of transition services required.
185	The Contract Transition Plan and dates for transferring responsibilities for each division of work shall be submitted within thirty (30) Calendar Days of such notice. Upon completion of NCTA review, both parties shall meet and resolve any additional requirements/differences.
186	The Contractor shall provide sufficient experienced RTCS technical and Software support personnel in each division of work during the entire transition period to ensure that the quality of services is maintained at the levels required by this Contract.
187	The Contractor shall provide sufficient staff to help the successor maintain the continuity and consistency of the Services required by the Contract. The Contractor shall allow the successor to conduct onsite interviews with the employees.
188	The Contractor shall provide the necessary Software and systems support services to assist the successor contractor in setting up the systems, transfer of appropriate licenses and third-party Software, and transition of all data required to sustain uninterrupted service as directed by NCTA.
189	The Contractor shall make all necessary provisions for transferring any leases or sub-leases held by the Contractor to NCTA, including without limitation, all keys, security codes, and other codes and other facility access information or devices.
190	The Contractor shall make all other records, documents, data, and Software which are licensed to NCTA and pertaining to the Services rendered for this Agreement available within thirty (30) Calendar Days upon written notice or as otherwise provided in the executed license Agreement.
191	The Contractor shall make all operational records, documents, data, systems, specialty tools and Equipment, and facilities required to support and maintain daily services being rendered under this Agreement available before the date of such termination, suspension, or expiration.

4. Infrastructure Overview

The Contractor will be provided infrastructure outlined in this section and in the attachments to this RFP. Any additions or modifications shall be done so at the expense of the Contractor.

4.1. General Infrastructure Considerations

192	The Contractor will be provided access to available strands on the fiber network as detailed in Attachment 4: ITS, AET, & RTCS As-Built s.
193	The Contractor shall provide cellular antennas and routers to integrate into their system. These devices may be used to aid the implementation and shall remain in place during Operations & Maintenance Phase for redundancy.

194	The Contractor shall provide all equipment and materials necessary to complete a fully redundant network using the provided fiber, vendor provided cellular infrastructure, cabling, patch panels, switches, firewalls and ISP circuits.
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5. RTCS Functional Requirements

5.1. NCTA Business Policies and Operational Concepts

195	The NCTA Business Policies for NC Quick Pass and Roadside includes operations concepts, business policies, business rules and concept of operations for this Project and the NCTA systems roadside and customer service center and can be found in Attachment 1: NCTA Business Policies . All specific requirements that differ or expand upon these documents are included in this Part III, Scope of Work and Requirements. NCTA may update the NCTA Business Policies from time to time throughout the Contract Term. The Contractor shall review and adhere to all Business Policies. The Contractor may request reimbursement from NCTA if new functionality not contemplated in the Requirements is added to meet new Business Policies in accordance with the dispute resolution provisions as outlined in this Agreement.
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5.2. RSS Functional Requirements

5.2.1. General RSS Functional Requirements

196	All Hardware and Equipment supplied under this Contract shall be new, Commercial Off-the-Shelf (COTS). Materials and products that have been previously used for development work or the Contractor's internal Formal testing, or items that have been salvaged or rebuilt shall not be used in connection with this Contract.
197	The RSS shall meet all functional requirements in all weather and lighting conditions.
198	The RSS shall accurately capture and identify all vehicles that pass through the toll zone.
199	The RSS shall be designed to ensure redundancy for critical functionality related to revenue collection.
200	The RSS shall accurately identify the lane location of each transaction or buffered Transponder Read and identify if the vehicle straddled an adjacent lane or shoulder.
201	The RSS shall assign a timestamp to all transactions or buffered Transponder records. The timestamp shall be associated with a defined event in the transaction formation process, to be determined during the design process.
202	The transaction images produced by the RTCS shall support the OBO ICD and shall provide readable images of properly mounted and unobstructed license plates.
203	The RSS shall accurately measure and report the travel speed for each vehicle associated with a Toll Transaction.
204	The RSS shall use only gantry mounted equipment. No in-pavement sensors will be permitted.

205	The RTCS shall support accurate assignment of fare to each transaction.
206	All RTCS Software developed, furnished, and installed under this Contract shall be warranted, by the Contractor, against Software defects, security vulnerabilities, and deficiencies for the life of the Project.
207	RTCS elements and subsystems shall be designed and installed in a manner that minimizes the need to close toll lanes for routine maintenance and minimizes the duration of any lane closures for maintenance.
208	The Contractor shall provide, manage, and maintain all network Equipment within the RTCS and required to interface outward; including servers, switches, routers, and firewalls, and all network cabling.
209	The RTCS shall include a minimum of two (2) network time servers each synchronized to a minimum of three (3) independent stratum 1-time servers.
210	The RTCS shall synchronize all components of the RSS to within 1/1000 of a second.
211	The RTCS shall support monitoring and collection of data on system and Equipment statuses continually 24 hours a day, 7 days a week.
212	The RTCS shall generate a video record for all transactions generated using a frame rate and video quality that supports accurate identification of the vehicle and covers its complete traverse through the toll zone.
213	The RTCS shall have a separate subsystem for vehicle detection other than the AVDC system that will be used to identify variations and anomalies in the system's ability to detect vehicles as an automated process.
214	The DVAS shall provide continuous video recording of the lane(s) at all times and retain the video recordings as defined in Part III, Section 5.4 Data Retention.
215	All Toll Zones shall be capable of processing and creating lane transactions for a minimum 2,000 vehicles per lane per hour with no loss of data and with all vehicles with front and rear license plates and an AVI Transponder. Simulation Software shall be accepted as a method of compliance with this requirement to ensure the system is properly sized, coded and configured to achieve the highest level of system efficiency for processing all types of transactions that shall be processed on the NCTA toll roads.
216	The RSS shall provide supplemental illumination (if needed) for image based (Toll Invoice) tolling that does not interfere with vehicle travel or distract drivers and shall not cause light pollution to areas adjacent to the roadway.
217	The RTCS shall not delete any information included in the lane transaction. Data in the lane transaction can only be created and amended.
218	All transactions shall be uniquely identified within the RTCS.
219	When multiple Transponders are detected within a vehicle the system shall include all detected transponders in the transaction sent to the OBO.
220	The RTCS shall generate records for all buffered Transponder reads.

221	The RTCS shall allow toll lanes operational modes to be changed by authorized users from the operations center.
222	All in-lane Equipment controllers and RSS electronics, devices, servers, and associated communications Equipment shall be installed inside environmentally controlled Equipment cabinets at the roadside. The Contractor shall purchase and install the cabinets per the Requirements of this Contract.
223	All cabinets and enclosures that shall be installed outdoors shall be designed to withstand typical North Carolina area environmental conditions and shall not suffer any visible or functional degradation over the term of the Contract.
224	The cabinets shall have monitoring sensors (including humidity and temperature), and if environmental conditions inside the cabinets exceed the configurable threshold, alarms shall be generated and reported to the ITSM system. There shall be no loss of data in such conditions, and the integrity of the RSS shall be maintained.
225	Access to all Equipment cabinets shall be recorded automatically and reported to the ITSM system. The data reported shall include, but not be limited to cabinet status, date, time of door open, time of door close, and any applicable alarm conditions.
226	The Contractor's services shall be designed, developed, implemented and maintained in a manner consistent with security requirements, defined as the requirements levied on Information Environments that are derived from laws, Executive Orders, directives, policies, standards, instructions, regulations, procedures, or organizational mission/business case needs to ensure that security and privacy protections are implemented in the collection, use, sharing, storage, transmittal, and disposal of information. Security requirements shall be supported in a manner that makes verification possible via analysis, observation, test, inspection, measurement, or other defined and achievable means. The Contractor shall meet the following requirements (where applicable): • 18 U.S. Code § 2721 — Driver's Privacy Protection Act • N.C.G.S § 143B-1375 — Security • N.C.G.S § 143B-1376. Statewide security standards • N.C.G.S. §143B-1331 — Business Continuity Planning • Functional Schedule for North Carolina State Agencies • North Carolina Statewide Information Security Manual • NCDOT Policies, Standards, Guidelines and Procedures • NCDIT-T Policies, Standards, Guidelines and Procedures • NCTA Policies, Standards, Guidelines and Procedures NC Statewide Information Security Manual can be currently viewed at: https://it.nc.gov/statewide-information-security-policies The policy regarding data classification and handling can be currently viewed at: https://it.nc.gov/documents/statewide-policies/statewide-data-classification-handling-policy/open

	The Functional Schedule for North Carolina State Agencies can be currently viewed at: https://archives.ncdcr.gov/government/state-government-agencies/functional-schedule/functional-schedule-search-guide The definitions in the Statewide Glossary of Information Technology Terms apply to all statewide information technology policies and standards and can be currently viewed at: https://it.nc.gov/documents/statewide-glossary-information-technology-terms The NIST Glossary of Information Technology Terms can be used to supplement the Statewide Glossary of Information Technology Terms and can be currently viewed at: https://csrc.nist.gov/glossary. The Contractor shall also adhere to the standards listed in Attachment 2: State of North Carolina, Statewide Information Security Manual. <u>Any exceptions to the standards described in this Requirement above and in Attachment 2: State of North Carolina, Statewide Information Security Manual shall be described in its Proposal by adding Appendix 3 in the Proposer's Technical Proposal. The Contractor shall describe any exception to the security policy and why they are exempt. The Contractors shall identify only of those exceptions within the policy with an explanation. Categorical exception to the policy shall be considered non-compliance.</u>
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5.2.2. RSS Additional Requirements

5.2.2.1. ICPS System

227	The RSS shall capture at least one front and one rear unique color image of the vehicle and its license plate(s) for every vehicle that passes through a travel lane within a Toll Zone.
228	The RSS shall capture at least one rear unique color image of the vehicle and its license plate(s) for every vehicle that passes through a shoulder within a Toll Zone.
229	The RSS shall use a camera equipped with a shutter capable of a readout speed of 5ms or less and lens capable of framing a full 12-foot-wide lane and a minimum plate width of 250 pixels. The complete ICPS shall have coverage for all properly mounted rear license plates for all shoulder and lane areas within the toll zone and all front mounted license plates within the travel lanes.
230	The histogram of the captured license plate region of interest (ROI) shall exhibit a bimodal distribution, with a minimum separation of 40 intensity levels (on an 8-bit scale) between the mode of the character pixels and the mode of the background pixels in the image transmitted to the OBO with no adjustments.
231	The histogram of the captured license plate region of interest (ROI) shall not exhibit "Left-Walled" or "Right-Walled" data indicating lost detail due to over or under exposure in the image transmitted to the OBO with no adjustments.
232	The RSS shall minimize image distortion by utilizing a maximum allowable pan or tilt angle for image capture of 30 degrees from the angle of incidence with the plate.

233	The Contractor shall cooperate with NCTA's OBO provider on image characteristics such as contrast, sharpness and clarity to optimize OBO ALPR performance.
234	The camera shall produce clear images that are without artifacts that impact the ability to read and process license plates.
235	The camera shall not produce visual artifacts due to vehicle and infrastructure lights, the sun, and reflections of vehicles.
236	The transaction images produced by the RTCS shall support the OBO ICD (found in Attachment 7) and shall provide readable images of properly mounted and unobstructed license plates.
237	The ICPS system shall be designed to protect against any single point of failure by providing redundant triggering and image capture functionality that will enable the ICPS subsystem to continue to capture images in the event of a failure and meet all functional requirements specified herein.
238	Illumination components shall not introduce any Electro-Magnetic or Radio Frequency Interference into the RTCS or surrounding environment.

5.2.2.2. Automatic Vehicle Identification (AVI) System

239	The Contractor may select and integrate any AVI components that is available from any of the four (4) AVI vendors on the E-ZPass Group Approved list.
240	The RSS shall capture properly mounted transponders and accurately correlate them to their associated vehicle as they pass through the toll zone in a travel lane (shoulders excluded).
241	The AVI system shall detect and read all toll transponders to determine the tag agency, tag protocol, and unique transponder ID in accordance with the NCTA interoperability and business rules. The AVI system shall accurately correlate all properly mounted transponders to the correct vehicle. These integration requirements shall include all the following anticipated protocols to be supported by the RSS in no specific order of precedence: a) PS111 (TDM/IAG E-ZPass Group); b) ISOB_8oK (SeGo); and c) ISOC (ISO 18000-63/6C).
242	The AVI system shall use only Approved Equipment from current contracts as listed on the E-ZPass website, linked here , that meet the Requirements of this Project.
243	The Contractor shall furnish and install all Hardware, cabinets, cabling (including RF, communication, and power cables), connectors, and associated mounting fixtures to form a fully functioning AVI system that meets the Requirements of this SOW.
244	The Contractor shall be responsible for the physical tuning AVI Equipment, and for integrating the AVI system into the Contractor in-lane design. All AVI installation, configuration, and tuning shall be in compliance with the AVI vendor requirements.
245	The RSS integrated with the AVI system shall process Transponders mounted on vehicles traveling in stop and go and bumper-to-bumper traffic and vehicles traveling at speeds of up to 100 mph.
246	The RSS shall perform 6C UII Validation and associated transponder read handling as defined in Attachment 1: NCTA Business Policies .

5.2.2.3. Automatic Vehicle Detection and Classification (AVDC) System

247	The RSS for shall accurately detect the number of vehicle axles and include all data in the Toll Transaction.
248	The RSS shall accurately measure and report the length, width and height of each vehicle associated with a Toll Transaction.
249	The AVDC system shall determine the vehicle axle count as well as vehicle length, height and width to classify vehicles in accordance with the NCTA vehicle classification structure for all travel lanes and shall include the logic to handle the exceptions identified. Classification of vehicles traveling on the shoulder lanes is not required; however, the RSS shall detect vehicles that travel on the shoulder and trigger the Image Capture & Processing System (ICPS).
250	The AVDC system shall be of non-invasive type, not requiring direct installation via core cuts, saw cuts, or other installation methods that impact the road surface.
251	The NCTA vehicle classification structure for AET Lanes is defined as: i. Class 1 defined as a vehicle with 2 axles ii. Class 2 defined as a vehicle with 3 axles iii. Class 3 defined as a vehicle with 4 or more axles
252	The AVDC system shall be provided with a redundant design that allows the subsystem to continue to operate and meet all functional requirements while experiencing any single point of failure.

5.2.2.4. Zone Controller

253	In the event of a power interruption, the Zone Controller shall open in the operational mode it was in before it was powered down.
254	Authorized users shall be able to configure the operational mode both locally and remotely. Each time a mode change is requested, an alert message shall be sent to the ITSM system.
255	When a lane is operating in a mode other than normal open mode (to be finalized during design), an alert shall be generated and sent to ITSM system at regular (configurable) intervals.
256	The RTCS shall support various modes of operation that are managed and initiated by authorized users through the host.
257	Transactions shall be processed according to different NCTA Business Policies either at the RSS level or the host level based on the mode of operation and the facility type. The Contractor shall be responsible for ensuring that all transactions are processed according to Attachment 1: NCTA Business Policies for NC Quick Pass and Roadside and transmitted correctly to the existing NCTA OBO.
258	The RTCS shall provide functionality to operate in the following modes of operations: a) Open mode: All transactions shall be processed normally in an open mode; b) Maintenance mode: Transactions created in maintenance mode are processed as normal transactions but are identified as maintenance mode transactions and transmitted to the host. Transactions that occur during maintenance mode are not reported as traffic or revenue transactions; and

	c) Emergency mode: Transactions created during emergency mode shall be identified as emergency mode transactions and processed in accordance with NCTA Business Policies for NC Quick Pass and Roadside to be determined during the design.
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5.2.2.5. Fare Determination

259	The RTCS shall provide determination of the fare class at the tolling location or other supplemental systems prior to posting to the OBO based on the vehicle class.
260	The fare class shall be determined in accordance with NCTA business rules and may vary by lane status including lane open, maintenance or closed statuses.
261	The RTCS shall have a configurable default fare class to be used in the event classification data is not available.
262	Tolls shall be assessed using the toll rates established for each tolling point. The RTCS shall support the toll rate and the NCTA vehicle classification structure based on the Toll Zone and facility. The initial toll rates shall be defined during RTCS design and shall be configurable to support periodic rate adjustments as Approved by NCTA.

5.2.2.6. Saving Images

263	Images shall be captured and saved for all transactions, regardless of operating mode in accordance with the NCTA data retention policy as defined in Part III, Section 5.4 Data Retention.
264	Images saved during ICPS loss of communication event shall be flagged and subsequently matched with the correct transaction data when communications resume with the Zone Controller. This matching can occur at the host but shall take place in a manner that does not interfere with or degrade real-time Zone Controller operations.
265	In the event that the system captures vehicle images without any other supporting system data such as AVDC, these images shall be saved such that all non-valid Transponder transactions that occur during the AVDC malfunction can be subsequently pursued for collection. Sufficient data, such as image capture time stamps, shall be provided in the transactions to allow the TRH and OBO to process such transactions so that customers are not charged in error when lane operation is degraded.

5.2.2.7. Configuration Files

266	All parameters and settings required to run the Zone Controller application shall be maintained in configuration files. Access to configuration files required to support the Zone Controller operations shall be controlled, and access to these files shall be limited to authorized personnel.
267	The configuration files shall be maintained at the host for configuration and version control. All Zone Controllers shall have default configuration files that shall allow the lane to start-up automatically.

268	Authorized personnel shall be able to make changes to parameters and settings that are defined as configurable in this SOW and Requirements and in the Approved design documents. Authorized personnel shall be able to make changes to the configuration files in the field. Changes to configuration files shall be recorded in the ITSM. All changes made to the configuration files in the field shall be synchronized to the master configuration file that is maintained at the host.
269	Each Zone Controller shall automatically back up its critical configuration files to a back-up server to be used to rebuild the master drive in the event of hard disk failures.

5.2.2.8. Transmitting Data

270	The RTCS shall support exception handling in accordance with the NCTA business rules. Alarms shall be generated and reported to the ITSM system for all exceptions/errors.
271	All messages generated at the Zone Controllers shall be transmitted to the host in real-time using a transport mechanism that performs error detection and correction to guarantee data transmission. All messages shall be uniquely identified and validated at the host to ensure there are no missing or duplicate messages. Failure of transmission of data to the host shall result in the generation and transmission of an alarm message to the ITSM system.
272	All messages shall be confirmed as received by the OBO before they are flagged for write-over. In the event of communication failures, the messages shall be stored on the Zone Controller until the successful transmission is complete and verified.
273	The Zone Controller shall transmit to the TRH all data, including but not limited to those identified below: a) all transaction messages generated in the lanes; b) all alarm and status messages generated in the lanes; c) all lane operational, communication status and self-health messages; d) all events generated in the lanes that are displayed on the roadway operations monitoring screen or are required at the host; and e) all events required by the DVAS for real-time review or playback.

5.2.2.9. Receiving Data

274	All RSS Software shall be downloaded to the Zone Controllers from the host, and versions on each Zone Controller shall be maintained, tracked, and recorded.
275	The RSS shall institute checks whereby it detects issues with the data it receives from the host, including but not limited to: a) incorrect versions of the data received; b) corrupted data received; and c) missing files when a file was expected.
276	The RSS shall support exception handling in accordance with the NCTA Business Rules Approved during the design. Alarms shall be generated and reported to the ITSM system for all exceptions/errors.

5.2.2.10. Monitor All Lane Equipment for Device Status

277	Each Zone Controller shall self-monitor the system health of internal components and all associated in-lane Equipment devices for status. All RSS components, including AVI system, AVDC system, and ICPS, shall be continuously polled for status. The health of some digital devices shall be inferred from events.
278	The RTCS shall generate a recovery message and restore its operational status if a device recovers after reporting a failure. Recovery messages shall be recorded against the original failure work order, shall be reported through the ITSM system, and shall be available to authorized staff. Recovery messages shall not close the associated failure/work order but shall serve as supporting evidence of an Equipment recovery.
279	All alarm, health, and recovery messages shall be transmitted and reported to the ITSM system.
280	If communications from the Zone Controller to any host is unavailable, an alarm message shall be generated and reported to the ITSM system.
281	If the lane is operating in any mode other than the normal open mode, an alert message shall be generated at configurable intervals and reported to the ITSM system.

5.2.2.11. Stand-Alone Mode of Operations

282	The Zone Controller shall operate in a stand-alone mode for a minimum of ninety (90) Calendar Days if communications to the host is down. When operating in stand-alone mode, the last files downloaded from the host shall be used for processing vehicles.
283	The Zone Controller shall have an available data port to permit onsite manual uploading of Software or other pertinent data required for continued operation until communications with the host is re-established.
284	Upon re-establishing communications with the host, all back-logged messages, including manually transferred messages, shall be transmitted and synchronized to the host without affecting the real-time operations or degrading the lane operations.

5.2.2.12. Cabinet and Toll Site Security

285	The Contractor shall provide an Access Control and Monitoring System (ACSMS) to monitor access to the cabinets and toll site area.
286	The ACSMS shall provide a central management user interface for a user to remotely view security events and related videos. The interface shall provide convenient navigation of security events and related videos.
287	The ACSMS shall provide an overhead camera that captures the cabinet pad area and parking area and is capable of flagging video associated with alerts for events such as a cabinet door opening or movement after hours.
288	The ACSMS shall provide a camera (or multiple cameras) in each cabinet that captures individuals accessing the cabinet from each door. The cameras shall record video triggered by events such as the door opening or motion detection.

289	All cabinets on the project shall share a single key that is unique to the project and not widely available (such as a number 2 key).
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5.2.2.13. Backup Generator Integration

290	The Contractor shall integrate the new RTCS with the existing Automatic Transfer Switch (ATS) and existing generator to enable detection of a utility power outage.
291	The RTCS shall monitor the ATS and monitor ATS status and power status.
292	The RTCS shall monitor generator status (on/off/fault).
293	The RTCS shall monitor and report generator fuel and lubrication levels and provide remote access to this information.
294	The Contractor shall design and implement a power circuit design that connects the new UPS to the RTCS via both the utility service and the generator through the ATS.

5.2.2.14. Uninterruptible Power Supply (UPS)

295	The Contractor shall supply a new UPS. All roadside Hardware, Equipment and Components required to operate the RTCS shall be on UPS.
296	The new UPS shall be capable of receiving power from the utility power service and the backup generator via the ATS.
297	The Contractor shall interface with the transfer switch and the Contractor-provided smart Power Distribution Units (PDUs) in the toll cabinetry to manage the roadside power distribution. Maintenance technicians shall have remote access to manage power to critical devices.
298	The UPS shall support the RSS at each tolling location for a minimum of 2 hours on UPS battery power.
299	The UPS shall provide all critical status updates to the ITSM including, "on battery", "low battery" and "critical low battery" conditions.
300	When utility power is restored, and Hardware/Equipment is no longer on the UPS, a notification shall be reported to the ITSM system.

5.2.3. Wrong Way Vehicle Detection and Notification

The Contractor shall provide a Wrong Way Vehicle Notification System as part of their RTCS solution which adheres to the following Requirements.

301	The RTCS shall alert TMC personnel via email within 10 seconds of a vehicle passing through a toll zone travelling in the wrong direction. The email shall identify the location and time of the event and include a link to a video recording of the event.
302	The RTCS shall alert TMC personnel through a Contractor provided user interface within 10 seconds of a vehicle passing through a toll zone travelling in the wrong direction. The user interface alert shall be prominently displayed on the operator's monitor and include the time and location of the event and a five (5) second looping video of the vehicle passing through the zone.

303	The WWVD alerting system shall be capable of interfacing with third party systems provided by NCTA, such as a unified Advanced Traffic Management System.
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5.3. RTCS Support Functional Requirements

5.3.1. Transaction Reconciliation Host (TRH)

304	The TRH shall be hosted in the cloud or virtual machine host and accessible to NCTA via a virtual private network Approved by NCTA and operate on any commercially available web browser application.
305	The TRH shall include redundancy in the TRH (including transaction processing, reporting, and system monitoring) expandable to other NCTA facilities in the future if NCTA decides to consolidate or move any of its facilities.
306	The TRH shall be designed to allow for transaction processing, reporting processing, as well as system monitoring and auditing processing to occur simultaneously.
307	The Contractor shall provide, manage, and maintain all RTCS network Equipment including servers, switches, routers, and firewalls, and all network cabling required to operate the RTCS.
308	The Contractor shall provide an IT Service Management System (ITSM) that monitors the RTCS and addresses all related requirements in this Contract.
309	The RTCS shall monitor and collect data on system and Equipment statuses continually 24 hours a day, 7 days a week.
310	The TRH shall provide an interface to access recorded color video of every toll lane and Toll Zone that allows for the visual identification of vehicle size and number of axles and length at all times of the day and under all environmental conditions. The frame rate shall be sufficient to clearly identify vehicle characteristics to support an audit.
311	The Contractor shall provide associated data for Toll Transactions captured from the RTCS and sent to the NCTA OBO. The Contractor shall provide a Toll Transaction that is compliant with OBO to RTCS ICD as outlined in Attachment 7: OBO ICD . Refer to the current Interface control document as a reference for number of Web services and minimum data exchange elements. The Contractor shall describe its existing interface in its Technical Proposal.
312	The RTCS shall be capable of transmitting transaction records to the OBO in near real time from when the transaction is formed in the lane.
313	The RTCS shall be capable of implementing a delay to the delivery of transaction records to the OBO through a simple configuration setting.
314	The RTCS shall conform to Attachment 7 for the transfer of Toll Transactions and all other necessary data from the TRH to the NCTA OBO.
315	All transactions shall be uniquely identified and validated within the RTCS to ensure there are no missing or duplicate transactions prior to sending to the NCTA OBO.
316	When multiple Transponders are detected within a vehicle the TRH shall include all detected transponders within the transaction record sent to the OBO.

317	The RTCS shall account for every lane transaction that is the result of a buffered Transponder read for tracking and disposition which shall be reported to and auditable by NCTA.
318	Transponder reads buffered during lane degradation where no other information or images are captured shall be sent to the NCTA OBO for processing as a transaction at the lowest toll class.
319	The RTCS shall provide function to review the transaction accuracy, including the Toll Transactions sent to the OBO as well as transactions that were retained in the TRH for the purpose of: a) Audits conducted by the Contractor or NCTA and its agents. b) Support existing NCTA review and auditing processes to measure the system against the Performance Requirements. c) The Contractor shall be able to filter transactions including, but not limited to: 1. ALPR confidence levels 2. ALPR results based on location and Jurisdiction 3. Filtered criteria based random sampling for QA/QC (every XX transactions) 4. System exceptions as defined in this SOW and Requirements 5. Unusual occurrences as defined in this SOW and Requirements 6. Location 7. Date and Time
320	The RTCS shall map transactions that are not subjected to audit for accuracy, defined as System Exceptions, including but not limited to: a) auto flushes (tags read at the lane that did not correlate to a vehicle or lacks AVC data); b) images that were not correlated to a transaction (video auto flush); c) lane unavailable (transactions captured during a period of time when the system (lane or host) is deemed "unavailable"); and d) transactions captured when in lane mode: maintenance.
321	The RTCS shall map transactions to be used as indicators for potential lane issues, defined as Unusual Occurrences, including but not limited to: a) AVI failed 6C UII Validation b) class mismatch of Transponder versus lane AVC (only applicable to transaction with programmed Transponders [6C and TDM]); c) transaction without images; d) transaction with unusual number of axles (7+); e) Wrong Way Vehicle (WWV); f) speed over 100 mph; and g) speed of 0 mph (not including auto flush transactions).
322	The RTCS shall support manual audit and amendments to lane transactions.
323	Interfaces shall allow authorized users to quickly search by various query criteria, including: a) lane transaction number; b) specific time and time range; c) location (facility); d) lane/Toll Zone; e) class mismatch; and

	f) any combination of these parameters.
324	The RTCS shall automatically generate and track work orders for preventative maintenance, corrective maintenance, and emergency maintenance.
325	The RTCS shall automatically alert maintenance staff once a work order has been generated.
326	The RTCS shall support the assignment of maintenance priority levels based on the system configurable combination of severity level, facility, day and time.
327	Data from the alerts, logs, Hardware and Software status, work orders, tickets and any items in the IT Service Management (ITSM) system shall not be deleted or modified for the duration of the Contract.
328	The RTCS shall support the generation of ad-hoc work orders by authorized users.
329	The RTCS shall track spares and inventory levels including serial numbers and associated warranty information for installed Equipment and inventoried Equipment.
330	Error logs shall be transmitted to the ITSM system and available to authorized user in viewable form. Search and filter capability shall be provided to display and review up to one-hundred eighty (180) Calendar Days of data since the event.
331	All work and diagnostics performed by Contractor staff on the RTCS shall be recorded and automatically reported to the ITSM system, including the technician identification, the time the maintenance was performed, and all status and recovery messages.
332	Applicable industry standards and best practices for network and data communications shall be met.
333	The Contractor shall supply all diagnostic Software and specialty tools required for support of maintenance activities, and NCTA will have full rights and access as further defined in the Contract to such diagnostic Software and specialty tools.
334	The Contractor's services shall be designed, developed, implemented and maintained in a manner consistent with security requirements, defined as the requirements levied on Information Environments that are derived from laws, Executive Orders, directives, policies, standards, instructions, regulations, procedures, or organizational mission/business case needs to ensure that security and privacy protections are implemented in the collection, use, sharing, storage, transmittal, and disposal of information. Security requirements shall be supported in a manner that makes verification possible via analysis, observation, test, inspection, measurement, or other defined and achievable means. The Contractor shall meet the following requirements (where applicable): • 18 U.S. Code § 2721 — Driver's Privacy Protection Act • N.C.G.S § 143B-1375 — Security • N.C.G.S § 143B-1376. Statewide security standards • N.C.G.S. §143B-1331 — Business Continuity Planning • Functional Schedule for North Carolina State Agencies • North Carolina Statewide Information Security Manual • NCDOT Policies, Standards, Guidelines and Procedures • NCDIT-T Policies, Standards, Guidelines and Procedures • NCTA Policies, Standards, Guidelines and Procedures

	NC Statewide Information Security Manual can be currently viewed at: https://it.nc.gov/statewide-information-security-policies The policy regarding data classification and handling can be currently viewed at: https://it.nc.gov/documents/statewide-policies/statewide-data-classification-handling-policy/open The Functional Schedule for North Carolina State Agencies can be currently viewed at: https://archives.ncdcr.gov/government/state-government-agencies/functional-schedule/functional-schedule-search-guide The definitions in the Statewide Glossary of Information Technology Terms apply to all statewide information technology policies and standards and can be currently viewed at: https://it.nc.gov/documents/statewide-glossary-information-technology-terms The NIST Glossary of Information Technology Terms can be used to supplement the Statewide Glossary of Information Technology Terms and can be currently viewed at: https://csrc.nist.gov/glossary. Any exceptions to the standards described in this Requirement above and in Attachment 2: State of North Carolina, Statewide Information Security Manual shall be described in its Proposal by adding Appendix 3 in the Proposer's Technical Proposal Section 8. The Contractor shall describe any exception to the security policy and why they are exempt. The Contractors shall identify only of those exceptions within the policy with an explanation. Categorical exception to the policy shall be considered non-compliance.
335	Remote access to all RTCS shall be VPN based and controlled through a central repository, with each user having a unique log-in.
336	All remote access to the RTCS shall require two-factor authentication.
337	User sign-on, access, and access failures, both local and remote, to any element of the RTCS shall be recorded and tracked for security audit proposes and reported to the ITSM system. The RTCS shall continuously and automatically monitor for unauthorized access; access violations shall be reported to the ITSM system as Priority 1 alert. These reports shall be provided to NCTA within one (1) hour of discovery.
338	The RTCS shall support access levels, user roles, and privileges to be defined in a matrix during RTCS design with NCTA input and Approval. The RTCS shall allow for additional changes to the access levels, user roles, and the addition of personnel in a secure manner.
339	A system-level account shall be provided for NCTA security systems to perform "credentialed" scans. Additionally, NCDOT IT security can request the Contractor to perform vulnerability, anti-malware and intrusion detection scans and provide reports through the term of the Contract.
340	The Contractor shall not circumvent NCTA Approved RTCS security. All access to the RTCS and Approved changes made shall be recorded, monitored, and available for review and audit. Specific requirements for this shall be developed by the Contractor during RTCS design.
341	The Contractor is responsible for all Updates, patches and hotfixes for all Software developed, furnished and/or installed under this Contract which are needed to maintain functionality and system security. Critical Updates shall be tested and installed within thirty (30) Calendar Days of

	release. All applicable Updates shall be reviewed to determine if they are necessary and, if so, shall be tested and installed within ninety (90) Calendar Days of release.
342	The Contractor shall perform monthly vulnerability tests that are scheduled in the ITSM system, as well as every time a new Software release is deployed or new network Equipment, is added or replaced to evaluate the security risk to the RTCS and identify potential vulnerabilities. NCDOT IT security shall be a party to these security tests and shall be notified in advance of any scheduled tests.
343	The Contractor is responsible for correcting all RTCS security deficiencies at the Contractor's cost and ensuring that all security risks are mitigated to a level that is acceptable to NCTA and meets state guidelines.
344	The Contractor shall provide at their cost an annual information security risk assessment to be performed by a third-party Approved by NCTA and in consultation with NCDOT IT security. The Contractor shall provide the assessment results to NCTA. The Contractor, and third parties supporting the RTCS Information Environment, shall provide at their own cost applicable third-party risk assessment reports to NCTA that demonstrate the Contractor's compliance to industry accepted guidelines (e.g., SOC 2 Type II, ISO 27001, etc.) before the Contractor is permitted to handle Restricted and Highly Restricted NCTA data, and annually thereafter. The Contractor shall adhere to the Statewide Information Security Manual Risk Assessment Policy, Section RA-2: https://it.nc.gov/documents/statewide-policies/scio-risk-assessment https://it.nc.gov/documents/statewide-policies/statewide-data-classification-handling-policy/open
345	The TRH shall provide access to: a) DVAS and ACSMS live and historical recordings; b) Live and historical transaction records, including but not limited to video and images captured; c) Audit application for transaction reconciliation and transaction accuracy verification; d) User Interface screens and Operations reports; e) ITSM; f) ACSMS; and g) All required local wide area (LAN), and wide area networks (WAN).
346	The Contractor shall provide a VPN client for system access that is approved for installation on NCDOT managed IT devices. NCTA staff and support will use this VPN client to access the RTCS, as applicable.

5.3.1.1. TRH UPS Requirements

347	All Hardware and Equipment required to operate the TRH shall be on UPS, as applicable. The UPS shall be supplied by the Contractor.
348	The UPS shall support the RTCS at each tolling location for a minimum of 2 hours on battery.
349	The UPS shall provide all critical status updates to the ITSM including on battery, low battery and critical low battery.
350	When utility power is restored, and Hardware/Equipment is no longer on the UPS, a notification shall be reported to the ITSM system.

5.3.1.2. Access Control and Security Monitoring System (ACSMS)

351	ACSMS shall consist of a standardized solution designed to manage physical access to facilities while continuously monitoring security-related events. The system shall: • Detect all cabinet access events. • Record video of all toll equipment areas (24/7) and video of cabinet access from within the cabinet upon motion or activation of cabinet door. • Notify users upon user-definable activity via email, interface alert, or SMS.
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5.3.2. Operational Back Office (OBO) Interface Requirements

The Contractor is to interface with a NCTA provided OBO operations identified in this Part III, Scope of Work and Requirements. The Contractor shall provide design, testing, installation, and transition support services as part of their integration with the NCTA OBO.

352	The Contractor shall integrate with the NCTA OBO to transmit all toll transaction data and images.
353	The Contractor shall transmit all data directly from the RTCS to the NCTA OBO. The Contractor shall describe its architecture in its Technical Proposal.
354	The Contractor shall conform to the OBO ICD provided as Attachment 7 to this RFP. This ICD is an initial draft, and it is expected that the Contractor will support the finalization of this ICD as part of the design, implementation and testing of this Project.
355	The Contractor shall provide a summary report of all events captured at the roadside. This report at a minimum will include: • Date • Events transmitted to the OBO This report will look back ninety (90) Calendar Days and will be delivered daily.

5.3.2.1. External Interfaces and Data Requirements

356	The Contractor shall provide an Interface Test Plan (ITP) as described in Part III, Section 3.6.1.
357	The Contractor shall provide data through its interfaces in open commercially available toolsets.

358	The Contractor shall provide read only user access to all databases, data integration services for its provided RTCS required data dictionary for structured and unstructured data. For structured data that is typically in a RDMS or data lake, the Contractor shall include roadside lane transaction data, image processing, service management ticket data and other toll rate data. For unstructured data, NCTA will also have access to real time log files for its independent audit and review of such data using data integration services native to the selected cloud or virtual machine host platform.
359	The Contractor shall provide read-only access to its pertinent databases above 30 Calendar Days prior to the start of FAT and work with NCTA to establish access to its system via temporary access using a cloud or on-premises storage, with VPN or other access point.

5.3.2.2. TRH Disaster Recovery System

360	The cloud-based or virtual machine host infrastructure utilized to provide the collective system Host functionality shall be geographically and functionally redundant, and within the contiguous United States, such that service provision cannot be interrupted by the loss of a single cloud or virtual machine host site.
361	The Disaster Recovery System shall provide all necessary functions to support the Disaster Recovery Plan Requirements included in Part III, Section 3.9.
362	The Disaster Recovery System shall support the RTCS to meet all functional and performance Requirements in Part III, Section 5 RTCS Functional Requirements and Section 7 Performance Requirements – Maintenance and Operations.
363	The Disaster Recovery System shall be accessible to NCTA and their supporting staff at all times.
364	The Contractor is responsible to provide all network connectivity required between the Disaster Recovery System and all internal and external interfaces needed to support its operation.
365	The Contractor shall be responsible for developing and submitting a comprehensive Disaster Recovery Architecture Plan, including Disaster Recovery Procedures, in accordance with current the versions of NIST CSF and the Statewide Security Manual for review and Approval by NCTA.
366	If a cloud solution is provided, the cloud service provider shall configure the collective cloud-based environment in such a manner that disruption of service at a single location shall not interrupt cloud-based service provision in any way. If the Contractor implements the TRH as a virtual machine on physical servers, the Disaster Recovery system shall be in a replicated and fully available environment, outside a 50-mile radius from the primary TRH.
367	The Recovery Time Objective (RTO) shall be five (5) hours.
368	The Recovery Point Objective (RPO) shall be one (1) minute.

5.4. Data Retention

369	Transactions and system logs shall be retained online in the TRH for ninety (90) Calendar Days and then archived and purged.
370	DVAS video shall be retained online for ninety (90) Calendar Days and purged.

371	Images shall be retained online in the TRH for ninety (90) Calendar Days and purged.
372	Zone Controller storage shall be sized to hold a minimum of ninety (90) Calendar Days of one hundred percent (100%) of transactions, images and event data for each lane at the tolling location supported by the Zone Controller.

6. Maintenance Responsibilities and Services

NCTA and Contractor's responsibilities for providing Maintenance Services and associated communications during the Maintenance Phase of the Contract are described herein. Maintenance shall be divided into three (3) Maintenance levels as described below.

1. Level I Maintenance is defined as assignment and triage of incidents and issues and reporting and monitoring.
2. Level II Maintenance means corrective and preventative maintenance that requires minor Software configuration, Equipment replacement and configuration, planned shutdown and minor preventative actions including analysis of log files to ensure that the systems operate in accordance with the Performance Requirements.
3. Level III Maintenance means corrective and preventative maintenance for all patch management, Software changes and major changes to the system functionality. Level III Maintenance also includes 24/7 remote support for Level 1 and II maintenance staff.

The Contractor shall provide Maintenance Services for all work described below, as applicable to the subject Task Order:

- a) Roadside Equipment;
- b) System Hardware Maintenance (servers, storage, network switches, firewalls, routers, etc.);
- c) System administration;
- d) Software support services;
- e) Network administration;
- f) Database administration;
- g) Monitoring services;
- h) Preventive maintenance;
- i) Corrective maintenance;
- j) Facility maintenance; and
- k) Security and Confidentiality.

NCTA under a separate contract shall perform the following services, including but not limited to:

- a) Ongoing participation with NCTA's maintenance staff and involvement in meetings and processes; and
- b) Level 1, 2, 3 CBOS/OBO Maintenance.

NCTA does not reimburse the Contractor for the cost of tolls incurred, nor shall any "non-revenue" Transponders be provided for the Contractor's use on NCTA toll facilities.

The Contractor shall provide complete Maintenance Services for:

- a) All maintenance work for a base period of up to 5 years; and
- b) All maintenance work for two optional 3-year periods.

Sample Project Implementation and Maintenance Phases Timeline			
Project Implementation through Operations and Maintenance Period	5-Year Base Maintenance Contract Period Maintenance Year 1 through Maintenance Year 5	3-Year Optional Maintenance Period Maintenance Year 6 through Maintenance Year 8 (1 st Optional Maintenance Period)	3-Year Optional Maintenance Period Maintenance Year 9 through Maintenance Year 11 (2 nd Optional Maintenance Period)
Contractor responsible for all Maintenance Work and Costs prior to Go-Live. See Part V, Terms and Conditions for additional details.	Contractor responsible for all Maintenance Work with Payment Based on Price Proposal. See Part V, Terms and Conditions for additional details.		

Figure 3: Project Implementation Phases

6.1. Roadway Maintenance Services – General Requirements

373	The Contractor shall provide all maintenance activities associated with the RTCS maintenance and Software support services throughout the term of the Contract as further set forth in this SOW and Requirements.
374	Hardware, Software, and RTCS Maintenance Services shall be provided from the time the system is installed through the end of Contract Term (including extensions) as further set forth in Part V, Terms and Conditions with full warranties as further set forth therein.
375	The Contractor shall provide a Software license and associated escrow as further set forth in Part V, Terms and Conditions.
376	In the Operations and Maintenance Phase, maintenance shall include all services required to maintain the RTCS, including Hardware, Equipment, Software, and components at the required performance levels. NCTA will not be charged any additional amounts beyond those included in the Approved price proposal for all services related to maintenance; notwithstanding the foregoing, force majeure events shall be as set forth in the Contract as further set forth in Part V, Terms and Conditions.
377	All Equipment mounting Hardware and brackets provided as a part of this SOW and Requirements shall be included under Maintenance Services and, as such, shall be warrantied for the life of the Contract.

378	If required by the Contractor, NCTA Approved repair or other services that fall outside the Maintenance Services described herein shall be invoiced at the service rates as defined in Exhibit B-2: Pricing Sheets .
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6.1.1. RTCS Warranty Program

379	The Contractor shall be responsible for the development, implementation, and administration of a warranty program for all Hardware, Contractor developed, and third-party Software as further set forth in Part V, Terms and Conditions.
380	The Contractor shall maintain warranty records and service agreements for all Hardware and third-party Software and shall review and implement Software Upgrades and available patch reports to keep the RTCS current per the Approved Management Plan and as further set forth in Part V, Terms and Conditions.

6.1.2. Detailed Maintenance Requirements

The Maintenance Services shall include monitoring, preventive, pervasive, corrective, security-related and emergency maintenance services, and certain Upgrades and enhancements to be performed on all elements of the RTCS. All Maintenance Requirements are listed as the Contractor shall provide a Maintenance Plan and all other related maintenance Deliverables as specified in this Part III, Scope of Work and Requirements.

381	Detailed assignments of levels to incident types shall be in accordance with the requirements and shall be defined and Approved during the design of the project.
382	The Contractor shall monitor ITSM system work orders and initiate corrective actions to meet requirements for the response to maintenance events and incidents that are under the Contractor's responsibility.
383	The Contractor shall allow NCTA to add agent-based monitoring to the Contractor provided RTCS to monitor its applications, infrastructure, database and network systems including all external interfaces for the RTCS.
384	As part of the Software support services, Contractor shall develop and test Software as required to accommodate corrective actions, changes to business rules, or configurations. The scope shall include the provision of evidence packages detailing the planned changes for NCTA's review and Approval, including installation of new Software and confirmation of successful installation per the Approved Management Plan.

6.1.2.1. Maintenance Requirements

The Maintenance Services shall include monitoring; preventive; pervasive; corrective; security related and emergency Maintenance Services and certain Upgrades and Enhancements to be performed on all elements of the Roadway System.

385	All Maintenance incidents, activities and monitoring include, but are not limited to:
	a) monitoring the RTCS for failures and alarms and confirm an ITSM system work order has been created for each failure as defined in the system design;

	b) acknowledging and responding to work orders assigned to the Contractor;
	c) creation and assignment of a work order in ITSM system if a work order has not been created;
	d) performing the necessary maintenance and closing the ITSM system work order upon confirmation that the failure has been successfully corrected;
	e) monitoring and maintenance of the production and test environments;
	f) Updates to operating system and Software infrastructure in the production and test environments;
	g) performing preventive maintenance in accordance with an Approved Maintenance Plan;
	h) general Equipment and Hardware maintenance, replacement and spare parts inventory in ITSM system;
	i) general inspection and maintenance of roadside infrastructure;
	j) ongoing monitoring, Updates, maintenance tasks related to roadside subsystems, operations, controllers, servers and storage systems;
	k) address and resolve third-party Software issues (OS, third-party, peripheral and infrastructure Software);
	l) backup system monitoring (verification of successful backups), maintaining (applying Updates when needed) and managing (backup media rotation, offsite storage, etc.);
	m) monitoring, updating and general maintenance and troubleshooting of LAN communications and associated devices;
	n) monitoring, updating, and general maintenance and troubleshooting of both active and redundant LAN/WAN communications and associated devices;
	o) deployment of RTCS Software to the production and test environments;
	p) maintaining the ongoing relationship (support and maintenance agreements) with third-party vendors; and
	q) performing Software licensing renewals.
386	Performance of all system administrative functions at regular intervals if not automated and recording and tracking such activities as preventive maintenance work orders through ITSM system.
387.	Continuous monitoring of system operations to verify RTCS is functional; security posture is adequate; processes are being executed as scheduled; files are transmitted as specified, and RTCS is operating to Contract Performance Requirements.
388.	Manual retrieval of data from the Zone Controllers in the event of extended communications failure.
389.	Re-establishing or re-installing system files, programs and parameters, as required, following a failure or damage to the RTCS and returning lanes to fully operational condition.
390.	Performing Disaster Recovery procedures as needed and return lanes and TRH to fully operational condition when disaster recovery situation is initiated.
391.	Analyzing anomalies and periodic, daily, and weekly trends to identify problems and initiating an investigation and subsequent correction.
	Maintenance shall include but not be limited to the following:

392.	a) Work orders and alerts assigned to the Contractor, as defined during the design;
	b) development of defect fixes, security fixes, performance fixes and corrections to the Software and applications as identified during audits;
	c) Updates to all Software drivers to meet any new standard operating system Upgrades as they become available;
	d) Software changes that are necessary or required to meet the system requirements, parameter changes, or lane configuration changes;
	e) source code maintenance;
	f) perform internal testing prior to releasing fixes to production;
	g) ongoing Software warranty maintenance as set-forth in the Contract; and
	h) change management and configuration management tasks prior to Software and Hardware changes.

6.1.3. Upgrades and Enhancements

393	The Contractor shall provide in electronic format all patches and Updates made to the RTCS Software.
394	Upgrades and enhancements shall be proposed by the Contractor or requested of the Contractor in accordance with the change order/extra work order process as set forth in Part V, Terms and Conditions. *Examples of Upgrades and enhancements include but are not limited to: accommodating major changes to standards, statutes, or interoperability Equipment or the addition of new Equipment or functionality providing demonstrable benefits in performance, costs or productivity.
395	Software modifications required to maintain and support the RTCS as a part of the normal course of business <u>shall not be</u> considered Upgrades or enhancements paid for by NCTA. These modifications include but are not limited to: patches and security Updates, version changes; configuration or parameter changes; minor changes to Software or code, such as changes to the existing ICDs; Software modifications required to ensure RTCS is compliant to existing standards and changes for the Contractor's benefit that improve the Contractor's ability and efficiency to maintain and support the RTCS.
396	The Contractor shall maintain compatibility with all applicable AVI standards, including but not limited to the IAG Inter-CSC file versions, 6C TOC versions, and PROTOCOL SPECIFICATION SeGo versions. These upgrades are solely the responsibility of the Contractor and shall be implemented with 90 Calendar Days of the standards being released.

6.1.4. Audits

397	The Contractor shall, upon request, support NCTA in any audit activity relating to NCTA's RTCS or operations. In addition, the Contractor shall conduct audits in accordance with the Contractor's QA and QC program. All deficiencies identified through the audit process shall be successfully corrected by the Contractor. These audits may include, but are not limited to, the following: a) internal control procedures; b) revenue/transaction reporting; c) financial audit; and d) system processing and performance.
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6.1.5. RTCS Hardware Maintenance and Software Support Services

The Requirements in this section describe Hardware Maintenance and Software Support Services. The Proposers shall describe how it will perform all Levels of Maintenance Services in its Proposal.

398	Monitoring and troubleshooting of the RSS including, but not be limited to: a) Zone Controllers; b) AVI system; c) AVDC system; d) ICPS components and controllers; e) OCR/ALPR Software; f) Image-based transaction alarms; g) DVAS cameras and system; h) ACSMS cameras and system; i) inspection, test, and repair of cables, wiring and terminations; j) Contractor supplied network Equipment; and k) all Roadside Contractor and third-party Software.
399.	The Contractor shall perform automated routine diagnostics on all in-lane peripherals and in-lane subsystems.
400.	The Contractor shall monitor and maintain RTCS Software processes, operations, and interfaces to the host, TRH and to NCTA OBO.
401.	The Contractor shall monitor real-time roadway operations screens and dashboards and responding to issues.
402.	The Contractor shall analyze periodic, daily, and weekly trends to identify problems, including but not limited to: a) a high number of transactions without Transponder; b) a high number of class mismatch transactions; c) abnormal changes in traffic counts and class; d) a high number of exceptions or unusual occurrences as described in this SOW; e) transaction exceptions;

	f) a high number of rejected images. (based on feedback from OBO)
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6.1.6. Monitoring and System Administration Services

The Requirements in this Section describe the monitoring and system administration services.

4.03.	All RTCS administrative functions, if not automated, shall be performed by the Contractor at regular intervals as part of the RTCS preventive Maintenance Services according to the Approved Maintenance Plan to ensure system performance is optimized. All such system administrative functions shall be scheduled as preventive maintenance work orders through ITSM system and tracked.
4.04.	Continuous monitoring of system operations shall be performed by the Contractor in conjunction with NCTA to verify that the system is functional, security posture is adequate, processes are being executed as scheduled, files are transmitted as specified, and system is operating to Contract Performance Requirements.
4.05.	Continuous monitoring of operations, including but not be limited to: a) confirming and verifying receipt of all the ITSM system messages and alerts; b) verifying the ITSM system is receiving and processing system events and reporting the correct status; c) evaluating sample transactions data for exception; d) confirming data and image transmission to the host; e) verifying processes, programs and scheduled jobs are successful; f) reviewing comparative reports to identify system degradation; g) reviewing OCR/ALPR or manual image processing results and poor-quality images; h) monitoring the DVAS video and event data; i) reviewing sample images from each tolling location; j) correcting performance issues identified; k) evaluating storage requirements; l) verify time synchronization is occurring as configured and system clocks are not drifting beyond acceptable threshold; and m) reviewing error logs and alerts.
4.06.	Provide continuous 24x7 system administration services coverage on the RTCS to ensure that it is performing and shall continue to perform at a satisfactory level.
4.07.	System administration services shall include monitoring and corrective action to ensure system performance is in accordance with Requirements of this SOW. This shall include but is not limited to: a) monitoring host Hardware at the TRH servers, storage devices and backup systems; b) verifying processes, programs, and scheduled jobs are successful; c) all transactions and images are successfully transmitted to the receiving systems; d) all messages described in the ICD are being successfully exchanged between the RTCS, and NCTA OBO;

	e) confirm applications are functional and available to authorized users;
	f) all scheduled reports are successfully generated and available to authorized users;
	g) all processes are functioning, and data and images are moving successfully through the queues;
	h) all third-party interfaces are functioning and successfully exchanging files;
	i) scheduling of preventive, corrective and predictive maintenance activities;
	j) any daily, weekly, or periodic maintenance required to maintain the RTCS at required performance levels (for example: indexing and tuning databases; archiving and purging in accordance with NCTA's retention policy);
	k) maintaining and updating records of all maintenance events and activities in the ITSM system;
	l) third-party Software or firmware Upgrades in conjunction with NCTA, as required and to be compliant to security requirements including but not limited to performing security Software Upgrades, database Upgrades, and operating system Upgrades;
	m) contact with NCTA, operations and contractors regarding system issues, performance, security posture, Software release, and maintenance scheduling;
	n) Approved manual actions, adjustments and Updates to the system data based on predefined criteria to correct issues and as authorized by NCTA;
	o) re-establishment or re-installation of system files, programs, and parameters, as required, following a failure or damage to the system;
	p) monitoring of error logs and system logs;
	q) maintenance of up-to-date Software backups (all system Software and data);
	r) installation of new Software and confirmation of successful installation;
	s) assisting NCTA operations staff as requested by NCTA;
	t) troubleshooting RTCS issues;
	u) creation of ad-hoc data queries requested by NCTA;
	v) generation of queries as requested by NCTA; and
	w) analysis of data as requested by NCTA.
4.08.	Software support services shall include monitoring and corrective action to ensure system performance is in accordance with Requirements of this SOW, to include database management and operation. This shall include but is not limited to investigation and analysis of errors and exceptions and taking corrective action, including correcting the problem and reprocessing the data, monitoring of notifications, and initiating corrective actions on application programs to meet the requirements listed below:
	a) Updates to the RTCS and application to support Upgrades to Hardware or third-party Software;
	b) Updates to the RTCS and application to support all changes to business rules and RTCS configurable parameters, and deploy changes in production;
	c) attend interoperability meetings as requested by NCTA;
	d) Updates to the RTCS and application to support minor changes to NCTA interoperable partner and national interoperability ICD;

	e) Updates to the RTCS and application to support the addition of new interoperable agencies;
	f) Updates to the RTCS and application to support changes to continue its compliance to Updated security requirements; and
	g) Updates to the RTCS and application to support legislative and statutory changes.
	h) As part of the Software support services, the Contractor shall develop, and test Software as required in accordance with NCTA change order process to accommodate corrective action and changes to Business Rules. The Contractor shall include the provision of evidence packages detailing changes for NCTA's review and Approval, installation of new Software and confirmation of successful installation.
	i) As part of the network administration, the Contractor shall monitor all network alerts and alarms, as well as to detect intrusion attempts and prevent intrusions.
409.	The Contractor shall Upgrade and Update the network security and provide the required Software and monitoring tools to ensure the RTCS is always in compliance with the most recent penetration and vulnerability test requirements.

6.1.7. Types of Maintenance

6.1.7.1. Preventive Maintenance

410.	The Contractor shall be capable of providing and performing onsite preventive maintenance on the Roadside System Hardware, host Hardware, Contractor LAN/WAN communications Equipment, and Software in accordance with the Approved Maintenance Plan.
411.	The Contractor shall inspect all Contractor installed Equipment, both major components and support components (fans, cables, connectors, cabinets, Equipment racks, storage units) that constitute the RTCS and shall make such repairs, cleaning, adjustments, and replacements of components as necessary to maintain the Equipment in normal operating condition in accordance with the Approved Maintenance Plan.
412.	The Contractor shall include in the Maintenance Plan their preventative maintenance program, which includes a schedule of all preventative maintenance activities requiring lane closures for the upcoming month at least five (5) Business Days before the beginning of the month.
413.	Preventive maintenance shall be performed by the Contractor using NCTA Approved diagnostic aids, tools, and Equipment. For facility security purposes, the Contractor shall provide notification to the MRTMC and/or STOC for any onsite work that occurs outside of normal business hours (7 AM – 6 PM, M-F, excluding holidays).
414.	Preventive maintenance requiring lane closure shall be scheduled by the Contractor for off-peak travel periods, evenings, Saturdays, and Sundays and coordinated with NCTA, so that the work shall not interfere with normal traffic flow unless otherwise Approved by NCTA.
415.	The Contractor shall provide changes to the Approved Maintenance Plan schedule as soon as changes become known due to weather, contractor availability, or any other reason.

416.	In addition to required ongoing Contractor monitoring, the servers, data processing units and/or cloud hosted or virtual machine host environments shall be periodically checked by the Contractor to verify that storage space is not reaching limits, disks are not fragmented or damaged, Software being used is of latest version per the configuration management and data is being processed and transferred in an appropriate manner.
417.	Transaction and image processing volumes and times shall be monitored by the Contractor and Systems optimized for performance with NCTA Approval to meet all Contractual Requirements.
418.	Report generation times, system access times, and system response time shall be monitored by the Contractor to ensure performance meets the Contractual Requirements.
419.	The Contractor shall include all Equipment and systems as part of the preventive maintenance in accordance with the original Equipment manufacturer's guidelines. Any variations or exceptions shall be noted by the Contractor and Approved in advance by NCTA.
420.	The Contractor shall provide a preventive maintenance schedule, to be Approved by NCTA, as detailed in the Maintenance Plan.
421.	The preventive maintenance schedule shall be entered by the Contractor into the ITSM system, and work orders shall be automatically created to alert Contractor staff of required preventive maintenance.

6.1.7.2. Corrective Maintenance

422.	All work performed by the Contractor to correct Software defects or problems to meet the requirements of the Contract shall be considered as corrective maintenance. Such problems include but are not limited to:
	a) failure of subsystem functions and devices;
	b) problems identified by the users, including the TMC, and customers;
	c) interface issues and devices;
	d) failure of processes and programs;
	e) data reconciliation issues;
	f) report issues;
	g) application failures;
	h) RTCS network issues;
	i) inadequate security posture;
	j) degraded RTCS or component performance; and
	k) non-conforming availability or MTBF.
423.	Contractor shall notify NCTA before any corrective maintenance is performed.
424.	Notwithstanding the foregoing, for the repeated failure of Equipment, components, or systems, the Contractor shall undertake an investigation. If the problem is determined by NCTA to be a pervasive defect, the Contractor shall be responsible for resolution as set forth in Part V, Terms and Conditions.

6.1.8. Incident and Revenue Loss Reporting

425.	The Contractor shall immediately notify NCTA of any incident or event whereby the potential or actual loss of revenue occurred. The Contractor shall take immediate action to rectify the condition and return the RTCS to normal functioning.
426.	A monthly incident report shall be provided by the Contractor that includes a breakdown of lost transaction data and revenue by roadway for each incident. If the condition is determined to be due to the fault of the Contractor, damages shall be assessed in accordance with the Part V, Terms of the Contract.

6.1.9. Spare Parts

This Section details the Contractor's responsibilities regarding spare part management for the duration of the Maintenance Phase.

427.	Contractor shall be responsible for the inventory of all spare parts at the storage facility and shall be insured in this regard as set forth in the Contract. The Contractor shall account for all spare parts and shall provide safeguards against theft, damage, or loss of the spare parts.
428.	The spares facility and storage area shall be secured and connected to an up-to-date security network System with alarm notification monitored by the Contractor. Further, it is required that NCTA shall have full and unrestricted access to the Maintenance and or storage facility.

6.1.9.1. Procurement and Control of Spare Parts

429.	Thirty (30) Calendar Days prior to placing the RTCS in revenue collection, the Contractor shall have purchased and have on hand, an adequate inventory of spare parts to maintain the system in accordance with all system availability KPIs.
430.	The spare parts shall be purchased on behalf of NCTA and shall be owned by NCTA.
431.	Any spare parts that are lost or damaged due to the negligence, intentional act, or omission of the Contractor or its employees, Subcontractors, agents, or invitees shall be replaced by the Contractor at its sole cost.

6.1.9.2. Spare Parts Inventory Management

432.	Contractor shall be responsible for the inventory of all spare parts at the storage facility and shall be insured in this regard as set forth in the Contract. The Contractor shall account for all spare parts and shall provide safeguards against theft, damage, or loss of the spare parts.
433.	The spares facility and storage area shall be secured and connected to an up-to-date security network System with alarm notification monitored by the Contractor. Further, it is required that NCTA shall have full and unrestricted access to the Maintenance and or storage facility.
434.	The Contractor shall ensure that only spare parts and Equipment required to service the Roadway System and WAN/MAN/LAN communications spare Equipment are stored at this facility and shall only be used for NCTA Roadway Systems.

6.1.9.3. Spare Part Inventory and Tracking

435.	The Contractor shall be responsible for the Maintenance of an adequate spare parts inventory during the Contract Period. The Contractor is responsible for monitoring and identifying the existing spare parts inventory, ordering spare parts as required, and proposing the quantity needed to maintain the required performance and maintaining all applicable data in the ITSM.
436.	The Contractor shall also be responsible for tracking of all warranty replacement for Contractor provided Equipment through returned material authorization process. If the replaced part is under warranty, the part shall be immediately replaced with a new part. If the replaced part is out of warranty, Contractor shall make every effort to repair the replaced item to a usable status and place the part back into spares inventory.
437.	If the Contractor is unable to repair the part, a new part shall be purchased and placed into spares inventory. The details of the repair efforts, including problem, status, inventory, and repair disposition, shall be included in the ITSM inventory and repair database.

6.1.10. Notifications

438.	The entry of a problem (either by the RTCS or an authorized user) into the ITSM system or the presence of a failure notification shall constitute the start of the acknowledgment time for purposes of measuring the Contractor's acknowledgment time and response/repair time.
439.	For purposes of measurement of performance and for the development of maintenance policy and procedures, notification of RTCS malfunctions, problems and discrepancies may be provided to the Contractor in four (4) different methods, summarized below. a) Verbal Notification: Defined as an in-person notification or telephone call to the Contractor's designated maintenance personnel. In all cases, the first conversation with, or notification of the Contractor shall signify the start of the response time for purposes of measuring the Contractor's response time. All verbal notifications shall be recorded in ITSM system by the Contractor. b) Written Notification: Defined as a written description of a problem or condition, typically provided by NCTA or its representatives by email. The time of receipt email shall signify the start of the response time for purposes of measuring the Contractor's response time. All written notifications shall be recorded in ITSM system by the Contractor. c) ITSM System Notification: Defined as an automatic notification through the ITSM system identifying a problem within the RTCS that is the maintenance responsibility of the Contractor and sending out an automatic work order message by email or text to a Contractor's maintenance staff to respond to the failure. In addition to the Contractor notification, the work order shall be posted on the ITSM system and available via reports. The presence of an ITSM system notification in the RTCS shall constitute the start of the acknowledgement time for purposes of measuring the Contractor's acknowledgement and response time.

	d) Generation of Alert: Defined as automatic creation of an alert identifying a problem within the RTCS that is the maintenance responsibility of the Contractor. The generation of the automatic alert in the RTCS shall constitute the start of the acknowledgement time for purposes of measuring the Contractor's acknowledgement time.
440.	The Contractor shall provide NCTA TMC with any requests for lane closures to address emergency corrective repairs. The request shall be submitted immediately after the system failure is detected.

6.1.11. Maintenance and Software Support Records

441.	NCTA will have access to all maintenance and Software service records at any time for review and audit, upon reasonable notice. The Contractor shall provide monthly reports generated in the RTCS that permits NCTA to evaluate Contractor's maintenance performance. The Contractor shall provide a template at least 180 Calendar Days prior to Go-Live for NCTA review and Approval.
442.	The Contractor's maintenance manager shall maintain current, complete, and accurate records for all maintenance and Software support services activities. The Contractor's maintenance manager shall institute procedures that make sure the maintenance staff enters complete information into the ITSM before closing a work order or trouble ticket.
443.	All preventive, pervasive, and predictive maintenance activities shall be reported in the same manner as corrective or emergency maintenance activities by the Contractor. The information shall be contained on the ITSM and shall be made available through various ITSM system reports.

6.1.12. Recording of Maintenance Activities

444.	The Contractor and NCTA will utilize the ITSM for initiating the work orders. ITSM shall be utilized for recording and tracking all maintenance and Software support services performed on the RTCS. Additionally, all Equipment provided under this Contract shall be tracked through ITSM from the purchase to their disposal.
445.	In all cases, the Contractor is responsible for logging all reported maintenance activities into the ITSM. The Contractor shall also be responsible for documenting all information and issues related to a failure condition, including all actions taken to complete the correction into the ITSM.
446.	The work order shall contain as much information as possible in order for persons other than the technician or his supervisor to reasonably determine the fault, when it was worked on, the corrective action, and any other information pertaining to the individual maintenance event, including replacement of parts.
447.	All Maintenance performance metrics shall be recorded and tracked through the ITSM, and compliance to Performance Requirements shall be validated using ITSM reports.
448.	It is the Contractor's responsibility to ensure that its maintenance staff has real-time access to the ITSM and that all the required connections are established and ongoing to ensure that the maintenance staff has secure remote access Approved by NCTA. Maintenance staff shall be trained in the use of the ITSM.

6.1.13. Maintenance Staffing

6.1.13.1. Maintenance Staffing Requirements

449.	The Contractor shall be responsible for maintaining an adequate level of technical staff to perform Maintenance and Software support services on the RTCS. The Contractor shall ensure that sufficient staffing is available to cover all maintenance activities identified in this SOW and Requirements at all times but particularly during the following periods: a) Weekends; b) Holidays; c) Personnel on vacation/sick time; d) After regularly scheduled work hours (on-call); and e) Unexpected emergency or crisis.
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6.1.14. Security and Confidentiality

450.	All Contractor personnel shall be subject to appropriate security and background checks to the satisfaction of NCTA. The Contractor shall obtain written Approval from NCTA for all service personnel, and each Contractor personnel shall be required to sign an acceptable use agreement.
451.	The Services and Work performed under the Contract are considered highly confidential, and the Contractor personnel shall at all times comply with NCTA security and privacy requirements.
452.	NCTA will identify and designate a primary point of contact for the Contractor. Under most circumstances, The Contractor shall limit communication with NCTA authorized staff and to NCTA's designated point of contact unless otherwise directed by NCTA.
453.	Discussion by the Contractor of any services or work performed under the Contract with the media, in oral presentations, in written publications, or in any other form, not related to this Contract shall be Approved in advance by NCTA.

6.1.15. RTCS Hardware Maintenance and Software Support Services

Monitoring and maintenance functions described below shall be performed by the Contractor and tracked in the ITSM.

454.	The Operations Center shall monitor the RTCS for failures and alarms and confirm an ITSM system work order has been created for each failure as defined regardless of the Maintenance level.
455.	The Contractor shall maintain the RTCS LAN/WAN that includes all Contractor network connections in the toll Equipment cabinets and interconnections between the toll Equipment cabinets.

6.2. Maintenance of Traffic Requirements

456.	The Contractor shall conform to all applicable MOT Requirements detailed in Part III, Section 3.10.8 General MOT Requirements and Conditions and those within the Performance Requirements throughout the entire Maintenance and Operations phase. Location specific Requirements will be provided within future Task Orders.
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7. Performance Requirements – Maintenance and Operations

The Contractor shall provide a RTCS that is designed to meet the Requirements set forth in this SOW and Requirements during Maintenance and operations.

NCTA requires the Contractor to continuously maintain and operate the RTCS in accordance with the standards of performance identified in these Performance Requirements and further, that the Contractor fully meets these Performance Requirements beginning with the first month of maintenance and operations. In addition, as part of the System Acceptance Test (SAT), the Contractor shall validate that the RTCS meets the performance identified in these Performance Requirements.

NCTA intends to focus on the outcomes from the RTCS by minimizing the number of Performance Requirements to be tracked, monitored, and reported while still maintaining high confidence in the RTCS performance. This is done by closely aligning performance measurement to the timely transmission of accurate and complete transactions to NCTA existing BOS and availability of the RTCS instead of focusing on the intermediate steps in the process.

The Contractor shall complete any necessary auditing and report on all Performance Requirements as detailed in the Requirements below. The Contractor shall use the Approved measurement and reporting methods developed collaboratively with NCTA during the design, to report on the Contractor's performance against these Performance Requirements.

These Performance Requirements reflect the minimum tolerable performance expected of the Contractor to avoid unnecessary impact to NCTA, customers, or the general public.

NCTA will utilize a points-based performance scorecard to track the Contractor's compliance with the Performance Requirements. If the Contractor fails to meet these Performance Requirements, NCTA will assess non-compliance points for each failure. Non-compliance points shall be summed, the total of which shall determine any performance adjustments to be made to the Contractor's monthly invoice as further detailed below. The Contractor is also subject to direct damages for actual revenue loss.

The Contractor shall use best efforts to minimize the impacts that result from failure to meet the Performance Requirements, regardless of whether invoice adjustments are made. Furthermore, the Contractor shall take corrective action to immediately remedy any failures to meet the Performance Requirements and provide a corrective action plan to NCTA for Approval that documents the corrective action taken to prevent future reoccurrence of the problem associated with the non-compliance. The corrective action plan shall identify the problem including root cause analysis, resolution to the issue and when the issue shall be resolved and verified. The corrective action plan shall also include all evidence required to resolve the corrective action. The corrective action plan shall be submitted in the form as shown in the attached file. The Contractor shall add additional fields as required.

A summary of the RTCS Performance Requirements is provided below in **Table III-2**, including measurement frequency and non-compliance points for each Performance Requirement. Additional detailed information about the Performance Requirements is provided in Part III, Scope of Work and Requirements.

7.1. General Performance Requirements

The Contractor shall be required to meet all operational Performance Requirements detailed herein and, as part of the monthly invoice, provide reports that show compliance to the defined Performance Requirements including details of failures that resulted in the non-compliance.

457.	The Contractor will conduct a review of system's performance on a monthly basis, utilizing a combination of reports generated by the RTCS, including ITSM systems, and other Approved reports, as determined by NCTA to be necessary. The Contractor shall provide systems, processes and procedures to meet all Performance Requirements.
458.	NCTA may conduct operational audits of the RTCS. NCTA will provide the results to the Contractor to identify issues with the performance of the system. In the event there is a discrepancy between the compliance audit performed by the Contractor and the operational audit, NCTA and the Contractor will meet to investigate and resolve the reporting difference.
459.	All performance metrics shall be measured according to the KPI Guidebook document, provided in Attachment 10: KPI Guidebook to this RFP.
460.	The Contractor shall immediately notify NCTA of any failure observed by the Contractor whereby actual loss of revenue occurred, or the potential for losses exist.
461.	If the resolution of any failure is under the Contractor's control and/or responsibility, the Contractor shall take action to correct the failure condition and return the RTCS to normal functioning in accordance with the Contract. If the failure condition is determined to be due to the Contractor's fault and it results in failure to meet the Performance Requirements, NCTA will assess non-compliance points for each failure as described in this performance section and may be subject to other remedies in accordance with the Contract.

7.1.1. Performance Measurement

The performance shall be measured in categories that align with the primary functions of the RTCS. These categories are:

- a) Availability
- b) Operations

Each of these categories represents a group of functions within the RTCS, and each function includes individual Key Performance Indicators (KPIs), which shall be used to measure the Contractor's performance in meeting the Performance Requirements.

The specific method of measuring the Contractor's performance shall vary depending on the KPI being measured but shall generally be measured against the Performance Requirement on a monthly basis. Regardless of how a KPI is measured, the Contractor shall provide reporting for all Performance Requirements monthly.

The amount by which the KPI is missed matters in determining how well the RTCS is performing, so the non-compliance points for a particular failure are increased as the deviation from the KPI increases. For example, if the AET Lane is required to be available 99.9% of the time and the actual availability was measured to be

99.85%, the Contractor would be assessed 1 non-compliance point. If the availability were measured to be 99%, the Contractor would be assessed 9 non-compliance points.

Below, **Table III-2: Monthly RTCS Performance Requirements** provides a summary of the KPIs for the Contractor. A detailed description of each KPI and its associated Performance Requirements are provided in the subsequent sections.

Table III-2: Monthly RTCS Performance Requirements

No.	Category	KPI	Performance Requirement	Points*
1	Availability	AET Lanes	Each lane (travel lanes and shoulders) 99.9% of the time, excluding scheduled and Approved maintenance.	2 points for each 0.1% or portion thereof below the requirement for each zone
2	Operations	Vehicle Detection	Create one transaction for each vehicle that passes through a zone at an accuracy of 99.9%.	1 point for each 0.1% or portion thereof below the requirement
3	Operations	Image Capture and Transmission	Accurately capture and correlate a front and rear image to each transaction 99.9% of the time.	1 point for each 0.1% or portion thereof below the requirement
4	Operations	Classification Accuracy	99.5% of transactions will be classified accurately.	1 point for each 0.1% or portion thereof below the requirement
5	Operations	Image Quality	0.1% or less of the images are rejected for reasons under the Contractor's control.	1 point for each 0.1% or portion thereof below the requirement
6	Operations	AVI Accuracy	Capture and correlate AVI transponders at an accuracy rate of 99.5%.	1 point for each 0.1% or portion thereof below the requirement
7	Operations	Transaction Timely Transmission to OBO	Within 4 hours of the transaction date/time for 100% of the transactions.	1 point for each 0.1% or portion thereof below the requirement
8	Operations	MOT Notification and Setup	Provide NCTA and NCDOT staff with MOT schedules and MOT plans ahead of placement of lane closures for any type of maintenance. All MOT of NCTA facilities shall be in accordance with NCDOT standards.	1 point for each instance of a MOT placed without a documented notification to NCTA and NCDOT and prior Approval from NCTA. 1 point for each instance an MOT is placed out of accordance with NCDOT standards.

No.	Category	KPI	Performance Requirement	Points*
9	Wrong Way Vehicle Detection and Notification	Successful testing of the Wrong Way Vehicle Detection and Notification Systems	The Contractor shall successfully test the Wrong Way Vehicle Detection and Notification System to ensure compliance to the Functional Requirements.	1 Point for each Wrong Way Vehicle Detection and Notification test which does not meet the requirements of this Contract. This test shall be conducted during every Preventive Maintenance event which requires a lane closure or any time an external WWVD system integrated with the RTCS is tested by others.
10	Completeness	Preventative Maintenance	All RSS and Facility Preventative Maintenance is complete, documented accurately, and report provided to NCTA.	1 point for each scheduled Preventative Maintenance activity not completed per the schedule or found to be inaccurate.

** The point values shown in these Tables reflect the number of non-compliance points assessed for each deviation from the KPI. Additional points shall be assessed for failures in consecutive months and shall escalate as described in the Performance Scorecard.*

Each KPI is assigned a weighted point value, as shown in the above **Table III-2**. The value of the non-compliance points ("points") assigned depends on the severity of the failure and its potential impact on NCTA's business.

The Contractor shall design and develop performance measurement reports, including the Monthly Performance Scorecard. An example of a Monthly Performance Scorecard is provided in **Table III-3** below. Failure to comply with the Performance Requirement for each KPI shall result in the KPI's associated non-compliance points being applied to the Contractor's Monthly Performance Scorecard. If the accumulated non-compliance points reach a specified threshold, the Contractor's invoice for the month shall be adjusted by a percentage of the total invoice value, as shown in **Table III-2** above. The Contractor shall develop a Proposed Contractor's Monthly Performance Scorecard and include it for NCTA review and Approval in the Maintenance Plan.

Table III-3: Contractor's Monthly Performance Scorecard

Reporting Period: mm/dd/yyyy to mm/dd/yyyy

(EXAMPLE ONLY)

Category	Key Performance Indicator	Points
Availability	AET Lanes	0

Category	Key Performance Indicator	Points
		0
	TOTAL No. of Points Assessed	0
Operations	Vehicle Detection	0
	Image Capture and Transmission	0
	Classification Accuracy	0
	Image Quality	0
	AVI Accuracy	0
	Transaction Timely Transmission to OBO	0
	MOT Notification and Setup	0
	TOTAL No. of Points Assessed	0
Wrong Way Vehicle Detection and Notification	Successful testing of the Wrong Way Vehicle Detection and Notification Systems	0
	TOTAL No. of Points Assessed	0
Completeness	Preventative Maintenance	0
	TOTAL No. of Points Assessed	0
	TOTAL No. of Points Assessed – ALL CATEGORIES	0
	PERFORMANCE ADJUSTMENT PERCENTAGE BASED ON PERFORMANCE LEVEL	0 %

7.2. RTCS Performance Requirement Details

These KPIs are based on performance that is measured in Calendar Days, hours and minutes as applicable. Any issues outside of the Contractor's control that affects its ability to meet a KPI should be noted, documented appropriately and with sufficient detail and discussed as part of monthly RTCS performance reviews. Any requested exception should include the same level of detail.

NCTA places a great deal of importance on the controls the Contractor has in place for the RTCS and the effectiveness of those controls. NCTA will monitor the Contractor's performance for compliance with the Performance Requirements. The Contractor shall be required to meet all RTCS Performance Requirements as detailed in these requirements.

7.2.1. AET Lanes

Tolls are collected 24 hours a day, 7 days a week less scheduled maintenance work as Approved by NCTA. The Toll Lanes are viewed as a function; a combination of Hardware and Software that builds accurate and complete transactions. This requirement shall measure the function; thus, if one of two redundant components are not working, yet the component still performs the function as Approved in design, it would not be counted against availability.

462.	Each AET Lane within a Toll Zone with all of its subsystems is properly functioning and available to collect revenue and send required transactions and images to the host 99.9% of the time excluding scheduled and Approved maintenance. Availability shall be calculated based on the following calculation: Availability = 1- (chargeable downtime min / (minutes in period-exception min in period))
463.	RTCS reports detailing the Lane availability along with ITSM and help desk tickets, work orders, and feedback from customers, BOS staff, NCTA staff, and consultants shall be utilized to identify availability failures.
464.	For any month in which all functions of the Toll Zones are not fully available and operational at least 99.9% of the time excluding scheduled and Approved maintenance. The Contractor shall be assessed 2.0 points for each 0.1% or portion thereof below the Performance Requirement.

7.2.2. Vehicle Detection

The Contract shall be required to generate exactly one transaction for each vehicle which passes through a toll zone. Errors can result in lost revenue or inaccurate billing and customer service disputes.

465.	The Contractor shall create a single transaction for each vehicle which passes through a toll zone and send the transaction to the OBO. A single vehicle may include a vehicle and any additional attachment, such as a trailer. Errors in this metric shall be detected through the following: Detailed audits of toll zone video records (DVR) correlating transactions to vehicles, a video analytics system independent of the RTCS detection system, or another mutually agreed upon validation method.
466.	For any month in which the vehicle detection transaction accuracy falls below 99.9%, the Contractor shall be assessed 1.0 point for each 0.1% or portion thereof below the Performance Requirement.

7.2.3. Image Capture and Transmission

The Contractor shall accurately capture and correlate images for all transactions and submit the correct images to the OBO for processing.

467.	The Contractor shall correctly build transactions by capturing and correlating images as specified in the functional requirements and providing the images to the OBO as specified in the ICD(s). Errors may be detected through the following: a) Detailed audits of transactions b) Response Codes and acknowledgements received from and sent to the OBO
468.	For any month in which the image transaction capture and transmission accuracy falls below 99.9%, the Contractor shall be assessed 1.0 point for each 0.1% or portion thereof below the Performance Requirement.

7.2.4. Classification Accuracy

The Contractor shall accurately classify all vehicles for proper fare assignment. Incorrect classification assignment can result in incorrect fare assignment which can impact NCTA's revenues and public trust.

469.	The Contractor shall correctly classify all vehicles according to the functional requirements in the Contract. The performance will be measured with automated audits using data analytics accompanied with detailed review.
470.	For any month in which the classification accuracy falls below 99.5%, the Contractor shall be assessed 1.0 point for each 0.1% or portion thereof below the Performance Requirement.

7.2.5. Image Quality

The Contractor shall be paid for the capture of images of sufficient quality for image review processing. If the image quality is poor, image review shall take longer, and ultimately, images may be rejected. The Contractor's performance in this area has a direct impact on NCTA's revenue stream.

471.	The RTCS shall provide images of sufficient image quality to achieve the Contractor's desired automation rate and NCTA's Requirements such that less than 0.1% of the images are rejected for reasons under the Contractor's control. Reject reasons not under the Contractor's control are: a) the vehicle has no plate; b) the plate is not in the normal camera field of view because it is not mounted in accordance with State laws; c) the plate is covered by dirt, a trailer hitch, tailgate, or some other material such that the numbers/letters are not human-readable; or d) the plate is damaged so that numbers/letters are not human readable.
472.	The number of images rejected for reasons within the Contractor's control shall be compared to the number of images transactions produced at the lane that month to calculate whether or not the Contractor's image quality met the standard.
473.	This metric will be reported by NCTA using data reported from the Image Verification Services, provided by others.
474.	For any month in which the requirement is not met, the Contractor shall be assessed 1.0 point for each 0.1% or portion thereof below the Performance Requirement.

7.2.6. AVI Accuracy

475.	The Contractor shall correctly read and assign properly mounted transponders to the correct vehicle and report the correct declared transponder status. The performance will be measured by NCTA with automated audits using data analytics accompanied with detailed review.
476.	For any month in which the AVI accuracy falls below 99.5%, the Contractor shall be assessed 1.0 point for each 0.1% or portion thereof below the Performance Requirement.

7.2.7. Transaction Timely Transmission to OBO

The Contractor shall be responsible for the timely processing of transactions. NCTA is subject to statutory requirements and is obligated to customers and interoperable agencies to process all transactions in a timely manner. The Contractor's performance in this area has a direct impact on NCTA's revenue stream.

477.	The Contractor shall process and transmit all transactions and associated images to NCTA's OBO within four (4) hours after the vehicle travels through the tolling point.
	a) System reporting detailing the transaction date/time and the date/time that the transaction was acknowledged by the OBO shall be compared to a matching TRH Report. The report shall show both the volume and percentage of both compliant and non-compliant transactions for each day as well as totals for the month.
	b) The RTCS and OBO validate the transactions to ensure that they comply with the agreed-upon ICD, and transactions that do not meet the ICD shall be rejected as incomplete or inaccurate. Unless a rejected transaction is corrected and resubmitted within four (4) hours, they shall not meet this KPI.
478.	For any month in which 100% of the image transactions are not transmitted in accordance with the Approved ICD to the OBO within 4 hours, the Contractor shall be assessed 1.0 point for each 0.1% or portion thereof below the Performance Requirement.

7.2.8. MOT Notification and Setup

The Contractor shall be required to notify NCTA and NCDOT of all MOT placed on the projects during the maintenance periods. NCTA shall Approve all MOT before work commences. Once Approved, all MOT implementations shall conform to NCDOT Standard Specifications for Roads and Structures.

479.	The Contractor shall notify NCTA and NCDOT of all MOT activities during the maintenance period.
480.	The Contractor shall provide a schedule of all preventative and predictive maintenance MOT activities for the month by the 5th Calendar Day of the month.
481.	The Contractor shall provide a minimum of twelve (12) hours of notice prior to any changes to the monthly maintenance schedule.
482.	The Contractor shall conform to the latest version of the NCDOT Standard Specifications for Roads and Structures for regulations for MOT activities during the maintenance period.

7.2.9. Wrong Way Vehicle Detection and Notification

483.	The Contractor shall perform in-lane testing of the WWVD and Notification system as part of all preventive maintenance events involving lane closures by driving a test vehicle through the toll zone opposite the direction of traffic, within the closure, and measure the detection and notification functionality according to the functional requirements.
	a) The Contractor will be assessed 1.0 point for each Preventive Maintenance event involving a lane closure where WWVD and Notification Testing was not completed.
	b) The Contractor will be assessed 1.0 point for each WWVD and Notification Test that does not meet the functional requirements outlined in this Contract.

484.	The Contractor shall support any event the provider of an external WWVD system conducts controlled testing and shall meet the applicable functional requirements outlined in this Contract. The Contractor will be assessed 1.0 point for each testing event not properly supported by the Contractor or when the test results do not meet the functional requirements outlined in this Contract.
	a) The Contractor will be assessed 1.0 point for each testing event not properly supported by the Contractor
	b) The Contractor will be assessed 1.0 point for each external WWVD test that the RTCS does not meet the functional requirements for notification outlined in this Contract.

7.2.10. Preventative Maintenance Completeness

485.	The Contractor shall complete all scheduled Preventative Maintenance for the RTCS and Facilities as detailed in Attachment 3: Preventative Maintenance Checklist .
	a) The Contractor shall submit a monthly maintenance report with all Preventative Maintenance activities detailed.
486.	The Contractor will be assessed 1.0 point for each scheduled Preventive Maintenance that is not completed according to the schedule.

7.3. Non-Compliance Performance Adjustments

The Contractor's performance score shall be generated and determined each month by adding the points assessed for non-compliance in each performance category, as described below in **Table III-4: Non-Compliance Adjustments**. A performance adjustment shall be made to the monthly invoice in each month that the Contractor exceeds the allowable number of non-compliance points. The maximum monthly adjustment amount that may be made by NCTA to the Contractor's monthly invoice is 25%.

Table III-4: Non-Compliance Adjustments

Performance Level	Non-Compliance Points	Monthly Adjustment Percentage
Level 1	0 – 20	0%
Level 2	21 - 40	5%
Level 3	41 - 60	10%
Level 4	61 - 80	15%
Level 5	81 - 100	20%
Level 6	>100	25%

7.4. Escalation

Non-compliance points shall accrue as follows:

The first month that a specific Performance Requirement is not met shall result in the assessment of the initial value of the non-compliance points assigned in **Table III-4: Non-Compliance Adjustments**.

If a specific Performance Requirement is not met again for a third consecutive month, the non-compliance points shall be double the points assessed for all failures of that Performance Requirement for that month.

If a specific Performance Requirement is not met again for another two consecutive months (and for subsequent consecutive non-compliant months thereafter), the non-compliance points shall be set at triple the points assessed for all failures of that Performance Requirement for that month (and assessed triple the points for any subsequent non-compliant months.)

For AET Lanes Availability, escalation will be applied on a per Toll Zone basis. So, the performance of one toll zone in the past month does not impact escalation of a different toll zone in the following month, but escalation will occur if the same toll zone's availability falls below the requirement in successive months, regardless of the cause. The following scenario is provided in **Table III-5: Point Escalation Example** as an example:

Table III-5: Point Escalation Example

Month	Required KPI	Actual KPI	Missed	Points	Escalation Assessed	Actual Points Assessed
1	99.95%	99.45%	0.50%	5	1X	5
2	99.95%	99.55%	0.40%	4	1X	4
3	99.95%	99.65%	0.30%	3	2X	6
4	99.95%	99.75%	0.20%	2	2X	4
5	99.95%	99.85%	0.10%	1	3X	3
6	99.95%	99.75%	0.20%	2	3X	6
7	99.95%	99.97%	0%	NA	NA	0
8	99.95%	99.75%	0.20%	2	1X	2

7.5. Direct Damages

The Contractor may be charged with direct damages related to Performance Requirement failures as defined in the Contract Documents.

7.6. NCTA Identified Anomalies and Research Requests

In addition to the Contractor's monitoring of the RTCS performance, NCTA will also review system and performance data and perform tests as deemed necessary. NCTA may identify data that may indicate a failure to meet one (1) or more of the Performance Standards. As a result of NCTA's activities, NCTA may request that the Contractor research and/or provide additional data, identify the extent of the problem or explanation related to anomalies or trends identified by NCTA.

487.	The Contractor shall respond and fulfill NCTA's requests for research, analysis, and/or explanation and provide feedback/report within one (1) week or one (1) month as agreed to by NCTA.
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7.7. Corrective Actions

Failure to meet a Performance Requirement does not relieve the Contractor of the Requirement to complete the activity associated with the Performance Requirement. The Contractor shall identify the failure condition, take immediate action to remedy the condition, and ensure that corrective action is taken to prevent repeated failures in the future. This shall be documented in an ITSM system knowledge base that includes technical bulletins. The technical bulletins shall be posted and available for NCTA or Contractor staff to review and Update. For example, if the Contractor fails to completely and accurately transmit the transactions to the NCTA OBO within the time required by the Performance Requirement, the transactions shall still be completely and accurately transmitted and the Contractor shall identify the root cause of the failure, identify the extent of the problem and provide a plan to prevent future occurrences.

488.	Any failure to meet a Performance Requirement that requires the completion of a specific action(s), which is not completed in accordance with the requirement, does not relieve the Contractor of the responsibility to perform in accordance with the RTCS requirements. The required specific action(s) shall be completed within 48 hours. For example, if the Contractor fails to transmit all transaction files to the agency within four (4) hours, the files shall still be sent to the agency.
489.	The Contractor shall develop a corrective action plan for each failure to meet a Performance Requirement identifying the root cause(s) and providing a plan to rectify the current situation, if applicable, and prevent future occurrences.
490.	The corrective action provided by the Contractor shall be in a format Approved by NCTA.
491.	The Contractor shall submit a corrective action plan for each failure to meet a Performance Standard for NCTA's review and Approval. Until NCTA Approves the corrective action plan, the failure cannot be considered resolved.
492.	The corrective action plan shall identify the subsystem(s), component(s), processes, and activities associated with the failure to meet a Performance Requirement in sufficient detail to allow NCTA to understand the issue and why the proposed solution shall prevent future occurrences. The RTCS elements include but are not limited to the elements below:
	a) vehicle throughput rate;
	b) Transponder capture rate;
	c) Transponder reporting accuracy;
	d) vehicle detection accuracy;
	e) Transponder association accuracy;
	f) vehicle classification accuracy;
	g) image capture reporting accuracy;
	h) license plate extraction (OCR/ALPR) accuracy, if provided;
	i) image quality;
	j) assignment of the correct toll to the transaction;
	k) transaction processing requirements;
	l) false read processing;

	m) image transaction transmission requirements;
	n) AVI transaction transmission requirement;
	o) Toll Zone and Toll Facility speed accuracy; and
	p) ITSM system.

7.8. Non-Chargeable and Chargeable Failures

For purposes of calculating Performance Requirements, chargeable, and non-chargeable failures are defined as follows:

- a) **Non-Chargeable Failures** are those failures that are identified in the following Section 7.9. Non-compliance points shall not be assessed for non-chargeable failures.
- b) **Chargeable Failures** are any failures not specifically identified as non-chargeable. Non-compliance points shall be assessed for chargeable failures.

7.9. Non-Chargeable Failures

493.	Non-chargeable failures shall include:
	a) Force majeure, as defined in Part V of this Contract;
	b) vandalism;
	c) RTCS component failures caused by externally applied stress conditions outside of the requirements of this SOW and Requirements;
	d) RTCS component failures caused by environmental or operating conditions outside of the Requirements of this SOW and Requirements;
	e) normal operating adjustments as allowed in the MTP or Maintenance Plan, as applicable;
	f) failures where NCTA have Approved to waive a chargeable failure in advance; and
	g) failures that are customer or NCTA user induced or are caused by a third-party service provider not under the contractor's control as determined by NCTA.

7.10. Performance Reporting

The Contractor shall provide NCTA a monthly RTCS performance report package that includes the Contractor's performance reports and monthly scorecard. The Contractor's performance report package shall include a series of reports detailing the Contractor's performance against each Performance Requirement and details related to the failure events that resulted in the non-compliance. The Contractor's performance report package shall contain all information necessary for NCTA to verify the Contractor's performance as reported by the Contractor. The Contractor will be assessed the maximum 25% liquidated damages for any month they do not submit a complete and accurate performance report.

494.	The Contractor shall describe in detail how the performance against a requirement shall be tracked, tested, and reported, identifying specific reports and data elements all in alignment with the KPI Guidebook provided as Attachment 10 to this RFP. In the case of a KPI which cannot be tracked by the RTCS, the form of manual tracking or testing shall be described and included in the Maintenance Plan.
495.	The Contractor shall prepare and submit to NCTA the performance report package on an agreed-upon Business Day each month as defined in these requirements.
496.	The performance report package shall include a performance scorecard calculating the non-compliance points assessed that month, if applicable, a series of reports, one (1) per Performance Requirement detailing the Contractor's performance against the requirement that month supporting the scorecard for each KPI and a historical report detailing the Contractor's performance against each requirement for the most recent twelve (12) months. See Section 7 Performance Measurement for details on these reports. Copies of all corrective action plans related to failures for that month shall be Approved and included.
497.	The performance report package shall provide all detailed data and calculations in a transparent and auditable format.
498.	The Contractor shall provide the required performance report package to NCTA before an invoice is considered for payment.
499.	Performance reporting by the Contractor and any associated adjustments related to Performance Requirements shall begin for the period beginning on the first Day of the Operations and Maintenance Phase and shall continue for the duration of the Contract.

IMPORTANT NOTE: Refer to **Attachment 12: Transition Requirements** for the remaining Contract Requirements. **Attachment 12** includes Requirements beginning with #1000.

Part IV. Proposal Content

1. Technical Proposal Response and Submission Instructions

1.1. Content of Technical Proposal

Proposals shall be prepared simply and economically, providing a straightforward, concise description of the Proposer's ability to meet the requirements of the RFP. Page limitations are defined in **Table IV-1** below. Assigned page limits exclude all tables of content, list of tables, or list of figures. Proposers shall use Times New Roman 12-point font. Portions of the Proposal that are excluded from page limitations are shown below in **Table IV-1**.

Table IV-1: Technical Proposal Page Limitations

Proposal Sections to be Completed by a Proposer	Page Count Limitations
Proposal Cover Sheet	Exhibit C-1
Cover Letter	Up to 1 page
Executive Summary	Up to 1 page
Section 1: Proposer Qualifications	Limited to a combined total of 5 pages
Section 2: Key Team Qualifications	
Section 3: Approach to Scope of Work & Requirements	Limited to a combined total of 30 pages
Section 4: Approach to Project Plan, Implementation, Interfaces, and Testing	
Section 5: Approach to Transition	
Section 6: Approach to Operations and Maintenance	
Section 7: Requirements Conformance Matrix, Terms and Conditions, Assumptions and Exceptions	No limitations
Section 8: Forms & Submittals	No limitations
Appendix 1: Audited Financial Statements (Two Years)	No limitations
Appendix 2: Preliminary Bill of Materials (BOM)	No limitations
Appendix 3: Exceptions to the Standards in Requirement #226. (ONLY provide if applicable)	No limitations
Supplemental Appendices (ONLY provide if applicable)	No limitations

The Technical Proposal shall be submitted in the format defined below. Each lettered item designates a specific and separate section to be included in the Proposal:

A. Proposal Cover Sheet

The cover sheet for the completed Proposal, provided as **Exhibit C-1: Proposal Cover Sheet** shall be included at the front of the Technical Proposal package submitted to NCTA.

B. Cover Letter

The Proposal shall include a cover letter signed by an officer of the firm with signature authority to enter into the proposed Contract with NCTA. This letter should be very brief and provide the corporate commitment that the Proposal meets the scope, schedule, and requirements of the RFP.

C. Executive Summary

The executive summary shall be a brief overview, summarizing the contents of the Technical Proposal and explaining how the proposal being offered best addresses the evaluation criteria listed in this RFP. The summary shall describe the Proposer's qualifications, understanding of NCTA's needs and proposed approach to partnering with NCTA and other contractors.

D. Proposal Section 1: Proposer Qualifications

Provide the following information regarding the Proposer's qualifications and previous experience. Number and provide the information in the specific order provided below.

1. A brief history and description of the Proposer's organizational structure, including size, number of employees, capability and area(s) of specialization.
2. A detailed discussion of the Proposer's qualifications and experience related to **Part III, Scope of Work and Requirements** required by this RFP, including Subcontractors' relevant experience in the following areas:
 - a. Completed, in the last five (5) calendar years, at least one (1) project working in AET; and
 - b. Developed, designed, and implemented, in the last five (5) calendar years, at least one (1) Toll Transaction processing system, and experience with the design, development and implementation of cloud or virtual machine host technologies plus experience in integrating APIs.
3. A recent Client List using **Exhibit C-3**, including a detailed description of the size, total dollar value, and specific services provided for each client to which the Proposer provided similar services within the past five (5) calendar years. Specify the name, address, and telephone number of the individual responsible at the client organization for the supervision of such services. (Include in Proposal Section 8 and note in your response to this item that it has been provided in Proposal Section 8.)
4. The Proposer Company Reference Form using **Exhibit C-9**. The completed forms shall include at least two (2) references to demonstrate that the Proposer, in combination with its Subcontractors, has successfully developed and delivered at least one toll project. The Proposer shall have successfully maintained the implemented projects for at least one (1) calendar year. NCTA may or may not conduct reference checks for information provided by Proposers. (Include in Proposal Section 8 and note in your response to this item that it has been provided in Proposal Section 8.)
5. A copy of the Proposer's audited financial statements for the past two consecutive years as Appendix 1.

- a. If a Proposer does not produce audited financial statements, the Proposer shall submit any financial statements that it does have (e.g., statements compiled by an outside accounting firm such as a balance sheet, income statement, cash flow, etc.) and any other information Proposer feels is pertinent in establishing the financial stability of its business/organization. NCTA reserves the right to review other publicly available information with regard to the Proposer's financial stability, as part of the evaluation. If a Proposer has questions about what evidence of the Proposer's financial stability will be acceptable to NCTA, the Proposer should communicate with NCTA as set forth in Part I, Administrative, Section 2.1.2.
6. A detailed statement providing the Proposer background information relative to the following:
 - a. Any criminal felony conviction, or conviction of any crime involving moral turpitude, including, but not limited to fraud, misappropriation or deception, of the Proposer, its officers or directors, or any of its employees or other personnel to provide Services on this Project, of which the Proposer has knowledge or a statement that it is aware of none;
 - b. Any criminal investigation for any offense involving moral turpitude, including, but not limited to fraud, misappropriation, falsification or deception pending against the Proposer of which it has knowledge or a statement it is aware of none;
 - c. Any regulatory sanctions levied against the Proposer or any of its officers, directors or its professional employees expected to provide Services on this Project by any state or federal regulatory agencies within the past three years or a statement that there are none. As used herein, the term "regulatory sanctions" includes the revocation or suspension of any license or certification, the levying of any monetary penalties or fines, and the issuance of any written warnings;
 - d. Any regulatory investigations pending against the Proposer or any of its officers, directors or its professional employees expected to provide Services on this Project by any state or federal regulatory agencies of which the Proposer has knowledge or a statement that there are none;
 - e. Any civil litigation, arbitration, proceeding, or judgments pending against the Proposer during the three (3) years preceding submission of its proposal herein or a statement that there are none.

The Proposer's responses to these requests shall be considered to be continuing representations, and the Proposer's failure to notify NCTA within thirty (30) Calendar Days of any criminal litigation, investigation or proceeding involving the Proposer or its then current officers, directors or persons providing Services under this contract during its term shall constitute a material breach of contract. The provisions of this paragraph shall also apply to any Subcontractor utilized by Proposer to perform Services under this Agreement.

E. Proposal Section 2: Key Team Qualifications

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

1. Using **Table IV-2** below, identify the following Key Team Personnel on this Project. For Key Personnel positions other than the Project Principal, provide a brief narrative explaining other project commitments the individual may have that would restrict their full availability to the Project

and also their expected working location, whether at the NCTA project office or the Project site. The Proposer shall identify a primary point of contact who will be the named person for the Project. The Proposer shall also identify a successor who will serve as a backup in the absence of the primary role, with full authorization of the primary role. The Contractor shall maintain a primary and successor role throughout the Term of the Contract. The successor shall meet the requirements of the Key Personnel, including all onsite requirements, when he/she assumes the primary Key Personnel role. For example, successor will meet all onsite requirements if he/she should become the primary Key Personnel. Please refer to position descriptions in **Part III, Scope of Work and Requirements**, Section 3.2.3 Staffing and Key Personnel. Projects will be in the State of North Carolina.

Table IV-2: Key Team Personnel Roles and Commitments

Project Principal:	
Primary:	Successor:
Contractor Project Manager:	
Primary:	Successor:
Technical Manager:	
Primary:	Successor:
Installation Manager:	
Primary:	Successor:
Transition Manager:	
Primary:	Successor:
Maintenance Manager:	
Primary:	Successor:
Quality Assurance Manager:	
Primary:	Successor:
Test Manager:	
Primary:	Successor:

NOTE: The Installation Manager, Transition Manager, and Maintenance Manager roles may be filled by the same Key Team Member if they meet the requirements for all roles or any combination thereof. See **Attachment 12** for Transition Manager Requirements.

- Describe the experience of each Key Team Member and how it relates specifically to this Project. The resources will be available throughout the Term of the Agreement. Any changes in Key Personnel shall be presented in writing to NCTA for review and Approval prior to making such change.
- Provide resumes (not to exceed two (2) pages per team member), for each of the primary AND successor Key Team Members. (Include in Proposal Section 8 and note in your response to this item that it has been provided in Proposal Section 8.)
- Complete the List of Subcontractors Form from **Exhibit C-2** which includes Subcontractor name, address, Work to be performed, and expected percentage of total Work value to be performed. Also

complete the RS-2 Form for each Subcontractor as further instructed in Part I, Administrative, Section 2.19.4. (Include both the completed List of Subcontractors Form(s) and the RS-2 Form(s) in Proposal Section 8 and note in your response to this item that they have been provided in Proposal Section 8.)

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

Provide responses to the items below regarding the Proposer's approach to the Scope of Work and Requirements. Please number responses and provide the information in the specific order provided below.

1. Discuss Proposer's technical approach to satisfying all of the Requirements for the RTCS with focus on commercially available components that have sufficient redundancy, reliability and availability to meet the Requirements. With the aid of drawings, describe how the Proposer's solution will meet all technical and performance Requirements. (Drawings shall be provided as an Appendix and not counted towards the Technical Proposal page limitation. Note in your response to this item that they have been provided as an Appendix.)
2. Discuss the Proposer's technical approach to providing optimal performance for toll system Equipment while meeting the Performance Requirements as specified in **Part III, Scope of Work and Requirements**. Provide typical Proposer's solution drawings for toll zones equipment layout. (Drawings shall be provided as an Appendix and not counted towards the Technical Proposal page limitation. Note in your response to this item that they have been provided as an Appendix.)
3. Specifically address how the Proposer's RTCS solution and architecture will accommodate changes in technology given anticipated Upgrades, growth, and technology advances during the Contract Term.
4. Describe the Contractor's system security compliance with NCDOT IT Communication & Security Policies as described in **Part III, Scope of Work and Requirements**, Section 5.2.1 and **Attachment 2: State of North Carolina, Statewide Information Security Manual**. The Proposer shall describe its plan and how it continuously monitors security threats and outline its plan to identify, respond, mitigate and recover from any threats.
5. Describe clearly and with the aid of diagrams and flow charts the proposed System transaction processing logic from the initial sensor detection and transaction creation until the Toll Transaction and any related meta data or transactions is posted to the OBO; all updates are made to the Toll Transaction including the timing of such updates and how Toll Transactions are reconciled in the RTCS and between the RTCS and the OBO. Explain how the Proposer's System processes and frames vehicle transactions. Provide a diagram that identifies framing logic, timing and event processing with specific emphasis on vehicle spacing and the associated Performance Requirements of **Part III, Scope of Work and Requirements**. (Proposers may include these diagrams/flowcharts as an Appendix which will not be counted towards the Technical Proposal page limitation. If provided as an Appendix, note in your response to this item that they have been provided as an Appendix.)
6. Discuss the Proposer's Design approach and tools available for ensuring and confirming:
 - a. No missing Toll Transactions and associated meta data and all vehicles are accurately captured and reported, including during failover from the primary controller to the secondary controller;

- b. Receipt of all transactions at the TRH;
 - c. Guaranteed successful transmission of all transactions to the OBO; and
 - d. That all errors, exceptions, missing, and failed transactions are identified and reported as further set forth in Part III, Scope of Work and Requirements.
7. Provide details of the Proposer's solution to the transaction reconciliation and audit process described in **Part III, Scope of Work and Requirements**.
8. Discuss the Proposer's approach to integrating the AVI System selected from the E-ZPass Group Approved list in order to meet Performance Requirements as further set forth in **Part III, Scope of Work and Requirements**.
9. Provide description of experience integrating the Proposer's RSS solution with the selected AVI system using each of the following protocols in a multiprotocol environment:
 - a. PS111 (TDM/IAG E-ZPass Group)
 - b. ISOB_80K (SeGo)
 - c. ISOC (ISO 18000-63/6C)
10. Describe any logic incorporated into the Proposer's solution to prevent cross lane reads and false reads and to account for multiple Transponders in vehicles.
11. Discuss the Proposer's Automatic Vehicle Detection and Classification (AVDC) system solution as outlined in **Part III, Scope of Work and Requirements**.
12. Discuss Proposer's Image Capture and Processing System (ICPS), including how image specification requirements will be met.
13. Discuss Proposer's adherence to the Performance Requirements and explain how the Proposer will meet or exceed these Requirements set forth in **Part III, Scope of Work and Requirements**. Provide actual examples, if available, of how each of the Performance Requirements was met or exceeded on similar projects and how the performance was measured. Identify if any Services provided will be performed outside the United States.

G. Proposal Section 4: Approach to Project Plan, Implementation, Interfaces, and Testing

Provide responses to the items below regarding the Proposer's approach to Project plan, implementation, interfaces and testing. Please number the responses and provide the information in the specific order provided below.

1. Detail the approach to project planning through design, development and documentation with a focus on meeting all Major Milestones. The Proposer shall provide a high-level schedule to support this plan. This schedule is not expected to be a full detailed schedule. (Proposers may include the high-level schedule as an Appendix which will not be counted towards the Technical Proposal page limitation. If provided as an Appendix, note in your response to this item that they have been provided as an Appendix.)
2. Discuss the installation process and how Proposer intends to meet the installation requirements of Part III, Scope of Work and Requirements while meeting the schedule requirements for this Project.

- a. An efficient approach to delivering the roadway that meets or exceeds the timeline in **Exhibit A: Project Implementation Schedule** will positively impact a Proposer's score.
3. The Proposer shall specifically address what elements, such as processes, procedures, communications, meetings, issues tracking, and QC will be in place during the installation process to ensure timely communication and resolution of problems.
4. The Proposer shall provide a Contractor Organization Chart that shows planned staffing for all levels of this Project. The Contractor Organization Chart shall provide a view for any anticipated adjustments during the lifecycle of this Project. (Include in Proposal Section 8 and note in your response to this item that it has been provided in Proposal Section 8.)
5. Discuss the Proposer's responsibility to interface with a NCTA provided OBO that will support the existing Projects using Rest-based APIs. The Proposer shall use the ICD provided in **Attachment 7: OBO ICD** as a reference to discuss how it would integrate to a NCTA provided OBO. The Proposer shall describe its approach to integration with API's, testing and validation of such new systems or services. The Proposer shall include API's in its Technical Proposal if available and describe how the Proposer will work with NCTA to transition to future new services or upgrades to existing services.
6. Discuss Proposer's approach to testing and System Acceptance, as described in **Part III, Scope of Work and Requirements**. Please address:
 - a. Proposer's overall test plan approach;
 - b. Phased approach to testing the lane solutions;
 - c. Plans for Factory Acceptance Test (FAT), including test site location and configuration;
 - d. Approach to Onsite Installation Testing (OIT)
 - e. Approach to Site Installation Test (SIT);
 - f. Approach to System Acceptance Test (SAT).

H. Proposal Section 5: Approach to Transition

Provide responses to the items below regarding the Proposer's approach to transition. Please number the responses and provide the information in the specific order provided below.

1. Proposer to describe prior experience with replacing an AET system in live operations. Detail both the legacy and replacement system operational capacities, project successes and lessons learned.
2. Proposer's overall plan to transition from current RTCS to new RTCS according to the Requirements outlined in **Attachment 12: Transition Requirements**.
3. Proposer to describe the transaction flow during the period of transition, including any temporary processes to ensure transaction records sent to the OBO are accurate, production quality and pursuable for revenue collection.
4. Proposer must provide detail supporting their estimated Transition Impact Fees provided in **Exhibit E: Estimated Transition Impact Fees** using the information provided in **Attachment 11: Transition Impact Fees**. These details may include expected hours or days of system outage or degradation, the total duration from when the legacy system is first impacted until the replacement system is

fully operational, expected transaction recovery during degraded periods and a narrative on how these timelines will be achieved with the support of tables and figures, as needed.

I. Proposal Section 6: Approach to Operations & Maintenance

Provide responses to the items below regarding the Proposer's approach to operations and maintenance. Please number the responses and provide the information in the specific order provided below.

1. Discuss the Proposer's approach to Maintenance that will meet or exceed all Maintenance Services and warranty requirements as specified in **Part III, Scope of Work and Requirements**.
 - a. Approach to preventative maintenance including supporting the RTCS best practices including hardware firmware updates, software updates and verifying proper operations.
 - b. Approach to corrective maintenance including issue detection, issue prioritization and plan to resolve issues in a manner to minimize revenue loss.
2. Discuss the Plan for coordination with NCTA and Proposer's Operations responsibilities.
3. Discuss the Proposer's training approach for the Proposer's Maintenance staff and for NCTA staff to meet all Requirements.
4. Discuss the Proposer's approach to total life cycle, how product pricing is developed evaluated and updated and any changes to the pricing in the future for implementation and operations and maintenance of the project.
5. Discuss the Proposer's approach to how its solution provides a low total life cycle cost while meeting all Requirements.
6. Describe the Proposer's technical solution, planned automation levels, and staffing approach to ensure that the key performance and accuracy requirements are met or exceeded, as stated in **Part III, Scope of Work and Requirements**.
7. The Proposer shall provide its anticipated schedule for Upgrades, patches and updates, upon which pricing is based. Specifically, address what Software and application Upgrades and updates are included in the Maintenance Services pricing (e.g. operating System and relational database management Systems) and on what frequency. If there is no second source available, the Proposer shall describe its plan to mitigate and provide a second source should the primary Equipment not be available. If the Equipment is provided by the Contractor, a second source provided by the Contractor is acceptable, the Proposer shall describe how it mitigates risk to NCTA should the Contractor no longer be available to provide that Equipment.

J. Proposal Section 7: Requirements Conformance Matrix, Terms and Conditions, Assumptions and Exceptions

Provide responses to the items below. Please number responses and provide the information in the specific order provided below.

1. The Proposer shall complete and submit the Requirements Conformance Matrix which is provided as **Exhibit C-8**. The matrix covers each of the functional and technical requirements set forth in **Part**

III, Scope of Work and Requirements. (Include in Proposal Section 8 and note in your response to this item that it has been provided in Proposal Section 8.)

- a. Proposers are not to alter the Requirements listed in **Exhibit C-8** in any way and shall use the worksheets provided. The Proposer shall submit **BOTH** a PDF and Excel version of the completed matrix.
 - b. If a Proposer indicates in the Requirements Conformance Matrix that a Technical Requirement is not provided ("N"), the specific Requirement(s) to which exception is taken shall also be separately identified and explained in this Proposal Section 7. For each of the "N" items, indicate a description of the exception taken in the comment's column of the Requirements Conformance Matrix and provide a more detailed explanation in this Proposal Section 7, including the Section and Requirement number.
2. Proposers may identify and describe any key assumptions made related only to **Part III, Scope of Work and Requirements**. **Part III, Scope of Work and Requirements** assumptions may be considered during the Proposal evaluation process at the sole discretion of NCTA. No assumptions regarding the terms and conditions of the Contract shall be included in the Proposal. An "assumption" is a Proposer's stated expectation or supposition that would require a change to an RFP term and condition or the addition or deletion of an RFP term and condition.
 3. The Proposer shall clearly identify any proposed exceptions to the Terms and Conditions in this Proposal Section 7, which will be considered in accordance with **Part I, Administrative**, Section 2.16 Contractual Obligations. The Contractor waives the right to raise new exceptions and alternatives during and after negotiations, however, any details not yet defined in the documents by NCTA may still be negotiated.
 - a. The Proposer shall submit its Proposal, including the Price Proposal, on the basis of the terms and conditions set out in **Part V, Terms and Conditions**. NCTA may reject any Proposal that is conditioned on the negotiation of Terms and Conditions set out in **Part V, Terms and Conditions** or to other provisions of the RFP as specifically identified above.

K. Proposal Section 8: Forms and Submittals

Proposers shall provide all Proposal forms required to be submitted as part of the RFP in Section 8 of the Proposal, unless otherwise specifically directed. Proposers shall submit properly completed forms that have been provided in Exhibit C, Forms. Please refer to **Table IV-3** below for a Technical Proposal Forms and Submittals checklist. The checklist identifies the location of the form or the Submittal requirement in the RFP and also where the form or Submittal is to be included in the Technical Proposal.

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

Table IV-3: Technical Proposal Forms and Submittal Checklist

Form #	Form/Submittal Name	Location of Form/ Submittal in Proposal
Technical Proposal Forms to be Submitted		
C-1	Proposal Cover Sheet	Front of Technical Proposal
C-2	List of Subcontractors Form and RS-2 Form	Technical Proposal Section 8
C-3	Recent Client List	Technical Proposal Section 8
C-4	<i>Proposer Questions Form</i>	<i>N/A: To be used only for submission of Proposer questions to NCTA</i>
C-5	Non-Collusion Forms	Technical Proposal Section 8
C-6	Acknowledgement of Receipt of Addenda	Technical Proposal Section 8
C-7	HUB Supplemental Vendor Information Form <i>*Only if applicable to the Proposer</i>	Technical Proposal Section 8
C-8	Requirements Conformance Matrix	Technical Proposal Section 8
C-9	Proposer Company Reference Form	Technical Proposal Section 8
E	Estimated Transition Impact Fees	Technical Proposal Section 8
Other Technical Proposal Submittals		
N/A	Resumes <i>*See Part IV, Section 1.1.E.</i>	Technical Proposal Section 8
N/A	Contractor Organization Chart <i>*See Part IV, Section 1.1.G.</i>	Technical Proposal Section 8

L. Proposal Appendices

The Proposer shall submit the following materials in the form of Proposal Appendices:

- Appendix 1: Audited Financial Statements (Two Years)
- Appendix 2: Preliminary Bill of Materials (BOM) that details all Equipment and third-party products provided and will become the basis for the complete, Approved parts list, including spare parts for AET Lanes.
- Appendix 3: Exceptions to the Standards in Requirement #226 (*if applicable*) – Reference Requirement #226 in Part III, Scope of Work and Requirements for details.
- Supplemental Appendices (*if applicable*) - In response to Proposal Section 3 and/or Proposal Section 4, if a Proposer elects to provide the drawings, diagrams, flowcharts, and/or high-level schedule as one or more Appendices, they must be provided here.

1.2. Format of Technical Proposal

- Form of Technical Proposal.** Submit Technical Proposals only electronically on a USB flash drive.
 - The electronic copy shall be provided in a **searchable (NOT SCANNED)** *.pdf format. Any Proposal Exhibits or information prepared either as graphics or with other programs such as

scheduling programs shall be viewable in a *.pdf file without any other software required for Proposal review.

- a. PDF File 1: The following Sections shall be combined into a **single** *.pdf file: Exhibit C-1: Proposal Cover Sheet, Cover Letter, Executive Summary, and Proposal Sections 1 – 7.
 - b. PDF File 2: The following Section shall be a **single** *.pdf file: Proposal Section 8.
 - c. PDF File 3: Appendices 1-3 shall be combined into a **single** *.pdf file.
 - d. PDF File 4: Supplemental Appendices (*if applicable*).
- b. On a separate USB flash drive, Proposers shall also submit a redacted electronic copy of the Technical Proposal (Proprietary and Confidential Information Excluded). Any proprietary information identified as confidential and proprietary in accordance with G.S. § 132-1.2 and the Terms and Conditions of this RFP, should be excluded.
2. **Number of Copies**. One (1) USB flash drive containing all portions of the Technical Proposal shall be provided and one (1) USB flash drive containing a redacted copy of the Technical Proposal shall be provided. Two (2) USB flash drives in total shall be submitted.
 3. **Page Presentation**. Technical Proposal text shall be single-spaced, a minimum of 12-point Times New Roman font. Each page header and/or footer should include the Proposer's name and Technical Proposal section, along with page numbers and date of the Proposal.

NCTA will not be responsible for reviewing portions of proposals with illegible text. Headers and footers may be in different size font from that specified but no less than 9-point font.

Non-body text elements such as headers and footers, exhibits, figures, graphics, and tables may be in different size fonts from that specified but no less than 9-point font.
 4. **Easy to Read and Cross-Reference**. The Proposers need not duplicate or quote in detail from attached reference materials provided that a summary is included in the technical section and a clear and easy means to locate references to the information is provided. The reference shall include the document name, page number(s) in the document, and paragraph numbers(s) or line number(s) where the referenced information is located. Underlining, boxing, highlighting, etc. that will call attention to referenced information in a manner that will assist in locating it is recommended.
 5. **Writing Style**. Proposal Documentation should provide an example of what project design documentation will look like. NCTA prefers economy of words, direct writing, active voice, and minimum of marketing superlatives. NCTA also prefers facts and written evidence with references or data that supports Proposers statements or assertions in the document.
 6. **Trade Secrets and Confidential Information**. NCTA is a public agency of the State of North Carolina, subject to the North Carolina Public Records Act, Chapter 132 of the North Carolina General Statutes. NCTA may maintain confidential information, including any designated as trade secrets or otherwise proprietary, only in accordance applicable Federal and State laws or regulations. NCTA, therefore, expects that Proposers will keep confidential information designations to a minimum.

A Proposer, having formed a good faith opinion, upon consultation with legal or other knowledgeable advisors that information submitted may contain a trade secret as defined in G.S. § 66-152 or other information exempted from the North Carolina Public Records Act pursuant to G.S. § 132-1.2, may so designate appropriate portions of its Proposal by marking the top and bottom of pages containing confidential information in boldface type "CONFIDENTIAL." NCTA, however, may serve only as a custodian of information a Proposer deems confidential. NCTA shall not act as an arbiter or defender of any claims related to assertions of confidential information. If a request is made for disclosure of information submitted, or an action is brought to compel NCTA to disclose information marked confidential pursuant to G.S. § 132-1 et seq. NCTA will notify the affected Proposer of such request or action.

In submitting a Proposal in response to this RFP, a Proposer agrees to: (i) defend its assertions of confidentiality by instituting appropriate legal proceedings, at its own expense and through its counsel, or intervening in an action brought against NCTA to compel disclosure, to defend its assertions of confidentiality; and (ii) hold the State and NCTA, and any officials or employees thereof harmless from any and all damages, costs, and attorney's fees awarded against the State and NCTA arising out of any such actions. Nothing in this section shall preclude the State or NCTA from participating in the defense of such actions, at its option and expense through its counsel. NCTA shall have no liability to a Proposer with respect to the disclosure of any information, including confidential information, subject to an order by a court of competent jurisdiction pursuant to G.S. § 132-9 or any other applicable law.

In accordance with G.S. § 136-28.5, bids and documents submitted in response to an advertisement, or this RFP shall not be public record until the NCTA issues a decision to award or not to award the Contract.

1.3. Submission of Technical Proposal

All Technical Proposal USB flash drives shall be submitted in a sealed envelope, bearing on the outside the following information:

Technical Proposal:

MONROE EXPRESSWAY 2026 RTCS RFP

Submitted By:

PROPOSER'S NAME

PROPOSER'S ADDRESS

CITY, STATE, ZIP CODE

PROPOSER'S PHONE NUMBER

The USB flash drives for the Technical Proposals shall be delivered to the address provided below. If hand delivering, please reach out to the NCTA Contact Person to coordinate the receipt.

Physical Delivery Address

NCTA
2501 Aerial Center Pkwy, Suite 200
Morrisville, NC 27560
Attn: Eliza Davis

2. Price Proposal Submission Instructions

2.1. Content of Price Proposal

All Proposers shall complete the below forms as their Price Proposal submission.

Table IV-4: Price Proposal Forms and Submittal Checklist

Form #	Form/Submittal Name
B-2	Pricing Sheets
C-10	Surety Commitment Letter

1. **Exhibit B-2: Pricing Sheets** in accordance with the instructions outlined in **Exhibit B-1: Price Proposal Instructions**.
 - a. Any costs for Work that is not provided in the Price Proposal will be assumed as no charge to NCTA.
 - b. Proposers shall not include any assumptions in their Price Proposals. If the Proposer includes assumptions in its Price Proposal, NCTA may reject the Proposal.
2. **Exhibit C-10: Surety Commitment Letter** as outlined in **Part I, Administrative**, Section 5.1.

2.2. Format of Price Proposal

All Proposers shall submit Price Proposals following the below format.

1. **Form of Price Proposal.** Submit Price Proposals only electronically on a USB flash drive.
 - a. The file format for **Exhibit B-2** shall be submitted in both Microsoft Excel and PDF.
 - b. The file format for **Exhibit C-10** shall be submitted in PDF.
2. **Number of Copies.** One (1) USB flash drive containing all portions of the Price Proposal shall be submitted.

2.3. Submission of Price Proposal

The Price Proposal USB flash drive shall be submitted at the same time as the Technical Proposal; however, the Price Proposal must be enclosed in a separate sealed envelope, bearing on the outside the following information:

Price Proposal:

Monroe Expressway 2026 RTCS RFP

Submitted By:

PROPOSER'S NAME

PROPOSER'S ADDRESS

CITY, STATE, ZIP CODE

PROPOSER'S PHONE NUMBER

The USB flash drives for the Price Proposals shall be delivered to the address provided below. If hand delivering, please reach out to the NCTA Contact Person to coordinate the receipt.

Physical Delivery Address

NCTA

2501 Aerial Center Pkwy, Suite 200

Morrisville, NC 27560

Attn: Eliza Davis

Part V. Terms & Conditions

1. Contract Terms and Conditions

1.1. Term of Contract

The term of the Contract will commence upon Notice of Award with a base term followed by an optional Operations and Maintenance Phase extension(s). The phases are further described as follows:

1. Implementation Phase – The Implementation Phase shall begin upon issuance of Implementation Phase Notice of Award and ends upon System Acceptance.
2. Operations and Maintenance Phase – The Operations and Maintenance Phase shall begin upon Go-Live and shall continue through the end of the base Contract Term for a period of up to five (5) years.
 - See Defined Terms in Part II for the definition of “Go-live.”
 - The Implementation Phase and Operations and Maintenance Phase will overlap for a period of time starting with Go-live through System Acceptance.
3. Options to Extend – The Optional Extension Phase includes two (2) three (3)-year optional Maintenance extensions to be executed at the sole discretion of NCTA, with the first extension commencing upon the end of the base Contract Term.

NCTA shall fix the Effective Date after the Contract has been fully executed by the Contractor and by NCTA and all Approvals required by NCTA contracting procedures have been obtained.

1.2. Phases of the Project and Acceptance

1.2.1. Phases of the Project

The Contractor shall perform all planning, Design and Software development, testing and installation Services and complete and have Approval for all corresponding Submittals, Deliverables and Milestones required in **Part III, Scope of Work and Requirements** for the Implementation Phase of the Project. The Implementation Phase shall begin at Notice to Proceed and shall continue until System Acceptance.

The Contractor’s Operations and Maintenance Phase responsibilities for the Project shall begin upon System Go-Live and shall continue until the expiration of the Initial Contract Term, and also shall include any Contract renewals or extensions thereof. Commencement of this Phase shall not relieve the Contractor of any of its responsibilities to complete all Requirements set forth in **Part III, Scope of Work and Requirements** of the Implementation Phase and does not waive any of the rights of NCTA in this regard.

Project Completion will be considered to have occurred when NCTA, in its sole discretion, determines that Contractor has complied with all of the completion Requirements set forth for the Project for both the Implementation and Operations and Maintenance Phases, pursuant to Section 1.2.3 below.

NCTA’s beneficial use of the Project Deliverables during any phase prior to Project Completion shall not constitute Acceptance of any Deliverable, nor shall such use give rise to equitable claim for adjustment.

1.2.2. Final Acceptance of Implementation Phase

Final Acceptance of the Implementation Phase will be considered by NCTA to have occurred, when NCTA has received and Approved all Project documents, drawings, Software, interface data, test data, manuals and other Deliverables for the Implementation Phase. Contractor shall have successfully completed the Acceptance Testing and when in NCTA's sole discretion Contractor has met all other obligations under the Agreement, including in **Part III, Scope of Work and Requirements**, and all of the following conditions have been met:

1. The Contractor shall provide a Final Acceptance letter Certification to close out the Phase. The Certification shall include but not be limited to: total costs associated with the Phase, date of Work completion and any additional required information contained in item 2 through 8 below, if applicable;
2. Successful completion and Approval of the Acceptance Test(s), as applicable, by NCTA, as defined in **Part III, Scope of Work and Requirements**;
3. Delivery by the Contractor and Approval by NCTA of all Deliverables, including As-Built Documentation/Drawings, software, test data, interface data, manuals, as defined in **Part III, Scope of Work and Requirements**;
4. Any and all punch list items have been satisfactorily completed and Approved by NCTA;
5. An Affidavit has been delivered to NCTA signed by the Contractor, stating all debts and claims of suppliers and Subcontractors have been paid and/or settled;
6. All Contractor claims for the Phase are deemed to be resolved by NCTA, and the Contractor has submitted a statement that no such requests or protests will be applied for; any and all claims under this Agreement are resolved, and that no such claims will be made;
7. All of Contractor's other obligations under the Agreement shall have been satisfied in full or waived in writing by NCTA; and
8. NCTA shall have delivered to the Contractor a Notice of Final Acceptance for the Phase.

1.2.3. Project Completion

Project Completion shall mean the Final Acceptance for all Phases, including the Operations and Maintenance Phase, and shall be deemed to have occurred when all of the following conditions have been met:

1. The Contractor shall provide a Project Acceptance letter Certification to close out the Agreement. The Certification shall include but not be limited to: total costs associated with the Agreement, date of Work completion and any additional required information contained in item 2 through 9 below, if applicable;

2. The Implementation Phase has been Accepted and closed out in accordance with **Part V, Terms and Conditions**, Section 1.2.2;
3. The Contractor has met all End of Contract and transition Requirements pursuant to **Part V, Terms and Conditions**, Section 2.7 End of Contract and Transition and **Part III, Scope of Work and Requirements**;
4. The Contractor has deposited all current escrow materials required under this Agreement, including all necessary Documentation and support materials;
5. The Contractor has provided NCTA with all required materials, fixtures, furnishings, Equipment and Software; Documentation and manuals, either owned by or licensed to NCTA, pursuant to this Agreement. All such materials have been verified by NCTA to be in good, working order;
6. An Affidavit has been delivered to NCTA, signed by the Contractor, stating all debts and claims of suppliers and Subcontractors have been paid and/or settled;
7. All Contractor claims for the Phase are deemed to be resolved by NCTA, and the Contractor has submitted a statement that no such requests or protests will be applied for; any and all claims under this Agreement are resolved, and that no such claims will be made;
8. All Requirements identified in **Part III, Scope of Work and Requirements** shall be verified and Certified by the Contractor to be successfully delivered, and shall be Approved by NCTA;
9. All the Contractor's other obligations under the Agreement shall have been satisfied in full or waived by NCTA.

1.3. Payment Terms and Conditions

1. Payment terms are net thirty (30) Calendar Days after receipt of a correct invoice. NCTA is responsible for all payments under the Contract. A "correct" invoice is one that contains an accurate description of the amounts due, is in the Approved format, has no errors, includes all required supporting information including payment Approvals, and meets all other Requirements for invoicing set forth in **Part III, Scope of Work and Requirements**.
2. The Contractor shall invoice NCTA for the Implementation Phase based on milestone payments set forth in **Exhibit D: Payment Schedule**.
3. The Contractor shall invoice NCTA in the Operations and Maintenance Phase in accordance with the amounts set forth in the Approved Contractor Price Proposal **Exhibit B-2** for monthly Operations and Maintenance payments. Adjustments to these payments may be made for Contractor performance below required Performance Requirements as further set forth in **Part III, Scope of Work and Requirements**.
 - a. During the implementation phase, the Contractor shall receive a prorated amount of the monthly Operations and Maintenance Payments equal to the number of toll zones fully operated by the contractor on the 15th day of the subject month plus TRH Maintenance.

These payments are subject to all performance reporting and associated liquidated damages detailed in this Contract.

- b. Monthly Operations and Maintenance payments shall not be approved until all liquidated damages for the subject month have been finalized and approved.
4. NCTA may exercise any and all rights of set off as permitted in the Set Off Debt Collection Act (Chapter 105A-1 et. seq. of the N.C. General Statutes) and applicable Administrative Rules. Upon Contractor's written request of not less than thirty (30) Calendar Days and Approval by NCTA, NCTA may:
 - a. Forward the Contractor's payment check(s) or other mutually acceptable means directly to any person or entity designated by the Contractor, or
 - b. Include any person or entity designated in writing by Contractor as a joint payee on the Contractor's payment check(s), however
 - c. In no event shall such Approval and action obligate NCTA to anyone other than the Contractor and the Contractor shall remain responsible for fulfillment of all Contract obligations.

1.4. Damages

1.4.1. Liquidated Damages

1. Project Schedule Non-Compliance: Liquidated damages per Calendar Day shall be assessed for the Contractor's failure to successfully complete all Toll Zone commissioning for revenue service during Site Installation Test milestone date set forth in **Exhibit A: Project Implementation Schedule**, subject to the limits set forth herein. The total and cumulative amount assessed by NCTA for liquidated damages shall not exceed the grand total cost for the Implementation Phase as identified in **Exhibit B-2: Pricing Sheets**, or as modified by any Change Orders or Extra Work Orders. The amounts reflect an estimate of impacts due to delays to the opening of the facility to tolled traffic based on official traffic and revenue estimates. The liquidated damages per Calendar Day shall be \$5,000.
2. The Contractor acknowledges and agrees (a) that the actual damages that would result from a breach of this Contract would be difficult or impracticable to ascertain with precision at the time of contracting for failing to comply with the Operations and Maintenance Performance Standard Requirements set forth in **Part III, Scope of Work and Requirements**, Section 7 Performance Requirements for the RTCS and Monthly Fee Adjustments; (b) the liquidated damages set forth in this Agreement represent a reasonable estimate of the damages that would likely result from such breach and are based on the parties' evaluation of anticipated harm; (c) the parties intend that such amounts constitute liquidated damages and not a penalty; and (d) the liquidated damages are reasonable in light of the anticipated or actual harm, the difficulties of proof of loss, and the inconvenience or infeasibility of obtaining an adequate remedy otherwise. If in the performance of the Services the Contractor does not meet or exceed the Performance Requirements identified therein, NCTA shall reduce the amount it would otherwise pay to the Contractor for such Services subject to the reduction amounts and limits set forth in therein.

3. NCTA may recover any and all liquidated damages by deducting the amount thereof from any monies due or that may become due the Contractor(s), notwithstanding any liens, Notices of liens or actions of Subcontractors, and if said monies are insufficient to cover said damages, then the Contractor or the Surety shall promptly pay any remaining amounts due on demand.
4. In the event that liquidated damages are disallowed for any reason whatsoever, NCTA shall be entitled its actual damages including any and all consequential or incidental damages.
5. Nothing herein contained shall be construed as limiting NCTA's rights to recover from the Contractor any and all other amounts due or that may become due to NCTA, or any and all costs and expenses sustained by NCTA for improper performance hereunder, or for breach or breaches in any other respect including, but not limited to, defective workmanship or materials.
6. Unauthorized Lane Closures: Liquidated Damages may be assessed in the form of a Lane Rental Fee for unauthorized lane closures during the Implementation Phase. Unauthorized lane closures include closures which are outside of closures allowed in the Approved Installation Plan for this Project.

The Lane Rental Fee shall be assessed as \$500 per 15-minute period, per travel lane. The fee will accrue at the start of each 15-minute period (e.g., a 16-minute lane closure will accrue a \$1,000 lane rental fee). The lane rental fee will be deducted from Contractor's invoice or any other monies due to the Contractor for Work performed. The deduction will be based on the applicable rate for any and all closures, whether Work is performed or not. The fee will not be assessed for delays due to conditions beyond the control and fault of the Contractor, including force majeure events.

1.4.2. Actual Damages

1. The Contractor acknowledges that its performance after Go-Live is critical to the operation of NCTA in so much as the Services to be provided pursuant to this Agreement directly involve NCTA's revenue and customer service. The Contractor agrees that the actual damages set forth below are fair and reasonable and shall be incurred by the Contractor in the event of unsatisfactory performance.
2. The Contractor shall reimburse NCTA for toll revenue, which NCTA identifies as having been lost due to the fault of the Contractor and cannot be recovered. NCTA may choose, in its sole discretion, to recover such lost toll revenue that has been demonstrated and documented by NCTA to have been lost due to the sole fault of the Contractor, from the Contractor by deducting such amounts from payments otherwise due and owing from NCTA to the Contractor. Lost revenue includes, but is not limited to, such events as lost transactions; lost images; lost data; transactions that are not able to be collected upon due to delays caused solely by the Contractor in Contractor processing; delays solely caused by the Contractor in escalation or customer notifications that exceed statutory Requirements.
3. The Contractor shall be responsible for any other costs incurred, which are the results of its improper handling of these Services, including such things as special mailings to customers to notify them of a mistake in their monthly statements due to transaction gathering and processing failures and inaccuracies.

1.4.3. Risk of Loss

The Contractor assumes the following distinct and several risks without limitation, whether they arise from acts or omissions (whether negligent or not) of the Contractor or of any of its Subcontractors and suppliers, excepting those risks which arise from negligent acts or omissions of NCTA:

1. The risk of loss or damage to any property of NCTA arising out of or alleged to have arisen out of or in connection with the performance of Services pursuant to this Agreement; the risk of loss or damage to any property of the Contractor's agents, employees, and Subcontractors arising out of, or alleged to have arisen out of, or in connection with the performance of Services pursuant to this Agreement.
2. The risk of loss for all Equipment until installed by the Contractor, subject to NCTA's Approval of the installed Equipment. Title and ownership of the Equipment (other than the Software), and the right to possess and use the Software pursuant to the rights and licenses granted to NCTA under this Agreement, shall pass to NCTA upon delivery, subject, in the case of such title and ownership, to the Equipment conforming to the Requirements set forth in **Part III, Scope of Work and Requirements**.

1.4.4. Transition Impact Fees

1. It is expected that some level of transaction loss will occur during the transition from the legacy RTCS to the replacement RTCS. As indicated in Part I of this RFP, the Contractor shall assess these losses as part of their proposal and then be liable to compensate NCTA for all estimated losses during the transition.
2. The Contractor will be assessed Transition Impact Fees at a daily rate, based on historic transaction volumes as detailed in **Attachment 11: Transition Impact Fees**.
3. The Transition Impact Fees will begin to apply the moment the legacy RTCS is first impacted by Contractor activities and will continue until the Contractor validates the replacement RTCS is functioning according to the requirements through a baseline performance assessment.
4. For each day subject to Transition Impact Fees, any transaction successfully provided to the OBO by either the legacy RTCS or replacement RTCS will be deducted from the Transition Impact Fee assessment. An example application has been provided in **Attachment 11: Transition Impact Fees**.
5. Adjustments to the expected daily transaction volumes may be considered due to significant events such as a weather event, traffic incident or roadway closure. Volume adjustments will be determined using alternative traffic counting devices on the facility.

1.5. Audits and Financial Reporting

1.5.1. Annual Audited Financial Statements

The Contractor shall submit on an annual basis its current audited financial report, financial statements, and any associated notes for the term of the Contract.

1.5.2. Audit and Examination of Records

1. Definition of Records

- a. Contract Records shall include, but not be limited to, all information, communications and data, whether in writing or stored on a computer, computer disks, microfilm, writings, working papers, drafts, computer printouts, field notes, charts or any other data compilations, books of account, photographs, videotapes and audiotapes supporting documents, any other papers or preserved data in whatever form, related to the Contract or the Contractor's performance of the Contract determined necessary or desirable by NCTA for any purpose.
 - b. Proposal Records shall include, but not be limited to, any material relating to the determination or application of Equipment rates, home and field overhead rates, related time schedules, labor rates, efficiency or productivity factors, arithmetic extensions, quotations from Subcontractors, or material suppliers, profit contingencies and any manuals standard in the industry that may be used by the Contractor in determining a price.
2. Pursuant to G.S. 147-64.7, NCTA, the State Auditor, appropriate Federal officials, and their respective authorized employees or Agents are authorized to examine all books, records, and accounts of the Contractor insofar as they relate to transactions with any department, board, officer, commission, institution, or other authority of the State of North Carolina pursuant to the performance of this Contract or to costs charged to this Contract. Additional audit or reporting Requirements may be required by any authority, if in NCTA's opinion, such requirement is imposed by Federal or State law or regulation. The State Auditor and internal auditors of NCTA may audit the records of the Contractor during and after the term of the Contract to verify accounts and data affecting fees and performance.
3. NCTA reserves and is granted the right (at any time and from time to time, for any reason whatsoever) to review, audit, copy, examine and investigate in any manner, any Contract Records (as herein defined) or Proposal Records (as hereinafter defined) of the Contractor or any Subcontractor. By submitting a response to the RFP, Contractor or any Subcontractor submits to and agrees to comply with the provisions of this section.
4. If NCTA requests access to or review of any Contract Documents or Proposal Records and Contractor refuses such access or review, Contractor shall be in default under its Contract with NCTA, and such refusal shall, without any other or additional actions or omissions, constitute grounds for suspension, termination or disqualification of Contractor. These provisions shall not be limited in any manner by the existence of any Contractor claims or pending litigation relating to the Contract. Disqualification or suspension of the Contractor for failure to comply with this section shall also preclude the Contractor from acting in the future as a Subcontractor of another contractor doing work for NCTA during the period of disqualification or suspension. Disqualification shall mean the Contractor is not eligible for and shall be precluded from doing future work for NCTA until reinstated by NCTA.
5. Final Audit for Project Closeout: The Contractor shall permit NCTA, at NCTA'S option, to perform or have performed an audit of the records of the Contractor and any or all Subcontractors to support the compensation paid the Contractor. The audit will be performed as soon as practical after completion and Acceptance of the contracted Services. In the event funds paid to the Contractor under the Contract are subsequently determined to have been inadvertently paid by NCTA because of accounting errors or charges not in conformity with the Contract, the Contractor agrees that such

amounts are due to NCTA upon demand. Final payment to the Contractor shall be adjusted for audit results.

6. Contractor shall preserve all Proposal Records and Contract Records for the entire term of the Contract and for a period of three (3) years after the later of: (i) Final Acceptance of the Project by NCTA, (ii) until all claims (if any) regarding the Contract are resolved, or (iii) expiration of the Proposal Records and Contract Records' status as public records.

1.6. Contractor Cooperation

1. During the course of this Agreement, NCTA may undertake or award other agreements for additional work, including but not limited to separate agreements with different contractors, including the civil construction work related to **Part III, Scope of Work and Requirements**, including but not limited to the roadway, gantries and shelters and associated Work. It is critical that close coordination with interfacing contractors occurs throughout the term of this Agreement. Contractor shall fully cooperate with NCTA and the parties to all other contracts and carefully integrate and schedule its own work with said parties.
2. NCTA will expect all contractors to comply with all technical specifications, special provisions and other terms and conditions applicable to the Contract(s) at all times during the performance of the Contract(s). In the event of a dispute between contractors, clarifications may be sought from NCTA; provided Contract Terms, conditions or obligations shall remain in effect, excepting in instances wherein a Change Order or other Contract modification is duly executed in writing in accordance with this **Part V, Terms and Conditions**; however contractors shall engage in all efforts to resolve disputes prior to participation of NCTA and further, such participation by NCTA does not imply or represent a NCTA responsibility for resolution or payment of claims that arise out of a dispute between two contractors.
3. Interface Control Document Development and Ongoing Cooperation Requirements
 - a. The Contractor shall fully cooperate with NCTA and its designated contractor(s) as necessary to develop interface control documents (ICDs) as set forth in **Part III, Scope of Work and Requirements**. The ICDs shall specify all specifications, parameters, System Requirements, programming interfaces and all other elements to effectively and completely interface the RTCS components being provided by the various interfacing contractors. The Contractor shall be responsible for its respective roles and responsibilities as set forth in **Part III, Scope of Work and Requirements**.
 - b. In the event that the elements comprising the RTCS do not properly interface with each other, and the Contractor's and the interfacing contractors' collective efforts to correct same are untimely or unsuccessful, or the interfacing contractors fail to cooperate with the other NCTA designated and/or interfacing contractor(s) to the satisfaction of NCTA and as determined at NCTA's sole discretion then, in addition to NCTA's other available remedies, NCTA shall have the right to, in whole or in part, withhold and/or require a refund of payments to the Contractor and/or the interfacing contractors involved in developing the ICD.
4. Additional Coordination and Cooperation Requirements

- a. It is anticipated that work by one or more contractors of NCTA, may be in progress adjacent to or within the limits of this Project during progress of the Work on this Contract. The Contractor shall work closely with NCTA and any other contractors who will be working for NCTA for the purpose of coordinating any activity which may affect both contractors. Examples of this Work include but are not limited to installation of toll Equipment, Equipment testing, power and conduit installation and Maintenance and protection of traffic.
 - b. Should problems in coordination with other contractors occur the Contractor shall make NCTA aware of these problems immediately and shall take steps to address the problems and mitigate any delays or additional costs. Contractor shall not commit or permit any act that will interfere with the performance of Work by any other contractor or by NCTA.
 - c. Contractor shall cooperate with all other contractors or forces performing construction or work of any other nature within or adjacent to the limits of the Work specified in order to avoid any delay or hindrance to the other contractors or forces. NCTA reserves the right to perform other or additional Work at or near the site (including material sources) at any time, by the use of other forces.
 - d. Each contractor shall be responsible to the other for all damage to Work to persons or property caused to the other by their Operations, and for loss caused the other due to unnecessary delays or failure to finish the Work within the time specified for completion. Modifications to the Approved Project Schedule and Time Extensions will be subject to the Time Extensions and Schedule Changes provisions set forth in **Part V, Terms and Conditions**, Section 2.5.
5. Contractor Responsibility for Design
- Upon Approval of the Design, including toll related civil infrastructure design by the Contractor, Contractor shall assume responsibility for the Design to the extent that if the civil work is installed as designed and the RTCS does not meet the Performance Requirements of this Contract, the Contractor shall be responsible for the costs of redesign, civil rework and additional Equipment costs and any other costs associated with the sub-standard performance.

1.7. Authority of the NCTA Project Manager

The Contractor hereby authorizes the NCTA Contractor Project Manager ("Contractor Project Manager") to determine in the first instance all questions of any nature whatsoever arising out of, under, or in connection with, or in any way related to or on account of, this Agreement including, without limitation: questions as to the value, acceptability and of the Services; questions as to either party's fulfillment of its obligations under this Agreement; negligence, fraud or misrepresentation before or subsequent to execution of this Agreement; questions as to the interpretation of **Part III, Scope of Work and Requirements**; and claims for damages, compensation and losses.

1. The NCTA Contractor Project Manager shall act as the Designated Representative of NCTA in all matters relating to the Project.

2. The NCTA Contractor Project Manager may give orders to the Contractor to do Work that they determine to be necessary for the Contractor to fulfill the Contractor's obligations under this Agreement.
3. If requested by the Contractor, the NCTA Contractor Project Manager will promptly provide appropriate explanations and reasons for his determinations and orders hereunder.
4. The Contractor shall be bound by all determinations or orders and shall promptly obey and follow every order of the NCTA Contractor Project Manager, including the withdrawal or modification of any previous order and regardless of whether the Contractor agrees with the NCTA Contractor Project Manager's determination or order. Orders shall be in writing, unless not practicable, in which event any oral order shall be confirmed in writing by the Contractor Project Manager as soon thereafter as practicable.

1.8. Key Team Personnel

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

1. The Contractor's Proposal identifies certain job categories as "Key Team Personnel" for the Agreement. Key Team Personnel for this Project are identified in the Contractor's Proposal and shall be Approved as part of the Project Management Plan as set forth in **Part III, Scope of Work and Requirements**. Key Team Personnel shall be required to work in the position indicated in the Proposal and Approved Project Management Plan unless Approval is obtained from NCTA. The Contractor shall obtain NCTA's prior Approval to any desired changes in Key Team Personnel or any significant reduction in the level of effort for such Key Team Personnel, which consent shall not be unreasonably withheld. Should NCTA determine during the term of the Agreement that the list of Key Team Personnel does not include personnel essential to the successful performance of the Work, NCTA may require the Contractor to add any existing job category to such list.
2. If NCTA becomes dissatisfied with the performance of any person designated as Key Team Personnel performing under this Agreement, NCTA shall notify Contractor in writing. Within ten (10) Business Days of receipt of such Notice, the Contractor shall either propose a replacement person for evaluation and Approval by NCTA or present to NCTA a Plan for correcting the incumbent's performance deficiencies within a period of thirty (30) Calendar Days thereafter. If either NCTA rejects the Plan presented by Contractor or the incumbent's performance deficiencies are not corrected to NCTA's satisfaction within the thirty (30) Calendar Day plan period Approved by NCTA, then the Contractor shall, within ten (10) Business Days after rejection of the Plan or expiration of the thirty (30) Business Day plan period, propose to NCTA a replacement person for evaluation and Approval by NCTA.

1.9. Order of Precedence

The Contract is subject to the terms and conditions of this solicitation, which, in case of conflict, shall have the following Order of Precedence:

1. Executed Agreement, including RFP, all executed RFP addenda, BAFO (if applicable), and Amendments.
2. **Part III, Scope of Work and Requirements**, including Addenda.
3. **Part V, Terms and Conditions**, including Addenda.
4. Contractor's Price Proposal.
5. Contractor's Technical Proposal, including Exhibits and Appendices.

1.10. Warranties

1.10.1. System Warranty during Operations and Maintenance Phase

A full System warranty shall be provided by the Contractor on all System Equipment, Hardware and Software for the term of the Maintenance Phase and any extensions thereof. As a result, during the Maintenance Phase NCTA shall not pay any additional charges above the prices set forth in the Contractor's agreed-to Price Proposal for Maintenance Phase Work, other than Work related to agreed-to Force Majeure events or agreed-to out of scope work requested by NCTA, pursuant to **Part V, Terms and Conditions**, Section 2.2 Change Orders, and Section 2.3 Extra Work Orders. Notwithstanding the foregoing, in the period after installation and prior to Acceptance, all Maintenance and Support Work shall also be at Contractor's sole expense. Such Work shall be at no charge to NCTA and shall include replacement, whether pre-or post-Acceptance, on any unit of Equipment, Hardware or Software, or part or component thereof, which NCTA deems defective or insufficient, or which NCTA deems to have failed to comply with **Part III, Scope of Work and Requirements**. All transportation, labor and fees associated with restocking cancelled or returned orders shall also be the responsibility of the Contractor. All defective Equipment replaced by the Contractor will become the property of the Contractor.

The provisions of this Section 1.10.1 shall survive the expiration, cancellation, or termination of this Agreement.

1.10.2. Software Warranties

1. The Software needed to operate the System shall be as set forth in **Part III, Scope of Work and Requirements**. NCTA's Acceptance of the Software shall occur in accordance with the provisions of **Part III, Scope of Work and Requirements**. The Contractor warrants that, upon NCTA's Acceptance of and for the Contract Term, including any extensions thereof, the Software and each module or component and function thereof shall:
 - a. be free from defects in materials and workmanship under normal use;
 - b. remain in good working order, be free from viruses; trap doors; disabling devices; Trojan horses; disabling codes; back doors; time bombs; drop-dead devices; worms, and any other type of malicious or damaging code or other technology or means which has the ability to interfere with the use of the System by NCTA or its designees, or permit access to NCTA's computing systems without its knowledge or contrary to its system connectivity policies or

- procedures;
- c. not interfere with toll collection;
 - d. operate and function fully, properly and in conformity with the warranties in this Agreement, and
 - e. meet the Requirements set forth in sub-paragraphs 2 through 14 of this Section 1.10.2.
2. The Contractor represents and warrants that upon NCTA's Acceptance of and for the Contract Term, including any extensions, the Software will:
 - a. operate fully and correctly in the operating environment identified in **Part III, Scope of Work and Requirements**, including by means of the full and correct performance of the Software, and all Updates, Enhancements, or new releases of the Software, on or in connection with the Equipment, any Updates, Enhancements, or new releases to such Equipment, and any other Software used by or in connection with any such Equipment;
 - b. be fully compatible and interface completely and effectively with the Equipment, including other Software programs provided to NCTA hereunder, such that the other Software and Equipment combined will perform and continuously attain the standards identified in **Part III, Scope of Work and Requirements**, and
 - c. accurately direct the operation of the System, as required by **Part III, Scope of Work and Requirements**, and the descriptions, specifications and Documentation set forth therein and herein.
 3. During the term of the Contract, including any extensions, the Contractor shall provide Services to maintain the Software provided hereunder in good working order, keeping it free from defects such that the System shall perform in accordance with this Agreement, the **Part III, Scope of Work and Requirements**, and the warranties set forth herein.
 4. The Contractor shall provide technical support and shall remedy any failure, malfunction, defect or non-conformity in Software, in accordance with **Part III, Scope of Work and Requirements**, but in any event not later than the deadline(s) in **Part III, Scope of Work and Requirements** for Maintenance Coverage and Repair Times.
 5. The Contractor shall provide NCTA the most current release of all Software available on the date of delivery to maintain optimum performance pursuant to this Agreement.
 6. The Contractor shall promptly provide Notice to NCTA in writing of any defects or malfunctions in the Software provided hereunder, regardless of the source of information. The Contractor shall promptly correct all defects or malfunctions in the Software or Documentation discovered and shall promptly provide NCTA with corrected copies of same, without additional charge. If Software can only be corrected in conjunction with additional or revised Hardware, the Contractor shall provide such Hardware to NCTA, and the cost of such Hardware shall be borne solely by the Contractor.
 7. No Updates or enhancements shall adversely affect the performance of the System, in whole or in part, or result in any failure to meet any Requirements of **Part III, Scope of Work and Requirements**.
 8. The Contractor shall ensure continued satisfactory performance by the current operating System of

the Software in accordance with all provisions of this Section 1.10.2.

9. With regard to Software, the Contractor shall provide Software Services in accordance with **Part III, Scope of Work and Requirements**.
10. The Contractor shall obtain Maintenance agreements for third-party Software in accordance with Section 1.10.3 Third-Party Warranties. The Contractor shall secure such Maintenance agreements for the same duration and upon the same terms and conditions as the Maintenance provisions between the Contractor and NCTA. All third-party contracts and licenses shall be assignable to NCTA.
11. In the event that the Software does not satisfy the conditions of performance set forth in **Part III, Scope of Work and Requirements**, the Contractor is obligated to promptly repair or replace such Software at the Contractor's sole cost and expense or, if expressly agreed to in writing by NCTA, provide different Equipment or Software, and perform Services required to attain the Performance Requirements set forth in **Part III, Scope of Work and Requirements**.
12. In the event of any defect in the media upon which any tangible portions of the Software are provided, the Contractor shall provide NCTA with a new copy of the Software.
13. Without releasing the Contractor from its obligations for warranty (during an applicable warranty period), support or Maintenance of the Software, NCTA shall have the right to use and maintain versions of the Software provided by the Contractor which are one or more levels behind the most current version of such Software and to refuse to install any Updates or enhancements if, in NCTA's discretion, installation of such Updates or enhancements would interfere with its Operations. The Contractor shall not, however, be responsible or liable for the effect of any error or defect in the version of the Software then in use by NCTA that occurs after the Contractor has both (i) offered, by written Notice to NCTA, a suitable correction (by way of Update, enhancement or otherwise) of such error or defect and (ii) provided NCTA a reasonable opportunity to implement such existing correction, provided that the Contractor establishes that neither the implementation nor the use of such correction would limit, interfere with, adversely affect, or materially alter the Interoperability, functionality or quality of the System.
14. All provisions of this Section 1.10.2 referring or relating to obligations to be performed pursuant to an applicable warranty period that extends beyond the term hereof, shall survive the expiration, cancellation, or termination of this Agreement.

1.10.3. Third-Party Warranties

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

1.10.4. Service Warranties

The Contractor warrants that all Services shall be performed in a high-quality, professional manner by qualified and skilled personnel in compliance with NCTA's Requirements as set forth in **Part III, Scope of Work and Requirements**. In the event NCTA determines that any Services do not conform to the foregoing warranty, NCTA shall be entitled to elect one of the following remedies: (i) reperformance of the Services by the Contractor until NCTA deems them to be in conformity with the warranty in this Section 1.10.4, at no charge to NCTA; (ii) refund from the Contractor for all fees paid in connection with the Services, which NCTA deems were not as warranted, subject to the provisions of **Part V, Terms and Conditions**, Section 1.4.1 Liquidated Damages, such that the Contractor is not required to refund fees for non-provision of Services for which Liquidated Damages have been assessed, (iii) reimbursement by the Contractor for NCTA's costs and expenses incurred in having the Services re-performed by NCTA or someone other than the Contractor. Notwithstanding the foregoing, nothing in this Section 1.10.4 shall be construed to limit NCTA's rights pursuant to **Part V, Terms and Conditions**, Section 2.6.2 Termination for Cause.

1.10.5. Data Accuracy

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

1.10.6. Additional Warranties

The Contractor warrants the following:

1. All guarantees and warranties made herein are fully enforceable by NCTA acting in its own name.
2. The Equipment and Systems the Contractor installs and places into operation will not result in any damage to existing facilities, walls or other parts of adjacent, abutting or overhead buildings, structures, surfaces, or any physical/mental damage to any individual utilizing any units(s) of Equipment.
3. All provided Equipment is new and unused.
4. Warranties provided in this Section 1.10.6 are in addition to warranties set forth in the General Conditions.
5. UNLESS MODIFIED BY AMENDMENT OR THE SOLICITATION DOCUMENTS, THE WARRANTIES IN THIS SECTION 1.10.6 ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, OR WHETHER ARISING BY COURSE OF DEALING OR PERFORMANCE, CUSTOM, USAGE IN THE TRADE OR PROFESSION OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND NO OTHER REPRESENTATIONS OR WARRANTIES HAVE FORMED THE BASIS OF THE BARGAIN HEREUNDER.

1.10.7. Pervasive Defects

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

The obligations set forth in this section shall be in addition to any warranty obligations set forth in this Agreement. The provisions of this section shall survive the expiration or earlier termination of this Agreement.

1.10.8. General Guaranty

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

1.11. Software and License

A Software license and escrow agreement shall be attached to the final Contract as **Exhibit E**. The license and escrow agreement shall include the terms and conditions set forth below in this Section.

1.11.1. Description of License

The Contractor hereby grants to NCTA, for purposes of operating the System, an unlimited, fully-paid-up, royalty-free, perpetual, universal, irrevocable, non-exclusive license: (i) to use, maintain, disclose, modify, adapt, and improve any and all Software and other Equipment; notwithstanding the foregoing, any modifications not made by the Contractor, its Subcontractors or agents shall be subject to Contractor validation in order to continue to maintain applicable warranties. (ii) to use all resulting versions, modifications, adaptations and improvements of any and all Software and other Equipment; (iii) to make, have made, use, distribute and display copies, reproductions, and derivative works of any and all Software and Documentation; and (iv) to permit any other person or entity providing services to NCTA to do any and all of the foregoing (i) through (iii). The foregoing license includes the right to use any Systems, processes, methods, applications, technical data specifications and other Documentation (including those provided by the Contractor, any third-party or currently used by NCTA) comprised or practiced by the Equipment or that are necessary or useful to operate the System.

1.11.2. Scope of License

All rights and licenses granted to NCTA under this Agreement shall be exercisable at any time by NCTA and each of the persons and entities provided Services by the Contractor. The license shall permit NCTA to add at any time, entities or persons to receive Contractor Services with no additional license fees charged to NCTA. The foregoing shall apply to NCTA, and such persons and entities and their respective successors and assigns. Contractor shall include, without requirement of any payment or provision of any consideration

other than or in addition to that which is expressly specified by this Agreement, the right of NCTA and each other person or entity referred to in this subparagraph:

1. to utilize the System (including all Equipment or related Documentation), in whole or in part, in connection with Services provided by or to NCTA or such other persons or entities, without regard to present or future location, including for purposes of technical support, Maintenance or repair;
2. to make multiple copies of the Software and related Documentation for purposes of the exercise of NCTA's rights and licenses hereunder;
3. to use the Software and related Documentation on or in connection with multiple processors, components obtained by or on behalf of NCTA from the Contractor or from third parties, and Systems (including the System) utilized by NCTA or any person or entity providing Services to or on behalf of NCTA;
4. to maintain and modify the Software subject to the Contractor validation set forth in Section 1.11.1 Description of License subparagraph (i) and to use the resulting versions and modifications thereof;
5. to sell or distribute user technology, device, or method permitting public access to and use of the user Interface of the System, to any person or entity, and
6. to exercise any and all such rights and licenses under this Agreement through the services of its employees, agents, independent contractors or Subcontractors, or such other persons or entities as it may employ or engage in its own discretion, and to disclose the Software and related Documentation, in whole or in part, to such persons or entities for such purposes.

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

Pre-existing Contractor Software shall remain the property of the Contractor and nothing in this Agreement shall be construed to provide title to such Software to NCTA, subject to the License provided as set forth in Section 1.11.1. Description of License.

1.11.3. Escrow

1.11.3.1. Establishing the Escrow

Upon execution of the Contract the parties shall enter into a Software escrow agreement, prior to depositing the Software and related Documentation into escrow, the Contractor shall submit the name of the escrow agent to NCTA for its Approval. In the event that the escrow agent requires its own form of escrow agreement, the form of escrow agreement used by the escrow agent shall be subject to the prior written Approval of NCTA and if not Approved by NCTA then another escrow agent shall be selected. If the escrow agent's form of escrow agreement is Approved by NCTA, said escrow agreement shall be used.

1.11.3.2. Deposits

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

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

Contractor shall deposit a complete set of Deposit Materials upon the Acceptance of the first Roadway System Implementation Phase and shall make deposit Updates no less frequently than quarterly or when major Updates are made to Software pursuant to the following paragraph, whichever occurs first.

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

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

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

1.11.3.3. Payment for Costs of Escrow

The Contractor shall be responsible for payment of all costs arising in connection with the establishment and maintenance of the escrow, referred to in this Section 1.11.3, throughout the Contract Term, including any fees of the escrow agent, and NCTA shall not be charged by the Contractor for its time in compiling and depositing Deposit Materials. The Contractor's obligation to maintain the escrow in place shall continue after the expiration or termination of the Contract Term until the Contractor receives Notice from NCTA that the escrow is no longer required, pursuant to paragraph 5 below, Release of Escrow Deposits.

1.11.3.4. Verification of Escrow Deposits

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

1.11.3.5. Release of Escrow Deposits

Except as may be otherwise provided in the escrow agreement, the Deposit Materials are to remain in escrow unless or until the withdrawal of such Deposit Materials is permitted pursuant to **Part V, Terms and Conditions**, Section 2.6 of this Agreement, or upon end of the Contract, whether due to termination or expiration, at which time such Deposit Materials shall be provided to NCTA subject to the limitations contained in the confidentiality provisions, and the terms of the escrow agreement, and shall be incorporated into the licenses granted to NCTA hereunder.

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

2. Contract Changes and Termination

2.1. General

The following Contract changes are allowable within the scope of this Contract:

1. Task Orders – NCTA anticipates issuing Task Orders for Work required to provision new systems, enhance Software, Upgrade Equipment, enhance or otherwise improve Operations and Maintenance Services for needed activities in accordance with labor rates proposed and set forth in the Price Proposal.
2. Change Orders – NCTA anticipates using Change Orders to address variances in the original quantities tabulated or scope pursuant to the Task Order.
3. Extra Work Orders –NCTA anticipates issuing Extra Work Orders to address variances in the specifications or **Part III, Scope of Work and Requirements** beyond that of the Approved SDDD and for which there is no appropriate pay item or category. Extra Work Orders will be issued within the sole discretion of NCTA, and such additional Work may be subject to a new competitive procurement as deemed to be in the best interest of NCTA.

4. Time Extensions – NCTA may issue Time Extensions, as necessary, to modify Project milestones for reasons out of the control of the Contractor. Unless otherwise agreed to by NCTA in writing, the Contractor's Payment Schedule and Price Proposal, including labor rates identified in the Price Proposal, shall apply to all of the above Contract changes.
 - a. NCTA will utilize the carrying costs detailed in **Exhibit B-2** to compensate the Contractor for realized time extensions as a result of the delays to infrastructure availability (as outlined in **Attachment 5: Project Responsibility Matrix**) caused by NCTA or its agents outside of this Contract. Refer to **Exhibit B-2** for the specific provisions related to the compensation and eligibility for these payments.
5. Cost for Additional Work - Unless otherwise agreed to by NCTA in writing, the Contractor's Payment Schedule and Price Proposal, including labor rates identified in the Price Proposal, shall apply to all of the above Contract changes discussed in this section. If cost for additional Work and/or Services cannot be established on the basis of the Price Proposal or the Payment Schedule, a catalog or market price of a commercial product sold in substantial quantities, or on the basis of prices set by law or regulation, the Contractor is required to submit to NCTA detailed cost breakdown, including information on labor and materials costs, overhead and other indirect costs.

2.2. Change Orders

1. A Change Order will be a change in Contract quantities to expand the Scope of Work and Requirements. For example, to add an additional Tolling Location or locations, or provide electronic toll collection Hardware and System support Equipment beyond the Project limits of the Monroe Expressway. NCTA may elect to have either the Contractor provide the Change Order Work under this Contract, or to advertise the work through a new competitive procurement process.
2. NCTA may elect to have the Contractor perform the Change Order Work. In this case, the Contractor shall provide a detailed Technical and Price Proposal for the order, and await Approval and Notice to Proceed from NCTA before incurring any expenses for which the Contractor expects reimbursement.
3. If NCTA advertises the Change Order Work, NCTA may elect to use the Contractor to assist NCTA in the procurement of additional Hardware, Software or Services, and/or integrate the Change Order Work into the toll collection System. In this case, NCTA would obtain these Services through a negotiated and Approved Task Order.

2.3. Extra Work Orders

An Extra Work Order will ONLY be a change in the Scope of Work and Requirements requiring different functionality, Hardware or Software than that covered by the existing Contract or a change to a Contract Term and condition with an impact. Some examples include:

1. System change to replace the selected AVI system;
2. System changes to radically alter the vehicle classification structure;
3. Large scale changes in Hardware platforms or operating Systems beyond changes covered in Upgrades or Maintenance Task Orders;

4. Changes to insurance or legal requirements.

2.4. Maintenance Task Orders

1. A Task Order will be a change in Design or Work needed to maintain operation of NCTA RTCS after Acceptance of the original System by NCTA. Examples of this type of work include:
 - a. Software modifications and Upgrades to improve reliability, diagnostics, MOMS, Inventory Management, interfaces to traffic management, or other tasks directly related to toll collection.
 - b. Hardware Upgrades to provide better data storage and handling, such as replaced, improved or expanded hard drives, routers, etc., or prototype new Equipment to test System modifications. This does not include Updates or Upgrades required to meet required System or transaction growth or modifications currently included in the Scope of Work and Requirements.

2.5. Time Extensions, Schedule Changes and Submittals

2.5.1. Time Extensions and Schedule Changes

1. Within ten (10) Business Days of Notice to Proceed the Contractor shall submit a Preliminary Project Implementation Schedule for Approval in accordance with the Requirements set forth in **Part III, Scope of Work and Requirements**. The Approved Preliminary Project Implementation Schedule at the time of the execution of the Agreement shall be included as **Exhibit A: Preliminary Project Implementation Schedule**.
2. The Contractor shall clearly label each Update against the Approved Preliminary Project Implementation Schedule, pursuant to the Requirements of the Approved Project Management Plan. Submission of the monthly Updates against the Approved Schedule for the Implementation Phase shall not release or relieve the Contractor from full responsibility for completing the Work within the time set forth in the Approved Implementation Schedule. If the Contractor causes delays and fails or refuses to implement measures sufficient to bring its Work back into conformity with the current Approved Schedule, its right to proceed with any or all portions of the associated Work may be terminated under the provisions of the Contract. However, in the event that NCTA, in its sole determination, should permit the Contractor to proceed, NCTA's permission shall in no way operate as a waiver of its rights nor shall it deprive NCTA of its rights under any other provisions of the Contract.
3. NCTA will Approve Time Extensions ONLY for Force Majeure causes or acts by NCTA which have been documented to have impeded the Contractor's Project progress.
4. Any changes to the Approved Implementation Schedule require Approval and an Amendment to the Contract.
5. Unless otherwise expressly agreed to by NCTA, the Contractor shall not receive extra compensation or damages for any time extension Approved by NCTA for completion of additional and/or altered Work. However, the Contractor shall be fully compensated for such Work as agreed upon by NCTA and the Contractor in the Change Order or the supplemental agreements.

2.5.2. Carrying Costs due to Project Delay Outside Contractor Control

If the start date listed for Installation and System Acceptance in the Project Implementation Schedule is delayed due to unforeseen events, the Contractor shall be eligible to receive monthly compensation for carrying costs to cover overhead. The carrying costs will be applied to any month in which delays prevent the Contractor from performing any on site installation activity within the subject month. Carrying costs will be limited to the amount listed by the Contractor in the Pricing Sheets under "Potential Construction Delays" with no additional compensation provided.

Additionally, the Contractor must complete all scope items listed below to be eligible for carrying cost payments:

1. NCTA Approval of the following documents:
 - a. Project Management Plan
 - b. Requirements Traceability Matrix
 - c. Project Schedule
 - d. System Detailed Design Document
 - e. Bill of Materials
 - f. Installation Drawings
 - g. Installation Plan
 - i. Document shall include identification of long lead items, plans for procurement relative to installation start
 - ii. Document shall identify subcontractors
 - h. Master Test Plan
 - i. Shall identify all subcontractors
 - i. Factory Acceptance Test Procedures
 - j. Onsite Installation Test Procedures
 - k. Site Installation Test Procedures
 - l. System Acceptance Test Procedures
 - m. Factory Acceptance Test Report
 - n. Training Plan
 - o. All User Manuals and Training Documents
 - p. Disaster Recovery Plan
 - q. Maintenance Plan
 - r. Monthly Project Reports, NTP to date
 - s. Factory Acceptance Testing Complete
 - i. Full functionality demonstrated
 - ii. All major issues closed

2.5.3. Submittals

Contractor's Submittal requirements and Submittal schedule shall be as set out in Contractor's Approved Project Management Plan, as required in **Part III, Scope of Work and Requirements**. The baseline schedule Approved after Notice to Proceed shall establish accepted dates by which Contractor shall submit required permits, documents, and applications, including all necessary documents in support thereof. NCTA's written Approval will be required for these Submittals. NCTA will Approve or reject such Submittals, providing an

explanation of any reasons for rejection in a form agreed to in the Project Management Plan. In any instance where NCTA does not provide Approval, rejection or written notification of an extended review period by the due date specified in the Approved Baseline Schedule, the Contractor shall notify NCTA in writing that NCTA response is due. NCTA's right to extend the review period is intended to allow flexibility in special circumstances where the nature of the Submittal requires more involved review, and not as a diminution of NCTA's obligation to promptly review Submittals. NCTA reserves the right to reject Submittals that are not complete or correct and to extend the review period accordingly.

Contractor shall not be held responsible for delays in schedule due to delays in Approvals and permits completely beyond the control of the Contractor. Notwithstanding the foregoing, Contractor shall make every effort to work around and mitigate the impact of delay.

2.6. Contract Termination

2.6.1. Termination General Requirements

1. The Contract issued for Roadside Toll Collection Services will terminate at the end of the Contract Term(s) set forth above, inclusive of any Operations and Maintenance and or extension periods as noted in **Part V, Terms and Conditions**, Section 1.1 Term of Contract.
2. NCTA may terminate the Contract(s), in whole or in part, for default subject to the default provisions set forth below.
3. Any required Notices of termination made under this Contract shall be transmitted via U.S. Mail, Certified Return Receipt Requested, overnight delivery, signature required by a carrier certified to deliver mail overnight, or personal delivery to the Contractor's Representative. The period of Notice for termination shall begin on the Calendar Day the return receipt is signed and dated or upon personal delivery to the Contractor(s) contract administrator.
4. The parties may mutually terminate this Contract by written agreement at any time.
5. NCTA may terminate this Contract, in whole or in part, pursuant to the Terms and Conditions in the Solicitation Documents.
6. NCTA will notify the Contractor(s) at least ninety (90) Calendar Days prior to the termination of the Contract in the absence of cause. This notification will require the Contractor(s) to initiate actions in preparation for leaving the NCTA Project site and handing off Operations to replacement entities. These actions shall include:
 - a. Acknowledgement of receipt of End of Contract notification, and
 - b. Act in accordance with **Part V, Terms and Conditions**, Section 2.7 End of Contract and Transition.

2.6.2. Termination for Cause

1. NCTA may terminate for Cause if the breach is not cured within the time specified in **Part V, Terms and Conditions**, Section 2.6.2.3 below.

2. "Cause" shall mean a material breach of this Agreement by the Contractor. Without limiting the generality of the foregoing and in addition to those instances referred to elsewhere in this Agreement as a breach, a material breach shall include the following:
- a. the Contractor failed to transmit and process transactions and data in accordance with this Agreement;
 - b. the Contractor materially inhibited NCTA's collection of toll revenue;
 - c. the Contractor has not submitted acceptable Deliverables to NCTA on a timely basis;
 - d. the Software/Equipment proves incapable of meeting the functional and/or Performance Requirements set forth in **Part III, Scope of Work and Requirements**;
 - e. the Contractor refused or failed, except in cases for which an extension of time is provided, to supply enough properly skilled workers or proper materials to properly perform the Services required under this Agreement;
 - f. the Contractor failed to make prompt payment to Subcontractors or suppliers for materials or labor;
 - g. the Contractor has become insolvent (other than as interdicted by the bankruptcy laws), or has assigned the proceeds received from this Agreement for the benefit of its creditors, or it has taken advantage of any insolvency statute or debtor/creditor law or if the Contractor's property or affairs have been put in the hands of a receiver;
 - h. any case, proceeding or other action against the Contractor is commenced in bankruptcy, or seeking reorganization, liquidation or any relief under any bankruptcy, insolvency, reorganization, liquidation, dissolution or other similar act or law of any jurisdiction, which case, proceeding or other action remains undismissed, undischarged or unbonded for a period of thirty (30) Calendar Days;
 - i. the Contractor fails to maintain insurance policies and coverages or fails to provide proof of insurance or copies of insurance policies as required by this Agreement;
 - j. any warranty, representation, certification, financial statement or other information made or furnished to induce NCTA to enter into this Agreement, or made or furnished, at any time, in or pursuant to the terms of this Agreement or otherwise by the Contractor, or by any person who guarantees or who is liable for any obligation of the Contractor under this Agreement, shall prove to have been false or misleading in any material respect when made;
 - k. any intentional violation by the Contractor of the ethics provisions, or applicable laws, rules or regulations;
 - l. the Contractor has failed to obtain the Approval of NCTA where required by this Agreement;
 - m. the Contractor's Audited Financial Statements or those of its parent company submitted to NCTA do not fairly represent the Contractor or its parent's true financial position;
 - n. the Contractor has failed in the representation of any warranties stated herein;

- o. the Contractor makes a statement to any representative of NCTA indicating that the Contractor cannot or will not perform any one or more of its obligations under this Agreement;
 - p. the Contractor fails to remedy Pervasive Defects;
 - q. any act or omission of the Contractor or any other occurrence which makes it improbable at the time that the Contractor will be able to perform any one or more of its obligations under this Agreement;
 - r. any suspension of or failure to proceed with any part of the Services by the Contractor which makes it improbable that the Contractor will be able to perform any one or more of its obligations under this Agreement;
 - s. a pattern of repeated failures to meet the performance metric or metrics as defined in **Part III, Scope of Work and Requirements**;
 - t. the suspension or revocation of any license, permit, or registration necessary for the performance of the Contractor's obligations under this Agreement, or
 - u. the default in the performance or observance of any of the Contractor's other obligations under this Agreement and the continuance thereof for a period of thirty (30) Calendar Days after Notice given to the Contractor by NCTA.
3. Cure/Warning Period: Prior to terminating the Contract(s) for cause, NCTA will issue a Notice of cure/warning to the Contractor(s) thirty (30) Calendar Days prior to the termination date. The Notice will be transmitted via U.S. Mail Certified Return Receipt Requested, overnight delivery, or personal delivery to the Contractor(s) Representative, and the period of Notice for termination shall begin on the date the Return Receipt is signed and dated or upon personal delivery to the Contractor contract administrator. The Notice will specify the corrective actions/work required to be taken by the Contractor to come into compliance with the terms and conditions of the Contract(s). If the corrective actions/work is performed within the cure/warning period, in a manner acceptable to NCTA, the Contract will remain in effect in accordance with the terms and conditions thereof.
4. Rights/Remedies Preserved: The rights and remedies of NCTA provided above shall not be exclusive and are in addition to any other rights and remedies provided by law or under the Contract. The Contractor shall not be relieved of liability to NCTA for damages sustained by NCTA arising from Contractor's breach of this Contract; and NCTA may, in its discretion, withhold any payment due as a setoff until such time as the damages are finally determined or as agreed by the parties. Voluntary or involuntary Bankruptcy or receivership by Contractor shall be cause for termination.
5. Termination Without Notice of Cure/Warning: If NCTA has issued two Notices of cure/warning to the Contractor, upon the issuance of the third or subsequent Notice, NCTA reserves the right to terminate the Contract without further Notice. The failure of NCTA to exercise this right on any occasion shall not be deemed a waiver of any future right.

2.6.3. Termination for Convenience Without Cause

NCTA may terminate the Contract(s) without cause, in whole or in part by giving ninety (90) Calendar Days prior Notice in writing to the Contractor. The Contractor shall be entitled to sums due as compensation for

Deliverables provided and Services performed in conformance with the Contract. In the event the Contract is terminated for the convenience of NCTA, NCTA will pay for all Work performed and products delivered in conformance with the Contract up to the date of termination. This is an incidental item within **Part III, Scope of Work and Requirements**, but without separate compensation.

2.7. End of Contract and Transition

If the Agreement is not renewed at the end of this term or is canceled prior to its expiration, for any reason, the Contractor shall cooperate with NCTA to facilitate a smooth succession to NCTA's selected successor for the Services, whether the successor is NCTA or a third-party. Transition Services provided prior to end of Contract shall be provided as set forth in Section 3.14. of **Part III, Scope of Work and Requirements**. The Contractor shall perform such Work without additional compensation.

The Contractor shall also provide for up to six (6) months after the expiration or cancellation of the Agreement, all reasonable transition assistance requested by the State, to allow for the expired or canceled portion of the Services to continue without interruption or adverse effect, and to facilitate the orderly transfer of such Services to the State or its designees. Such transition assistance will be deemed by the parties to be governed by the terms and conditions of the Agreement, (notwithstanding this expiration or cancellation) except for those Contract Terms or conditions that do not reasonably apply to such transition assistance. The State shall pay the Contractor for any resources utilized in performing such transition assistance at the most current rates provided by the Agreement for Contract performance. If the State cancels the Agreement for cause, then the State will be entitled to offset the cost of paying the Contractor for the additional resources the Contractor utilized in providing transition assistance with any damages the State may have otherwise accrued as a result of said cancellation.

3. General Terms and Conditions

3.1. Standards

Any Deliverables shall meet all applicable State and Federal requirements, such as State or Federal Regulation, and NC Chief Information Officer's (CIO) policy or regulation. The Contractor will provide and maintain a Quality Assurance system or program that includes any Deliverables and will tender or provide to the State only those Deliverables that have been inspected and found to conform to the requirements of this Contract. All Deliverables are subject to operation, certification, testing and inspection, and any accessibility requirements as required:

1. Site Preparation: The Contractor shall provide NCTA complete site requirement specifications for the Deliverables, if any. These specifications shall ensure that the Deliverables to be installed shall operate properly and efficiently within the site environment. The Contractor shall advise NCTA of any site requirements for any Deliverables required by NCTA's specifications. Any alterations or modification in site preparation which are directly attributable to incomplete or erroneous specifications provided by the Contractor and which would involve additional expenses to NCTA, shall be made at the expense of the Contractor.
2. Specifications: The apparent silence of the specifications as to any detail, or the apparent omission of detailed description concerning any point, shall be regarded as meaning that only the best commercial practice is to prevail and only material and workmanship of the first quality may be

used. Upon any Notice of noncompliance issued by NCTA, Contractor shall supply proof of compliance with the specifications within ten (10) Calendar Days. Contractor shall provide written Notice of its intent to deliver alternate or substitute products, goods or Deliverables. Alternate or substitute products, goods or Deliverables may be accepted or rejected at the sole discretion of NCTA; and any such alternates or substitutes shall be accompanied by Contractor's Certification and evidence satisfactory to NCTA that the function, characteristics, performance, and endurance will be equal or superior to the original Deliverables specified. All alternates or substitutes are subject to Approval by NCTA.

3.2. Acceptance Criteria

NCTA shall have the obligation to notify Contractor, in writing ten (10) Calendar Days following provision, performance (under a provided milestone or otherwise as agreed) or delivery of any Services or other Deliverables described in the Contract are not acceptable. The Notice shall specify in reasonable detail the reason(s) a given Deliverable is unacceptable. Acceptance by NCTA shall not be unreasonably withheld; but may be conditioned or delayed as required for installation and/or testing of Deliverables. Final Acceptance is expressly conditioned upon completion of any applicable inspection and testing procedures. Should a Deliverable fail to meet any specifications or Acceptance criteria, NCTA may exercise any and all rights hereunder. Deliverables discovered to be defective or failing to conform to the specifications may be rejected upon initial inspection or at any later time if the defects or errors contained in the Deliverables or non-compliance with the specifications were not reasonably ascertainable upon initial inspection. If Contractor fails to promptly cure or correct the defect or replace or reperform the Deliverables, NCTA reserves the right to cancel the Contract, contract with a different contractor, and to invoice the original Contractor for any differential in price over the original Contract price.

3.3. Personnel

Contractor shall not substitute key personnel assigned to the performance of the Contract without prior written Approval by the NCTA Contract Administrator. The individuals designated as key personnel for purposes of the Contract are those specified in the Contractor's offer. Any desired substitution shall be noticed to the NCTA's Contract Administrator in writing accompanied by the names and references of Contractor's recommended substitute personnel. NCTA will Approve or disapprove the requested substitution in a timely manner. NCTA may, in its sole discretion, terminate the Services of any person providing Services under the Contract. Upon such termination, NCTA may request acceptable substitute personnel or terminate the Contract Services provided by such personnel.

1. Unless otherwise expressly provided in the Contract, Contractor will furnish all of its own necessary management, supervision, labor, facilities, furniture, computer and telecommunications Equipment, Software, supplies and materials necessary for the Contractor to provide and deliver the Services and other Deliverables.
2. Contractor personnel shall perform their duties on the premises of NCTA as appropriate and necessary for the phase of work and work being performed. For example, Contractor personnel that are training staff, conducting readiness tests, and operation and maintenance activity shall be onsite. Other personnel shall be available as specifically agreed otherwise, established in the specification, or statement of work.

3. The Contract shall not prevent Contractor or any of its personnel supplied under the Contract from performing similar Services elsewhere or restrict Contractor from using the personnel provided to NCTA, provided that:
 - a. Such use does not conflict with the terms, specifications or any amendments to the Contract, or
 - b. Such use does not conflict with any procurement law, regulation or policy, or
 - c. Such use does not conflict with any non-disclosure Contract, or term thereof, by and between the State and Contractor or Contractor's personnel.
4. Unless otherwise provided by NCTA, the Contractor shall furnish all necessary personnel, Services, and otherwise perform all acts, duties and responsibilities necessary or incidental to the accomplishment of the tasks specified in the Contract. The Contractor shall be legally and financially responsible for its personnel including, but not limited to, any deductions for social security and other withholding taxes required by state or federal law. The Contractor shall be solely responsible for acquiring any Equipment, furniture, and office space not furnished by NCTA necessary for the Contractor to comply with the Contract. The Contractor personnel shall comply with any applicable State facilities or other security rules and regulations.

3.4. Subcontracting

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

The Contractor shall identify all Subcontractors in accordance with **Exhibit C-2, List of Subcontractors and RS-2 Form**.

3.5. Contractor's Representation

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

2. Intellectual Property: Contractor represents that it has the right to provide the Services and other Deliverables without violating or infringing any law, rule, regulation, copyright, patent, trade secret or other proprietary right of any third-party. Contractor also represents that its Services and other Deliverables are not the subject of any actual or threatened actions arising from, or alleged under, any intellectual property rights of any third-party.
3. Inherent Services: If any Services or other Deliverables, functions, or responsibilities not specifically described in this Contract are required for Contractor's proper performance, provision and delivery of the Services and other Deliverables pursuant to this Contract, or are an inherent part of or necessary sub-task included within the Services, they will be deemed to be implied by and included within the scope of the Contract to the same extent and in the same manner as if specifically described in the Contract.
4. Contractor warrants that it has the financial capacity to perform and to continue to perform its obligations under the Contract; that Contractor has no constructive or actual knowledge of an actual or potential legal proceeding being brought against Contractor that could materially adversely affect performance of this Contract; and that entering into this Contract is not prohibited by any Contract, or order by any court of competent jurisdiction.

3.6. Software and Intellectual Property

3.6.1. Internal/Embedded Software License and Escrow

This section on Software licenses and Software in escrow applies to any source code developed or modified specifically for NCTA, application customizations and configuration settings, internal embedded Software, firmware and unless otherwise provided in this NCTA RFP, or in an attachment hereto:

1. Deliverables comprising goods, Equipment or products (Hardware) may contain Software for internal operation, or as embedded Software or firmware that is generally not sold or licensed as a severable Software product. Software may be provided on separate media or may be included within the Hardware at or prior to delivery. Such Software is proprietary, copyrighted, and may also contain valuable trade secrets and may be protected by patents.
2. Contractor grants NCTA an unrestricted license to NCTA to use any non-commercial software provided under this Contract, for any reasonable purpose for NCTA toll Operations. NCTA shall have a worldwide, nonexclusive, non-sublicensable license to use Software and/or Documentation for its internal use. NCTA may make and install copies of the Software to support any NCTA use on the NCTA System.
3. The Contractor shall provide to NCTA an executable copy of all Software developed for NCTA, to include source code Documentation and application information. Included with the provision of source code, the Contractor shall demonstrate to NCTA that the provided executables are the correct Software for the Systems as delivered.

3.6.2. Software Maintenance/Support Services

This general requirement applies unless otherwise provided in NCTA's solicitation document or in an attachment hereto.

For the first year and all subsequent Contract years, Contractor agrees to provide the following Services for the current version and one previous version of any Software provided with the Deliverables, commencing upon installation of the Deliverables or delivery of the Software:

1. Error Correction: Upon NCTA verification of an error or defect Software, the Contractor shall use reasonable efforts to correct or provide a working solution for the error or defect Contractor's expense. NCTA shall comply with all reasonable instructions or requests of Contractor in attempts to correct an error or defect in the Program. Contractor and the State shall act promptly and in a reasonably timely manner in communicating error or defect logs, other related information, proposed solutions or workarounds, and any action as may be necessary or proper to obtain or effect Maintenance Services under this paragraph.
2. Contractor shall notify NCTA of any material errors or defects in the Deliverables known or made known to Contractor from any source during the Contract Term that could cause the production of inaccurate or otherwise materially incorrect, results. Contractor shall initiate actions as may be commercially necessary or proper to effect corrections of any such errors or defects.
3. Updates: Contractor shall provide to NCTA, at no additional charge, all new releases and bug fixes (collectively referred to as "Changes") for any Software Deliverable developed or published by Contractor and made generally available to its other customers at no additional charge. All such Updates shall be a part of the Program and Documentation and, as such, shall be governed by the provisions of this Contract.
4. Telephone Assistance: Contractor shall provide NCTA with telephone access to technical support engineers for assistance in the proper installation and use of the Software, and to report and resolve Software errors and defects in accordance with Requirements of this RFP.

3.6.3. Patent, Copyright and Trade Secret Protection

1. Contractor has created, acquired or otherwise has rights in, and may, in connection with the performance of Services for NCTA, employ, provide, create, acquire or otherwise obtain rights in various concepts, ideas, methods, methodologies, procedures, processes, know-how, techniques, models, templates and general purpose consulting and Software tools, utilities and routines (collectively, the "Contractor Technology"). To the extent that any Contractor Technology is contained in any of the Deliverables including any derivative works, the Contractor hereby grants NCTA a royalty-free, fully paid, worldwide, perpetual, non-exclusive license to use such Contractor Technology in connection with the Deliverables for NCTA's purposes.
2. Contractor shall not acquire any right, title and interest in and to the copyrights for goods, any and all Software, technical information, specifications, drawings, records, Documentation, data or derivative works thereof, or other work products provided by NCTA to Contractor. NCTA hereby grants Contractor a royalty-free, fully paid, worldwide, perpetual, non-exclusive license for Contractor's internal use to non-confidential Deliverables originated and prepared by the Contractor for delivery to NCTA.
3. The Contractor, at its own expense, shall defend any action brought against the State to the extent that such action is based upon a claim that the Services or Deliverables supplied by the Contractor, or the operation of such Deliverables pursuant to a current version of Contractor-supplied Software,

infringes a patent, or copyright or violates a trade secret in the United States. The Contractor shall pay those costs and damages finally awarded against the State in any such action. Such defense and payment shall be conditioned on the following:

- a. That the Contractor shall be notified within a reasonable time in writing by NCTA of any such claim; and,
 - b. That the Contractor shall have the sole control of the defense of any action on such claim and all negotiations for its settlement or compromise provided, however, that NCTA shall have the option to participate in such action at its own expense.
4. Should any Services or Software supplied by Contractor, or the operation thereof become, or in the Contractor's opinion are likely to become, the subject of a claim of infringement of a patent, copyright, or a trade secret in the United States, NCTA shall permit the Contractor, at its option and expense, either to procure for NCTA the right to continue using the goods/Hardware or Software, or to replace or modify the same to become non- infringing and continue to meet procurement specifications in all material respects. If neither of these options can reasonably be taken, or if the use of such goods/Hardware or Software by NCTA shall be prevented by injunction, the Contractor agrees to take back such goods/Hardware or Software, and refund any sums NCTA has paid Contractor less any reasonable amount for use or damage and make every reasonable effort to assist NCTA in procuring substitute Deliverables. If, in the sole opinion of NCTA, the return of such infringing Deliverables makes the retention of other items of Deliverables acquired from the Contractor under this Contract impractical, NCTA shall then have the option of terminating the Contract, or applicable portions thereof, without penalty or termination charge. The Contractor agrees to take back such Deliverables and refund any sums NCTA has paid Contractor less any reasonable amount for use or damage.
5. Contractor will not be required to defend or indemnify NCTA if any claim by a third-party against NCTA for infringement or misappropriation (i) results from the State's alteration of any Contractor-branded product or Deliverable, or (ii) results from the continued use of the good(s) or Services and Deliverables after receiving Notice they infringe a trade secret of a third-party.
6. Nothing stated herein, however, shall affect Contractor's ownership in or rights to its preexisting intellectual property and proprietary rights.

3.6.4. Tolls Data Ownership and Security

1. All data, records, and operations history information shall remain property of NCTA at all times during the life of the Contract and after Contract termination.
2. The Contractor(s) shall ensure that no unauthorized personnel will have access to individual facilities, cabinets, data and records, payment histories, any personal information of existing or potential NCTA toll customers. Paper records shall be locked when not in use; Systems shall have secure password and ID controls for any data access. Contractor shall comply with the North Carolina Statewide Information Security Manual. Currently found at <http://it.nc.gov/document/statewide-information-security-manual>, as may be amended from time to time throughout the term of the Contract.

3.7. Other General Provisions

3.7.1. Governmental Restrictions

In the event any restrictions are imposed by governmental requirements that necessitate alteration of the material, quality, workmanship, or performance of the Deliverables offered prior to delivery thereof, the Contractor shall provide written notification of the necessary alteration(s) to NCTA. NCTA reserves the right to accept any such alterations, including any price adjustments occasioned thereby, or to cancel the Contract. NCTA may advise Contractor of any restrictions or changes in specifications required by North Carolina legislation, rule or regulatory authority that require compliance by the State. In such event, Contractor shall use its best efforts to comply with the required restrictions or changes. If compliance cannot be achieved by the date specified in the Contract, NCTA may terminate this Contract and compensate Contractor for sums due under the Contract.

3.7.2. Prohibition Against Contingent Fees and Gratuities

1. Contractor warrants that it has not paid, and agrees not to pay, any bonus, commission, fee, or gratuity to any employee or official of the State for the purpose of obtaining any contract or award issued by the State. Contractor further warrants that no commission or other payment was or will be received from or paid to any third-party contingent on the award of any contract by the State, except as shall be expressly communicated to NCTA in writing prior to Acceptance of the Contract or award in question. Each individual signing below warrants that he or she is duly authorized by their respective Party to sign this Contract and bind the Party to the terms and conditions of this Contract. Contractor and their authorized signatory further warrant that no officer or employee of the State has any direct or indirect financial or personal beneficial interest, in the subject matter of this Contract; obligation or contract for future award of compensation as an inducement or consideration for making this Contract. Subsequent discovery by the State of non-compliance with these provisions shall constitute sufficient cause for immediate termination of all outstanding contracts. Violations of this provision may result in debarment of the bidder(s) or Contractor(s) as permitted by State or Federal law.
2. Gift Ban - By Executive Order 24, issued by Governor Perdue, and G.S. § 133-32, it is unlawful for any vendor or contractor (i.e., architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, Subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's cabinet agencies (i.e., Administration, Commerce, Correction, Crime Control and Public Safety, Cultural Resources, Environment and Natural Resources, Health and Human Services, Juvenile Justice and Delinquency Prevention, Revenue, Transportation, and the Office of the Governor). This prohibition covers those vendors and contractors who: (a) have a contract with a governmental agency; or (b) have performed under such a contract within the past year; or (c) anticipate bidding on such a contract in the future. For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review Executive Order 24 and G.S. § 133-32.

3.7.3. Equal Employment Opportunity

Contractor shall comply with all Federal and State requirements concerning fair employment and employment of the disabled and concerning the treatment of all employees without regard to discrimination by reason of race, color, religion, sex, national origin or physical disability.

3.7.4. Inspection at Contractor's Site

NCTA reserves the right to inspect, during Contractor's regular business hours at a reasonable time, upon Notice of not less than two (2) weeks, and at its own expense, the prospective Deliverables comprising Equipment or other tangible goods, or the plant or other physical facilities of a prospective Contractor prior to Contract award, and during the Contract Term as necessary or proper to ensure conformance with the specifications/Requirements and their adequacy and suitability for the proper and effective performance of the Contract.

3.7.5. Advertising / Press Release

The Contractor absolutely shall not publicly disseminate any information concerning the Contract without prior written Approval from the State or its Agent. For the purpose of this provision of the Contract, the Agent is the NCTA Contract Administrator unless otherwise named in the solicitation documents.

3.7.6. Confidentiality

To promote maximum competition in the State competitive bidding process, the State may maintain the confidentiality of certain types of information described in G.S. § 132-1 et. seq. Such information may include trade secrets defined by G.S. § 66-152 and other information exempted from the Public Records Act pursuant to G.S. § 132-1.2. Contractor may designate appropriate portions of its response as confidential, consistent with and to the extent permitted under the Statutes and Rules set forth above, by marking the top and bottom of pages containing confidential information with a legend in boldface type "CONFIDENTIAL". By so marking any page, the Contractor warrants that it has formed a good faith opinion, having received such necessary or proper review by counsel and other knowledgeable advisors that the portions marked confidential meet the Requirements of the Rules and Statutes set forth above. However, under no circumstances shall price information be designated as confidential. The State may serve as custodian of Contractor's confidential information and not as an arbiter of claims against Contractor's assertion of confidentiality. If an action is brought pursuant to G.S. § 132-9 to compel the State to disclose information marked confidential, the Contractor agrees that it will intervene in the action through its counsel and participate in defending the State, including any public official(s) or public employee(s). The Contractor agrees that it shall hold the State and any official(s) and individual(s) harmless from any and all damages, costs, and attorneys' fees awarded against the State in the action. The State agrees to promptly notify the Contractor in writing of any action seeking to compel the disclosure of Contractor's confidential information. The State shall have the right, at its option and expense, to participate in the defense of the action through its counsel. The State shall have no liability to Contractor with respect to the disclosure of Contractor's confidential information ordered by a court of competent jurisdiction pursuant to G.S. § 132-9 or other applicable law.

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

2. Contractor warrants that all its employees and any Approved third-party contractors or Subcontractors are subject to a non-disclosure and confidentiality agreement enforceable in North Carolina. Contractor will, upon request of the State, verify and produce true copies of any such agreements. Production of such agreements by Contractor may be made subject to applicable confidentiality, non-disclosure or privacy laws; provided that Contractor produces satisfactory evidence supporting exclusion of such agreements from disclosure under the N.C. Public Records laws in G.S. § 132-1 et. seq. The State may, in its sole discretion, provide a non-disclosure and confidentiality agreement satisfactory to the State for Contractor's execution. The State may exercise its rights under this subparagraph as necessary or proper, in its discretion, to comply with applicable security regulations or statutes including, but not limited to 26 USC 6103 and IRS Publication 1075, (Tax Information Security Guidelines for Federal, State, and Local Agencies), HIPAA, 42 USC 1320(d) (Health Insurance Portability and Accountability Act), any implementing regulations in the Code of Federal Regulations, and any future regulations imposed upon the Office of Information Technology Services or the N.C. Department of Revenue pursuant to future statutory or regulatory Requirements.
3. Nondisclosure: Contractor agrees and specifically warrants that it, its officers, directors, principals and employees, and any Subcontractors, shall hold all information received during performance of this Contract in the strictest confidence and shall not disclose the same to any third-party without the express written Approval of the State.
4. Contractor shall protect the confidentiality of all information, data, instruments, studies, reports, records and other materials provided to it by NCTA or maintained or created in accordance with this Contract. No such information, data, instruments, studies, reports, records and other materials in the possession of Contractor shall be disclosed in any form without the prior written consent of NCTA. Contractor will have written policies governing access to and duplication and dissemination of all such information, data, instruments, studies, reports, records and other materials.
5. All Project materials, including Software, data, and Documentation created during the performance or provision of Services hereunder that are not licensed to the State or are not proprietary to the Contractor are the property of the State of North Carolina and shall be kept confidential or returned to the State, or destroyed. Proprietary Contractor materials shall be identified to the State by Contractor prior to use or provision of Services hereunder and shall remain the property of the Contractor. Derivative Works of any Contractor proprietary materials prepared or created during the performance of provision of Services hereunder shall be subject to a perpetual, royalty free, nonexclusive license to the State.

3.7.7. Deliverables

Deliverables, as used herein, shall comprise all Hardware, Contractor Services, professional services, Software and provided modifications to the Software, and incidental materials, including any goods, Software or Services access license, data, reports and Documentation provided or created during the performance or provision of Services hereunder. Hardware, Custom Software first requested and developed for the State and other Deliverables not subject to owner licensing or leasing are the property of the State of North Carolina. Proprietary Contractor materials licensed to the State shall be identified to the State by Contractor prior to use or provision of Services hereunder and shall remain the property of the Contractor. Deliverables include "Work Product" and means any expression of Licensor's findings, analyses, conclusions, opinions, recommendations, ideas, techniques, know-how, Designs, programs, enhancements, and other technical information; but not source and object code or Software.

3.7.8. Late Delivery, Back Order

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

3.7.9. Assignment

Contractor may not assign this Contract or its obligations hereunder except as permitted by this paragraph. Contractor shall provide reasonable Notice of not less than thirty (30) Calendar Days prior to any consolidation, acquisition, or merger. Any assignee shall affirm that it will adhere to the terms and conditions of the contract, and that Contractor shall affirm that the assignee is fully capable of performing all obligations of Contractor under this Contract. An assignment may be made, if at all, in writing by the Contractor, Assignee and the State setting forth the foregoing obligation of Contractor and Assignee.

3.7.10. Insurance Coverage

During the term of the Contract, the Contractor at its sole cost and expense shall provide commercial insurance of such type and with such terms and limits as may be reasonably associated with the Contract. As a minimum, the Contractor shall provide and maintain the coverage and limits, as set forth in **Part I, Administrative**, Section 2.21, Insurance Requirements.

3.7.11. Dispute Resolution

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

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

3.7.12. Default

1. In the event any Deliverable furnished by the Contractor during performance of any Contract Term fails to conform to any material requirement of the Contract specifications, Notice of the failure is provided by NCTA and the failure is not cured within ten (10) Calendar Days, or Contractor fails to meet the requirements of **Part V, Terms and Conditions**, Section 3.2, Acceptance Criteria, NCTA may cancel the Contract. Default may be cause for debarment. NCTA reserves the right to require performance guaranties from the Contractor without expense to the State. The rights and remedies of NCTA provided above shall not be exclusive and are in addition to any other rights and remedies provided by law or under the Contract. NCTA allows for ten (10) Calendar Days to rectify a problem and thirty (30) Calendar Days to cure a termination.
2. If Contractor fails to deliver or provide correct Services or other Deliverables within the time required by this Contract, NCTA may provide written Notice of said failure to Contractor, and by such Notice may require payment of liquidated damages as penalty.
3. Contractor will use reasonable efforts to mitigate delays, costs or expenses arising from assumptions in the Contractor's bid documents that prove erroneous or are otherwise invalid.
4. Contractor shall provide a Plan to cure any default if requested by NCTA. The Plan shall state the nature of the default, the time required for cure, any mitigating factors causing or tending to cause the default, and such other information as the Contractor may deem necessary or proper to provide.

3.7.13. Waiver of Default

Waiver by either party of any default or breach by the other Party shall not be deemed a waiver or any subsequent default or breach and shall not be construed to be a modification or novation of the terms of this Contract, unless so stated in a writing and signed by authorized representatives of NCTA and the Contractor, and made as an Amendment in accordance with the terms of this Contract.

3.7.14. Limitation of Contractor's Liability

1. Where Deliverables are under NCTA's exclusive management and control, the Contractor shall not be liable for direct damages caused by NCTA's failure to fulfill any responsibilities of assuring the proper use, management and supervision of the Deliverables and programs, audit controls, operating methods, office procedures, or for establishing all proper checkpoints necessary for NCTA's intended use of the Deliverables.
2. The Contractor's liability for damages to NCTA for any cause whatsoever, and regardless of the form of action, whether in contract or in tort, shall be limited to the total value of the Contract.
3. The foregoing limitation of liability shall not apply to the payment of costs and damage awards referred to in the paragraph entitled "Patent, Copyright, and Trade Secret Protection", to claims covered by other specific provisions calling for liquidated damages or specifying a different limit of liability, or to claims for injury to persons or damage to property caused by Contractor's negligence or willful or wanton conduct. This limitation of liability does not apply to the receipt of court costs or

attorney's fees that might be awarded by a court in addition to damages after litigation based on this Contract.

4. For avoidance of doubt, the parties agree that the liquidated and actual damages provisions and the Warranty Terms set forth in this Contract are intended to provide the sole and exclusive remedy available to NCTA under the Contract for the Contractor's failure to comply with the requirements stated herein.

3.7.15. Contractor's Liability for Injury to persons or Damage to Property

1. The Contractor shall be liable for damages arising out of personal injuries and/or damage to real or tangible personal property of NCTA, employees of NCTA, persons designated by NCTA for training, or person(s) other than Agents or employees of the Contractor, designated by NCTA for any purpose, prior to, during, or subsequent to delivery, installation, Acceptance, and use of the Deliverables either at the Contractor's site or at NCTA's place of business, provided that the injury or damage was caused by the fault or negligence of the Contractor.
2. The Contractor agrees to indemnify, defend and hold NCTA and the State and its Officers, employees, Agents and assigns harmless from any liability relating to personal injury or injury to real or personal property of any kind, accruing or resulting to any other person, firm or corporation furnishing or supplying Work, Services, materials or supplies in connection with the performance of this Contract, whether tangible or intangible, arising out of the ordinary negligence, willful or wanton negligence, or intentional acts of the Contractor, its officers, employees, agents, assigns or Subcontractors, in the performance of this Contract.
3. Contractor shall not be liable for damages arising out of or caused by an alteration or an attachment not made or installed by the Contractor, or for damage to alterations or attachments that may result from the normal operation and Maintenance of the Contractor's goods.

3.7.16. General Indemnity

The Contractor shall hold and save NCTA, its officers, Agents and employees, harmless from liability of any kind, including all claims and losses, with the exception of consequential damages, as normally construed, accruing or resulting to any other person, firm or corporation furnishing or supplying Work, Services, materials or supplies in connection with the negligent performance of this Contract or Contractor's breach of Contract or willful misconduct. The foregoing indemnification and defense by the Contractor shall be conditioned upon the following:

1. NCTA shall give Contractor written Notice within thirty (30) Calendar Days after it has actual knowledge of any such claim(s) or action(s) filed; and
2. The Contractor shall have the sole control of the defense of any such claim(s) or action(s) filed and of all negotiations relating to settlement or compromise thereof, provided, however, that NCTA shall have the option to participate at their own expense in the defense of such claim(s) or action(s) filed.

3.7.17. Changes

This Contract is awarded subject to shipment of quantities, qualities, and prices indicated in the Contract, and all conditions and instructions of the Contract or Proposal on which it is based. Any changes made to this

Contract or purchase order proposed by the Contractor are hereby rejected unless accepted in writing by NCTA. NCTA shall not be responsible for Deliverables or Services delivered other than those specified in the Contract or the Proposal on which it is based.

3.7.18. Time is of the Essence

Time is of the essence in the performance of this Contract. Contractor and NCTA will mutually develop and agree to a schedule of implementation, testing, Maintenance, etc. Contractor and Subcontractors will be required to adhere to the Approved schedule.

3.7.19. Date and Time Warranty

The Contractor warrants that any Deliverable, whether Hardware, firmware, middleware, custom or commercial Software, or internal components, subroutines, and interface therein which performs any date and/or time data recognition function, calculation, or sequencing, will provide accurate date/time data and leap year calculations. This warranty shall survive termination or expiration of the Contract.

3.7.20. Independent Contractors

Contractor and its employees, officers and executives, and Subcontractors, if any, shall be independent Contractors and not employees or Agents of the State. This Contract shall not operate as a joint venture, partnership, employment, trust, authority or any other business relationship.

3.7.21. Transportation

Transportation of Deliverables shall be FOB Destination unless otherwise specified in this RFP. Freight, handling, hazardous material charges, and distribution and installation charges shall be included in the total price of each item. Any additional charges shall not be honored for payment unless authorized in writing by NCTA. In cases where parties, other than the Contractor ship materials against this Contract, the shipper shall be instructed to show the purchase order number on all packages and shipping manifests to ensure proper identification and payment of invoices. A complete packing list shall accompany each shipment.

3.7.22. Notices

Any Notices required under this Contract should be delivered to the Contractor or NCTA. Unless otherwise specified in the Solicitation Documents, any Notices shall be delivered in writing by U.S. Mail, Commercial Courier, by hand or by email.

3.7.23. Titles and Headings

Titles and Headings in this Contract are used for convenience only and do not define, limit or proscribe the language of terms identified by such Titles and Headings.

3.7.24. Amendment

This Contract may not be amended orally or by performance. Any Amendment shall be made in written form and signed by duly authorized representatives of NCTA and Contractor in conformance with Contract requirements.

3.7.25. Taxes

The State of North Carolina is exempt from Federal excise taxes and no payment will be made for any personal property taxes levied on the Contractor or for any taxes levied on employee wages. Agencies of the State may have additional exemptions or exclusions for Federal or State taxes. Evidence of such additional exemptions or exclusions may be provided to Contractor by Agencies, as applicable, during the term of this Contract. Applicable State or local sales taxes shall be invoiced as a separate item and not included in the Price Proposal.

3.7.26. Governing Laws, Jurisdiction and Venue

1. This Contract is made under and shall be governed and construed in accordance with the laws of the State of North Carolina. The place of this Contract or purchase order, its situs and forum, shall be Wake County, North Carolina, where all matters, whether sounding in contract or in tort, relating to its validity, construction, interpretation and enforcement shall be determined. Contractor agrees and submits, solely for matters relating to this Contract, to the jurisdiction of the courts of the State of North Carolina and stipulates that Wake County shall be the proper venue for all matters.
2. Except to the extent the provisions of the Contract are clearly inconsistent therewith, the applicable provisions of the Uniform Commercial Code as modified and adopted in North Carolina shall govern this Contract. To the extent the Contract entails both the supply of "goods" and "Services," such shall be deemed "goods" within the meaning of the Uniform Commercial Code, except when deeming such Services as "goods" would result in a clearly unreasonable interpretation.

3.7.27. Force Majeure

Neither party shall be deemed to be in default of its obligations hereunder if and so long as it is prevented from performing such obligations as a result of events beyond its reasonable control, including without limitation, fire, power failures, any act of war, hostile foreign action, nuclear explosion, riot, strikes or failures or refusals to perform under subcontracts, civil insurrection, earthquake, hurricane, tornado, or other catastrophic natural event or act of God. Force Majeure events shall not otherwise limit NCTA's rights to enforce contracts.

3.7.28. Compliance with Laws

The Contractor shall comply with all laws, ordinances, codes, rules, regulations, and licensing requirements that are applicable to the conduct of its business, including those of Federal, State, and local agencies having jurisdiction and/or authority.

3.7.29. Severability

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

3.7.30. Federal Intellectual Property Bankruptcy Protection Act

The Parties agree that NCTA shall be entitled to all rights and benefits of the Federal Intellectual Property Bankruptcy Protection Act, Public Law 100-506, codified at 11 U.S.C. 365(n) and any amendments thereto.

3.7.31. Ineligible Contractors

As provided in G.S. § 147-86.59 and G.S. § 147-86.82, the following companies are ineligible to contract with the State of North Carolina or any political subdivision of the State: a) any company identified as engaging in investment activities in Iran, as determined by appearing on the Final Divestment List created by the State Treasurer pursuant to G.S. § 147-86.58, and b) any company identified as engaged in a boycott of Israel as determined by appearing on the List of restricted companies created by the State Treasurer pursuant to G.S. § 147-86.81. A contract with the State or any of its political subdivisions by any company identified in a) or b) above shall be void ab initio.

3.7.32. Availability of Funds

Any and all payments to Contractor are expressly contingent upon and subject to the appropriation, allocation and availability of funds to NCTA for the purposes set forth in this Contract. If this Contract is funded in whole or in part by Federal funds, the Agency's performance and payment shall be subject to and contingent upon the continuing availability of said Federal funds for the purposes of the Contract. If the term of this Contract extends into fiscal years subsequent to that in which it is Approved, such continuation of the Contract is expressly contingent upon the appropriation, allocation and availability of funds by the N.C. Legislature for the purposes set forth in the Contract. If funds to effect payment are not available, the Agency will provide written notification to Contractor. If the Contract is terminated under this paragraph, Contractor agrees to take back any affected Deliverables and Software not yet delivered under this Contract, terminate any Services supplied to the Agency under this Contract, and relieve NCTA of any further obligation thereof. The State shall remit payment for Deliverables and Services accepted prior to the date of the aforesaid Notice in conformance with the payment terms.

3.7.33. E-Verify

Pursuant to G.S. § 143-133.3, the State shall not enter into a contract unless the awarded Contractor and each of its Subcontractors comply with the E-Verify Requirements of N.C. General Statutes, Chapter 64, Article 2. Contractors are directed to review the foregoing laws. Any awarded Contractor shall submit a certification of compliance with E-Verify to the awarding agency, and on a periodic basis thereafter as may be required by the State.

3.7.34. Historically Underutilized Businesses

Pursuant to N.C.G.S. §§ 143-48 and 143-128.4 and any applicable Executive Order, the State of North Carolina and NCTA invites and encourages participation in this procurement process by businesses owned by minorities, women, disabled, disabled business enterprises and non-profit work centers for the blind and severely disabled. Additional information may be found at: <http://ncadmin.nc.gov/businesses/hub/>.

3.7.35. No Waiver

Notwithstanding any other language or provision in the Contract, nothing herein is intended nor shall be interpreted as a waiver of any right or remedy otherwise available to NCTA under applicable law. The waiver

by NCTA of any right or remedy on any one occasion or instance shall not constitute or be interpreted as a waiver of that or any other right or remedy on any other occasion or instance.

3.7.36. Entire Agreement

This RFP and any documents incorporated specifically by reference represent the entire agreement between the parties and supersede all prior oral or written statements or agreements. This RFP, any addenda hereto, and the Contractor's Proposal Documents are incorporated herein by reference as though set forth verbatim.

All promises, Requirements, terms, conditions, provisions, representations, guarantees, and warranties contained herein shall survive the contract expiration or termination date unless specifically provided otherwise herein, or unless superseded by applicable Federal or State statutes of limitation.

3.7.37. Sovereign Immunity

Notwithstanding any other term or provision in the Contract, nothing herein is intended nor shall be interpreted as waiving any claim or defense based on the principle of sovereign immunity or other State or Federal constitutional provision or principle that otherwise would be available to NCTA under applicable law.