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Project Implementation Schedule

Exhibit A: Project Implementation Schedule		
Major Milestone Description	Projected Start	Projected End
TISDSR Design & Implementation Phase		
Notice to Proceed (NTP)	February 2025	--
Project Kickoff Meeting	February 2025	--
Project Planning Documentation (Ex: Project Management Plan, Quality Management Plan, Project Communication Plan, System Architecture, etc.) <i>*For a list of all required documentation, reference RFP Part III, Section I.3.1.</i>	--	40 Calendar Days after NTP
TISDSR Design & Implementation	Est. 94 Week Total Duration	
Iteration 1 – Account Management (Iterative Build/Test/Deploy)	Est. 12 Week Duration	
Iteration 2 – Account Assets (Iterative Build/Test/Deploy)	Est. 12 Week Duration	
Iteration 3 – Payment Processing (Iterative Build/Test/Deploy)	Est. 12 Week Duration	
Iteration 4 – Customer Financials (Iterative Build/Test/Deploy)	Est. 12 Week Duration	
Iteration 5 – Transaction and Image Transfer (Iterative Build/Test/Deploy)	Est. 12 Week Duration	
Iteration 6 – Customer Notifications (Iterative Build/Test/Deploy)	Est. 12 Week Duration	
Backlog clean-up	Est. 12 Week Duration	
Remaining Manual API Testing (MAT), Automated API Testing (AAT), and User Acceptance Testing (UAT)	Est. 10 Week Duration	
System Acceptance	--	10 Calendar Days after NCTA Approval of all iterations, backlog cleanup, and remaining testing
TISDSR Maintenance Phase	Upon System Acceptance	Optional two (2) two (2) year extensions

Exhibit B-I

Price Proposal Instructions

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I GENERAL INSTRUCTIONS

Proposers shall complete their Price Proposals in accordance with the following instructions:

1. The Price Proposal Forms are provided in Excel format worksheets for ease of completion and checking. The Excel version of the Price Proposal Forms is 'paper-clipped' to this Exhibits file.
2. Proposers shall submit their Price Proposals on the Price Proposal Forms included in RFP, **Exhibit B-2**. Price Proposals shall be sealed and submitted separate from the Technical Proposal as further instructed in the RFP. Price Proposals shall be submitted in the quantities and manner identified in the RFP.
3. The Price Proposal Forms shall constitute the full and complete Price Proposal for compensation for performance of the Contractor's obligations and Work under Digital Transformation & Modernization Project.
4. Proposers must complete the Price Proposal Forms in their entirety. The Price Proposal Forms for the Project are as outlined in **Table I** below.
5. Proposers should not fill in any grayed-out cells on the Price Proposal Forms, nor shall Proposers make any other entry on or alteration to the Price Proposal Forms other than in accordance with these Price Proposal Instructions.
6. NCTA may waive or correct any error appearing in a Proposer's completed Price Proposal Forms if the correct amount can be clearly ascertained from the information provided; however, NCTA is under no obligation to do so. In the event of an inconsistency between the amount stated in numbers and the amount stated in written words, the amount stated in written words will control. In the event of a mathematical miscalculation, the correct sum will control.
7. An officer of the Proposer or an individual otherwise authorized in writing by an officer of the Proposer must sign and date Sheet A (Project Summary) in the appropriate place as identified; Row 31.
8. All elements of the Price Proposal must be completed. If zero quantities are included for a line item in the Proposal, a zero must be entered into the corresponding cell. In addition, all items identified by NCTA in the Price Proposal Forms will be assumed to be included in the Price Proposal.
9. NCTA reserves the right to reject Price Proposals that are not completed in accordance with the instructions set forth herein.
10. Instructions for completion of each of the Price Proposal Forms are provided in Sections 2 through 8 below.
11. No price escalation will be allowed above the costs provided on the Price Proposal Sheets to complete this Work except as set forth in Section 8.
12. The Price Proposal shall be inclusive of all costs, fees and applicable taxes needed to meet the requirements of the RFP, included in **Part III, Scope of Work and Requirements** for the TISDSR. Implementation pricing should be entered in 2025 dollar values. Maintenance labor costs should be entered in 2025 dollar values. No price escalation will be allowed above the costs provided on the Price Proposal Forms to complete the Work, with the exception of the Sheet F (Annual Escalation) as specifically identified herein.

2 INSTRUCTIONS ON COMPLETING THE PRICE PROPOSAL FORMS

1. **Table I** below summarizes the Price Proposal forms that shall be completed by all Proposers. Each form is located on a unique sheet in an Excel workbook. The table provides the following information for each form:
- The sheet identifier (e.g. A, B, C, C-1, etc.)
 - The sheet title on both the sheet tab and listed at the top of each sheet.

Table I – Price Proposal Form Summary

Sheet	Sheet Title
A	Project Summary
B	Labor Rates
C	Design Implementation Phase
C-1	Account Management Staff
C-2	Accounts Assets Staff
C-3	Customer Financials Staff
C-4	Payment Processing Staff
C-5	Transaction and Image Staff
C-6	Customer Notification Staff
D	Maintenance Phase
D-1	Maintenance Phase Staff
E	Pass-Through Costs
F	Annual Escalation

- The Price Proposal Forms are password protected and shall not be unlocked by Proposers. Only in the unlocked cells may the Proposers enter data.
- On most sheets, there are formulas that are automatically calculated based on data entered from elsewhere in the sheet or workbook. Font and background colors are used to indicate different types of cells as follows:
 - White, green, black or gray-colored cells – Indicates the cell cannot be altered by Proposer.
 - Light, yellow-colored cells – Indicates the Proposer should enter data.
 - Light green background – Indicates that data has been entered into the cell. The background for any cells where the Proposer enters zero (0) will not change colors in this manner.
- While NCTA has made every effort to ensure the Price Proposal Forms contain accurate formulas and calculation, Proposers are required to independently verify that formulas and calculations are being performed correctly.

3 TOTAL PROJECT COSTS – SHEET A

The Proposer’s proposed total price shall be the aggregate of all costs included in Sheets C through Sheet E. Sheet A (Project Summary) will automatically roll-up and present the totals from Sheet C through Sheet E. Sheet A will automatically provide totals for the base contract for the TISDSR Design and Implementation Phase, the Maintenance Phase, and all of the preliminary pass-through costs from Sheet E.

Note: In Sheet A, the price provided in Column C, Row 28 will be the price that NCTA uses for Price Proposal scoring. See RFP **Part I Administrative**, Section 4.5 for price review and scoring details.

4 LABOR RATES – SHEET B

The Proposer shall complete Sheet B (Labor Rates) prior to entering information into any other sheet. Sheet B will drive the labor rates present in Sheets C-1 through C-6 and Sheet D-1. Any roles that are not pre-loaded into Sheet B can be added in Column C, Rows 30 through 43 and will be propagated to Sheets C-1 through C-6 and Sheet D-1.

5 COMPLETION OF SHEETS C-1 THROUGH C6 AND D1

Sheets C-1 through C-6 will provide resource cost totals for Sheet C (Design Implementation Phase). Sheet D-1 will provide resource cost totals for Sheet D. In Sheet D-1, hours for each role are to be entered in Column E (Onsite Hours) and Column H (Offsite Hours).

6 COMPLETION OF SHEETS C AND D

The completion of Sheet B and Sheets C-1 through C-6 will automatically populate Sheet C, Column C, Rows 18 through 28. The Proposer must enter costs into Column C, Rows 3 through 12, and 32 through 42 for each of the acceptance deliverables listed in the corresponding rows in Column B.

Sheet D, Column G, Row 5 will be populated once Sheet D-1 is completed. The Proposer must enter the monthly system maintenance cost in Column G, Row 4 in order to generate a total in Column H, Row 6. Column F represents one two-year extension.

7 COMPLETION OF SHEET E – PASS THROUGH COSTS

The Proposer will complete Column D, Column E and Column G in Sheet E. Column F represents three years of licensing for the entirety of the base contract. Column H will automatically calculate total once values are entered into Column G.

Assumptions: For the database, the Proposer shall price instances for two environments (Production and Reporting). Please refer to **Table 2** below for sizing. All other licenses and pass-through costs should be based on the Proposer’s solution.

Table 2: Environment Sizing

ENVIRONMENT	SIZING
Production – Database and Storage	vCPU 16 cores, SSD - 20TB, Blob Storage 200TB
Reporting - Database and Storage	vCPU 16 cores, SSD 20TB

8 ANNUAL ESCALATION – SHEET F

Proposer shall provide an annual escalation rate for each year of the Maintenance Phase. Annual escalation applies only to Maintenance Phase prices. Each escalation is based on the previous year. For example, 1% increase from year one to year two, 1% increase from year two to year three, etc.

Provide an escalation rate for all Maintenance Phase pricing, one rate for each year for years one through two. Proposers to enter escalation rate in form of a decimal. Each escalation is based on the previous year.

Exhibit B-2

Price Proposal Forms

(An Excel version of the Price Proposal Forms is “paper clipped” to this Exhibits file for completion.)

Exhibit C-I

Proposal Cover Sheet

(A Word version of the Proposal Cover Sheet is “paper clipped” to this Exhibits file for ease of completion.)

**NORTH CAROLINA TURNPIKE AUTHORITY
DIGITAL TRANSFORMATION & MODERNIZATION
REQUEST FOR PROPOSALS**

EXECUTION: In compliance with this Request for Proposal, and subject to all the conditions herein, the undersigned offers and agrees to furnish any or all Services or goods upon which prices are offered, at the price(s) offered herein, within the time specified herein. By executing this offer, I certify that this offer is submitted competitively and without collusion.

Failure to execute/sign offer prior to submittal shall render Proposal invalid. Late offers are not acceptable.

BIDDER:		
STREET ADDRESS:	P.O. BOX:	ZIP:
CITY & STATE & ZIP:	TELEPHONE NUMBER:	TOLL FREE TEL. NO:
PRINT NAME & TITLE OF PERSON SIGNING:	FAX NUMBER:	
AUTHORIZED SIGNATURE:	DATE:	E-MAIL:

Offer valid for one hundred and eighty (180) calendar days from Proposal Due Date.

Exhibit C-2

List of Subcontractors and RS-2 Form

(PDFs of all forms are presented below. A fillable PDF of the RS-2 Form and a Word version of the List of Subcontractors Form are both “paper clipped” to this Exhibits file for ease of completion.)

Please duplicate this page as necessary to provide the requested information.

	SUBCONTRACTOR	SUBCONTRACTOR	SUBCONTRACTOR
Legal Name of Company			
Company's FEID Number			
Company Contact Name			
Company Address			
City, State, Zip Code			
Company Telephone No.			
Company Fax Number			
Company E-mail address			
Legal Name of Principal(s)			
Address of Principal(s)			
City, State, Zip Code			
Telephone No. of Principal(s)			
Fax Number of Principal(s)			
E-mail address of Principal(s)			
Corporate Number (if applicable)			
License Number (if applicable)			
Status of License (if applicable)			
Work to be Performed			
Expected Percentage of Total Work			

By: _____
 President or Vice President

Signature: (1) _____

Attest: _____
 Secretary (or Assistant Secretary)

Signature: (2) _____

(Affix Corporate Seal)

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
SUBCONSULTANT
TO BE USED WITH PROFESSIONAL SERVICES CONTRACT ONLY
RACE AND GENDER NEUTRAL**

TIP No. and/or Type of Work (Limited Services)

(Consultant/Firm Name and Federal Tax Id)

(Subconsultant/Firm Name and Federal Tax Id)

SERVICE / ITEM DESCRIPTION	Anticipated Utilization
	TOTAL UTILIZATION:
SUBMITTED BY: SUBCONSULTANT:	RECOMMENDED BY: CONSULTANT:
*BY:	*BY:
TITLE:	TITLE: <input style="width: 50px;" type="text"/>
SPSF Status: Yes <input type="checkbox"/> No <input type="checkbox"/>	

“SUBCONCONSULTANT” (FORM RS-2)
RACE AND GENDER NEUTRAL

Instructions for completing the Form RS-2:

1. Complete a Subconsultant Form RS-2 for each Subconsultant firm to be utilized by your firm.
2. Insert TIP Number and /or Type of Work (Limited Services)
3. Complete the Consultant/Firm name and Federal Tax ID Number for the primary firm information.
4. Complete the Subconsultant/Sub Firm name and Federal Tax ID Number for the sub firm information.
5. Enter Service/Item Description – describe work to be performed by the Sub Firm
6. Enter Anticipated Utilization – Insert dollar value or percent of work to the Subconsultant/Sub Firm
7. *Signatures of both Subconsultant and Prime Consultant **are required** on each RS-2 Form to be submitted with the Letter of Interest (LOI) to be considered for selection
8. Complete “SPSF Status” section - Subconsultant shall check the appropriate box regarding SPSF Status, check Yes if SPSF or No if not SPSF

In the event the firm has **no** subconsultant, **it is required that this be indicated on the Subconsultant Form RS-2 form by entering the word “None” or the number “ZERO” and signing the form.**

Exhibit C-3

Recent Client List

(A Word version of the Recent Client List is “paper clipped” to this Exhibits file for ease of completion.)

Exhibit C-4

Proposer Company Reference Form

(A Word version of the Proposer Company Reference Form is “paper clipped”
to this Exhibits file for ease of completion.)

Proposer Minimum Experience in one of the following industries related to the RFP Scope of Work & Requirements: *Transportation/Tolling, Telecommunications, Financial, or Healthcare*

Proposer shall use this form to clearly demonstrate how it meets the minimum qualification requirements for Proposals with regard to API development and integration / Tolling Integration Services and Data System of Record (TISDSR) project experience. Each reference provided may or may not be contacted by NCTA to obtain more information about the Proposer experience at NCTA sole discretion. *Copy this form as needed to comply with the requirements outlined in the RFP.

Proposer's Name: _____

Please check off which qualifications requirement this reference is intended to address (you may check more than one box to cover both Design & Implementation and Operations & Maintenance as long as the explanation below is sufficiently detailed to cover both).

Design & Implementation

Operations & Maintenance

Reference Company/Agency Name:	
Address:	
City:	State: Zip Code:
Phone Number:	Fax Number:
Project Manager Reference:	
E-mail:	
Alternate Reference*:	
Phone Number:	Fax Number:
E-mail:	
Alternate Reference Role on Reference Project:	
*Must be completed in addition to the Project Manager reference	
Proposer's role on project and years of participation (mm/dd/yy to mm/dd/yy):	

Project location, scope, cost, start / end dates:
Design development of system APIs and integration with external systems:
Relevant software and solutions:
Comparison to NCTA requirements:
Installed System and Operations and Maintenance documented performance, as applicable:
Key Personnel involved and role who are also proposed on NCTA project:

Exhibit C-5

Proposer Questions Form

(A Word version of the Proposer Questions Form is “paper clipped” to this Exhibits file for ease of completion.)

Proposer Questions					
#	Page	Section	Section Description	Proposer Question	NCTA Response
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					

Exhibit C-6

Non-Collusion Forms

(Please complete a single form that is applicable to your firm structure. Fillable PDFs of the form are “paper clipped” to this Exhibits file for ease of completion.)

Exhibit C-7

Acknowledgement of Receipt of Addenda

(A Word version is “paper clipped” to this Exhibits file for ease of completion.)

ACKNOWLEDGEMENT OF RECEIPT OF ADDENDA

The Proposer shall acknowledge receipt of each addendum to this Request for Proposal by completing this form and including same in the Technical Proposal.

<u>Addenda</u>	<u>Date</u>	<u>By</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Failure to confirm receipt of addenda may result in rejection of the Proposer’s Proposal.

Dated _____, 2024

Legal Name of Firm

By _____
Signature

Title

NOTE: Attach additional pages as necessary

Exhibit C-8

Bill of Materials

(A Word version of the Bill of Materials is “paper clipped” to this Exhibits file for ease of completion.)

The below table is a Bill of Materials template for Proposers to use as a basis.

Note: If additional columns or rows are needed, please update as applicable.

SI. No	CORE COMPONENTS DETAILS	Minimum Quantity	Licensing Unit	No of Licensing unit proposed	No of concurrent users supported against one licensing unit	Make/ Model	Remarks (if any)
A	New Application Development Enterprise Level Licensed Component and System Software						
1	Database	As proposed					
2	API Gateway Solution	As proposed					
3	Containerization Solution(s)	As proposed					
4	Orchestration Solution	As proposed					
5	Service Discovery & Registration Solution	As proposed					
6	CI/CD Solution	As proposed					
7	Monitoring Solution(s)	As proposed					
8	Identity and Access Management Solution	As proposed					
9	Security Software	As proposed					
B	System Hardware Networking Equipment						
1	Database Server(s)	As proposed					

Sl. No	CORE COMPONENTS DETAILS	Minimum Quantity	Licensing Unit	No of Licensing unit proposed	No of concurrent users supported against one licensing unit	Make/ Model	Remarks (if any)
2	Load Balancer	As proposed					
3	Application Firewall	As proposed					
4	Application Server(s)	As proposed					

Exhibit C-9

Requirements Traceability Matrix

(An Excel version of the Requirements Traceability Matrix is “paper clipped” to this Exhibits file for completion.)

Exhibit C-9: Instructions for Completing Requirements Traceability Matrix	
1)	The Matrix covers each of the requirements set forth in RFP Part III, Scope of Work and Requirements.
2)	Proposers shall not alter the requirements listed in the Requirements Traceability Matrix in any way and must use the workbook provided. The Proposer shall submit both a PDF version and Excel version of the completed matrix. See RFP Part IV, Section 1.1.E.9 for further submission info.
3)	The following are instructions for completion of the Requirements Traceability Matrix worksheet (Tab 2):
a)	There are four (4) columns listed in Tab 2 as follows:
i.	Requirement No. (Column A): A sequential number that matches the requirement number in the Requirements found in RFP Part III, Scope of Work and Requirements.
ii.	Requirements (Column B): A description of each requirement.
iii.	Technology Stack (Column C): Proposer must list the technology stack name / description for each Requirement.
iv.	Comments (Column D): If a Proposer is not complying with a particular requirement, this field must be completed to elaborate non-conformance in order to explain why the Proposer is not complying to that requirement. Additionally, a Proposer may leave a comment if it's necessary to elaborate conformance for a particular requirement.

Requirement No.	Requirements	Technology Stack	Comments
		Technology Name / Description	Comment required if there's a non-conformance, optional otherwise.
1	The Contractor shall propose the Project Management Lifecycle and SDLC they will follow and provide details regarding release schedules, milestones, meetings, and other concerns. Both the Contractor and NCTA must agree upon the overall approach.		
2	Under the direction of NCTA, the Contractor shall manage the planning, implementation, and management of all aspects of the Project. The Contractor shall be responsible for coordinating its activities with NCTA and other stakeholders, which are directly or indirectly impacted by the TISDSR Implementation, and other entities as directed by NCTA. The Contractor shall also be responsible for documenting and reporting on all aspects of the Implementation.		
3	The Contractor shall be responsible for monitoring progress of the work throughout the duration of the contract, and also be prepared, on any day of the Contract, to show progress to NCTA on demand. The same management procedures, protocol and requirements shall apply to all work in this contract.		
4	Execute the work in accordance with the approach Approved by NCTA and other plans developed pursuant to the Contract.		
5	Prosecute all work required to deliver the products and systems.		
6	Manage the development and implementation of the work by assuring that all phases of the plan and schedule are accomplished without any delays, problems, or re-work. Delays due to changes both within and outside the Contractor's control shall require the prior Approval of NCTA.		
7	Administer the Contract by establishing and maintaining effective communication with all groups related to the TISDSR Implementation, as per the Project Communications Plan.		
8	Communicate the Scope of Work and Requirements to Contractor's staff and Subcontractors.		
9	Direct and coordinate activities to ensure that work progresses efficiently and is completed on schedule and within budget at the level of quality expected by NCTA.		
10	Collaboration on core elements of the system design, the system design and development process, and coordination with other stakeholders.		
11	Review of key aspects of the initial Project Management Plan, the initial Implementation Schedule, the Subcontractor Management Plan, Quality Management Plan, Project Communications Plan, and any other early coordination as required by NCTA.		
12	The following roles shall be identified as Key Personnel throughout the term of the Contract: <u>NCTA shall not be responsible for any travel or related expenses borne by Contractor.</u>		
	<ul style="list-style-type: none"> Project Principal: Responsible for the overall conduct and performance of the Implementation; oversight of the Implementation; the performance of the Contractor Project Manager and a point of contact for any escalated issues that cannot be resolved by the Contractor Project Manager. 		
	<ul style="list-style-type: none"> Contract Project Manager: Responsible for all day-to-day work; the overall execution and delivery of the Implementation and the day-to-day contact person for the Contractor. The assigned Contract Project Manager shall have decision making authority for the Contractor (e.g. related to system changes or Approval of budgets/costs for change requests) regarding the design, development, testing, implementation and maintenance of the system. The Contract Project Manager shall be 100% committed to this Implementation, shall work in the Raleigh-Durham area, and have at least 5 recent years of relevant experience. Information provided within the Contract Project Manager's resume shall demonstrate their background, knowledge, competence and experience in all areas of the Scope of Work. 		
	<ul style="list-style-type: none"> Lead Business Analyst: Responsible for all requirements gathering, interaction with NCTA business stakeholders, interfaces with software development team to communicate business requirements into system requirements. The assigned Lead Business Analyst shall be 100% committed to this Implementation, work in the Raleigh-Durham area, and have at least 5 recent years of relevant experience. Information provided within the Lead Business Analyst's resume shall demonstrate their background, knowledge, competence and experience in requirements gathering, client interaction and developing system requirements. 		
	<ul style="list-style-type: none"> Solution Architect: Responsible for the architecture, design and consultation for the development team for the Tolling Integration Service and Data System of Record (TISDSR) system (including subsystems, and internal and external interfaces). The assigned Solution Architect shall be 100% committed to this Implementation and have at least 7 years of relevant experience. Information provided within the Solution Architect's resume shall demonstrate their background, knowledge, competence and experience in managing and developing software solutions. 		
13	<ul style="list-style-type: none"> Product Owner: Responsible for the overall planning and implementation of the TISDSR testing program. Also responsible for integration and installation of the TISDSR. 		
	<ul style="list-style-type: none"> Quality Assurance Manager: Responsible for consistent quality throughout the design, development, testing and implementation of the TISDSR through good QA and QC practices. 		
	Special requirements for the following Key Personnel roles: <ul style="list-style-type: none"> The Contract Project Manager, and Lead Business Analyst shall be 100% allocated to this Project and work in Raleigh-Durham area throughout the term of the Contract. The Solution Architect is required to work full time in Raleigh during the design portions of the Implementation Phase of the project. Full time in this context is defined as being 100% dedicated to the Project and working at least four days in a given work week on site in Raleigh. Note: NCTA will provide office space for up to 6-8 resources.		
14	The Contract Project Manager, Lead Business Analyst, and Solution Architect shall attend weekly status meetings in Raleigh, and other meetings as requested by NCTA.		
15	Other Key Personnel shall attend meetings via Teams or other conference tools agreed by NCTA and travel to the Raleigh metropolitan area as requested by NCTA during their active portions of the contract.		
16	NCTA shall have the right to request a replacement of Key Personnel at any time during the duration of Contract.		
17	In cases where a person identified as Key Personnel leaves the Contractor's team, becomes incapacitated, perishes, or fails to meet expectations, the Contractor shall first gain Approval and permission in writing from NCTA prior to making any proposed changes in personnel.		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
18	Implementation Schedule and Progress Schedules – The Contractor shall coordinate with NCTA on the development of an Implementation Schedule, using Microsoft Project, in adequate detail to coordinate and control all activities. The schedule shall also be used to notify NCTA of all Contractor(s) activities, but also able to be rolled up into a summary version for weekly status updates without unnecessary detail. The summary schedules are to be used in the progress meetings to show work progress and plan work necessary to meet the next major milestones.		
19	The Contractor shall coordinate with NCTA to agree on the contents, and the logic of the Implementation Schedule in order to baseline the schedule within forty (40) Calendar Days of receiving NTP.		
20	Once the Implementation Schedule has been baselined and Approved by NCTA, the schedule shall become part of the Contract, and the Contractor shall report all progress against the baseline schedule.		
21	The Contractor shall be responsible for monitoring and updating the Implementation Schedule, and reporting progress of the work throughout the duration of the Contract.		
22	The Contractor shall be responsible for updating and submitting the Implementation Schedule bi-weekly for NCTA's review and Approval. Once Approved by NCTA, the newly Approved schedule shall become part of the Contract, superseding the previously Approved schedule.		
23	Submission of the bi-weekly revisions to the Implementation Schedule shall not release or relieve the Contractor from full responsibility for completing the work within the time set forth in the previously Approved schedule.		
24	NCTA's Approval of the Implementation Schedule does not relieve the Contractor from any liability for Liquidated Damages.		
25	To accommodate NCTA's review of the Implementation Schedule, the Contractor shall submit all files in native and Portable Document Format (PDF) formats.		
26	The planning, design, installation, and completion of the work shall be undertaken and completed in accordance with the most recent Implementation Schedule accepted by NCTA.		
27	The Contractor shall use all practical means to conform fully to the activities and dates shown on the Approved Implementation Schedule. If the Contractor fails to continue to meet the Implementation Schedule, the Contractor will take whatever steps necessary to bring the work back on schedule at no additional cost to NCTA.		
28	The Contractor shall promptly report to NCTA all schedule and progress-related delays.		
29	The Contractor shall have a maximum of ten (10) Calendar Days to alert NCTA of the possibility of a missed milestone. If the Contractor is aware or should have been aware of a possible delay, they must notify NCTA in writing and propose a mitigation strategy to bring the work back on track.		
30	In the event of any schedule delay, the Contractor shall develop a revised schedule for NCTA's review and Approval. The Contractor must submit the revised schedule to NCTA immediately for review and Approval following the identification of a delay.		
31	If a schedule slip occurs due to circumstances beyond the Contractor's control, the Contractor shall notify NCTA and submit a revised Implementation Schedule within five (5) Business Days of being made aware of the schedule slip. Any failure or delinquency in submission of the schedule shall be treated as default on the part of the Contractor.		
32	All documentation the Contractor submits shall be in English, unless otherwise dictated by NCTA, and ensure NCTA's ability to understand the system solution.		
33	Document Retention - The Contractor shall maintain current versions of all required documentation electronically. The Contractor shall keep the documentation on NCTA SharePoint per the NCTA retention requirements.		
34	All documentation shall be maintained utilizing Microsoft Office tools. All documentation shall be maintained on a secure SharePoint site, to be designated by NCTA, for the duration of the Contract.		
35	Each document produced for the TISDSR shall contain a title sheet, table of contents, list of illustrations (if applicable), revision log, and list of reference drawings (if applicable).		
36	The Contractor shall ensure the standard for all documentation it produces during the term of the contract is sufficient to enable continued operations and maintenance of NCTA toll facilities in case of early termination of the Contractor.		
37	Should any documents reference other documents, the Contractor shall ensure all cross references are kept up to date and accurate throughout the term of the Contract.		
38	All drawings, graphs, plans, charts, illustrations, etc. shall be produced using computer aided drafting software (e.g. Microsoft Visio). Hand-written drawings shall not be acceptable.		
39	The Contractor shall keep accurate records of as-built drawings, diagrams and documents, including any deviations from original.		
40	The Contractor shall be responsible for producing a master record index of all documentation, utilizing current version numbers of all documentation, and keeping the index up to date throughout the Contract readily available on the NCTA provided SharePoint site.		
41	The content of all documentation shall become the property of NCTA who shall have the right to reproduce any portion of the documentation in part or in whole.		
42	Proposer and Contractor logos, confidentiality marks or other such markings shall not be included on any documentation or deliverables developed for NCTA, for any phase, without prior Approval obtained from NCTA in writing.		
43	The Contractor shall develop and submit to NCTA for review and Approval a Project Management Plan (PMP) per the Implementation Schedule.		
44	The Contractor shall be responsible for keeping the PMP up to date after significant changes to internal processes and/or procedures, the departure of key staff members or as requested by NCTA. Unless directed otherwise by NCTA, the Contractor shall update the PMP annually for NCTA's review and Approval.		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
45	The PMP shall describe the approach to management of the overall Project.		
46	The Contractor shall include a description of their deliverable management processes and procedures in the PMP.		
47	The Contractor shall develop and provide a schedule, subject to NCTA Approval, for all deliverables including Standard Operating Procedures (SOPs).		
48	The Contractor shall be responsible for submitting all deliverables required by NCTA for NCTA's review, comment and Approval.		
49	The Contractor must have NCTA's Approval on all deliverables tied to milestone payments before payment is released by NCTA. NCTA shall have the ultimate determination as to whether or not a deliverable is Approved and final.		
50	Once the Contractor submits a deliverable for NCTA's review, NCTA may perform a cursory review of the deliverable to determine if the deliverable meets NCTA's requirements. NCTA may reject any deliverable if content is missing, the deliverable is incomplete, or NCTA determines the deliverable is unsatisfactory. Should NCTA reject a deliverable, NCTA will notify the Contractor in writing. Rejection of an incomplete deliverable shall be considered a Contractor-generated delay.		
51	The Contractor shall account for enough time in their development schedule to allow NCTA one (1) ten (10) Business Day review cycle, as well as allowing time for the Contractor's revision, on every deliverable. Multiple, simultaneous submittals by the Contractor to NCTA may extend NCTA's review times.		
52	To organize NCTA comments back to the Contractor, the Contractor shall provide NCTA with an empty comment matrix with each submittal. The comment matrix shall be used to track all open comments, as well as document final resolutions to comments until the deliverable is Approved.		
53	Once comments are received by NCTA, the Contractor shall be responsible for updating the deliverable to address any unresolved comments submitted by NCTA.		
54	When the Contractor has addressed all NCTA comments and produced a new version of the document, the Contractor shall then be responsible for coordinating with NCTA to schedule a final document review and comment resolution meeting. The Contractor shall ensure all key decision makers and subject matter experts for their system are available during the meeting so that all remaining open comments can be resolved. The Contractor shall then be responsible for producing and submitting a final document for NCTA's review and Approval.		
55	The Contractor must receive NCTA's written Approval of any document prior to the Contractor proceeding with any work related to the document, unless NCTA provides prior written authorization.		
56	If NCTA requests corrections or improvements to submitted deliverables, the Contractor shall resubmit the documentation and deliverables until such time as NCTA accepts the deliverable. Time required to resubmit and Approve any deliverable shall be considered a delay caused by the Contractor.		
57	Deviations from the requirements set forth in the Contract that may be contained within the Contractor's submitted deliverables, even if Approved by NCTA, shall not modify any requirement set forth in the Contract. Only formal requests to NCTA, from the Contractor, for changes that are formally Approved by NCTA shall modify the requirements set forth in the Contract.		
58	NCTA is not obligated to Approve any request of milestone payment if the associated document(s) or deliverable(s) do not reflect the requirements of the RFP, design documents or the Contract requirements. The Contractor shall request written Approval from NCTA for deliverables and activities related to payment milestones.		
59	The Contractor shall develop a Quality Management Plan (QMP) covering all aspects of the work. The QMP shall outline the Contractor's internal Quality Control (QC) and Quality Assurance (QA) procedures during all phases of the Implementation. The Contractor shall be responsible for the quality of all services and performance related to the design of the TISDSR throughout the duration of the Contract.		
60	The Contractor shall publish all internal documentation and processes related to its quality management procedures and processes on the NCTA designated SharePoint site.		
61	The Contractor's QMP shall acknowledge that all deliverables and design documents shall be prepared in accordance with generally accepted practices for these types of services and the Contract.		
62	The Contractor shall develop and submit a Project Communications Plan for NCTA's review and Approval. The plan shall address all communications, including formal and informal communications.		
63	The Communications Plan shall address all aspects of coordination with NCTA, its consultants, and other third parties as directed by NCTA.		
64	The Contractor, and its representatives, shall ensure an Approved NCTA representative is copied on, or apprised of, all communications with third parties regarding the TISDSR.		
65	The plan shall detail the Contractor's contact information and communication escalation plans in the event that the main contact is unavailable or unresponsive.		
66	If applicable, the Contractor shall be responsible for delivering a Subcontractor Management Plan for NCTA's review and Approval. This plan shall describe the Contractor's approach to managing Subcontractors they propose to deliver the Scope of Work detailed in this RFP. At a minimum, this plan should include:		
	• Percentage of work covered by each proposed Subcontractor, and the number of staff proposed.		
	• List the key personnel and/or Project Manager for each Subcontractor, as well as their contact information.		
	• Indication of each area each Subcontractor shall be responsible for reporting/delivering.		
	• Dispute resolution process between the Contractor and its Subcontractors.		
67	• Description of how the Contractor will ensure Subcontractor Deliverables are produced on time with quality.		
	The Contractor shall be responsible for delivering a Software Development Plan for NCTA's review and Approval. This plan shall describe the Contractor's approach to system development they propose utilizing to deliver the Scope of Work detailed in this RFP.		

Requirement No.	Requirements	Technology Stack	Comments
		Technology Name / Description	Comment required if there's a non-conformance, optional otherwise.
68	The Contractor shall be responsible for outlining and documenting Business Continuity / Disaster Recovery Architecture for NCTA's review and Approval. The architecture shall describe the Contractor's approach to business continuity and disaster recovery, including disaster recovery procedures, in a cloud-based environment should an event occur that disables or disrupts the TISDSR.		
69	The Contractor shall provide a Maintenance Plan to organize planned maintenance, upgrades, and data management services for the Contractor's system consistent with NCTA's Business and Functional Requirements. The Maintenance Plan shall include at a minimum:		
	<ul style="list-style-type: none"> Planned software and hardware upgrades and maintenance schedules 		
	<ul style="list-style-type: none"> Update test cases: As APIs evolve, both manual and automated tests should be updated. 		
	<ul style="list-style-type: none"> Refactor automation: Make sure the automation scripts are optimized and reliable, focusing on maintaining them as the API changes over time. 		
	<ul style="list-style-type: none"> Monitor for failures: Especially with automated tests in production, monitor for failures or anomalies that might need manual investigation. 		
70	The Contractor shall provide a plan for and actively transfer knowledge of the TISDSR to staff of NCTA's choosing. The knowledge transfer must be completed before project closeout and must be completed to NCTA's satisfaction. Knowledge transfer shall include at a minimum:		
	<ul style="list-style-type: none"> Runbook activities on how to start and stop all components of the solution. 		
	<ul style="list-style-type: none"> How to run CI/CD deployment and testing. 		
71	The Contractor shall be responsible for coordinating with NCTA to arrange weekly status meetings. The Contractor and NCTA shall coordinate on day of the week for the meeting to occur, length of the meeting, meeting attendees and structure of the meeting.		
72	The Contractor PM shall utilize Microsoft Teams which will enable all meeting attendees to share and view documents in real-time during meetings.		
73	The Contractor shall develop all meeting agendas for recurring status meetings, and meetings called by the Contractor. The Contractor shall distribute to meeting invitees full meeting agendas a minimum of one (1) Business Day in advance of all meetings.		
74	The Contractor shall be responsible for documenting meeting notes and distributing a draft copy to all meeting attendees within one (1) Business Day for review. Should any meeting attendee submit comments and/or modifications to the Contractor, the Contractor shall have one (1) Business Day to update the meeting notes and distribute them to other meeting attendees. Meeting notes should be captured during every meeting.		
75	The Contractor shall be required to submit a progress report monthly after receiving the Notice to Proceed (NTP) from NCTA.		
76	Monthly progress reports shall be submitted to NCTA no later than the 10th Business Day of every month.		
77	Monthly progress reports shall detail activity performed by the Contractor during the preceding month.		
78	The Contractor shall coordinate with NCTA, within the first thirty (30) Calendar Days after receiving the NTP, on the structure, content and level of detail to be included in each monthly progress report.		
79	The Contractor shall be responsible for developing and maintaining an RTM throughout the TISDSR Design & Implementation Phase. The RTM developed during TISDSR Design & Implementation Planning shall list all requirements and business policies. The RTM developed during System Testing & Installation Planning and beyond shall list all requirements and business policies, and cross reference specific areas where each requirement is covered. As the TISDSR Design & Implementation progresses, the Contractor shall be responsible for updating the RTM to identify where each requirement will be tested (e.g. test or test phase), how the requirement will be validated during each test and cross reference the test script where the requirement is tested.		
80	The Contractor shall develop the RTM using Microsoft Excel or Approved alternative, and coordinate with NCTA on the design, layout and overall format of the RTM.		
81	The Contractor shall continuously maintain and update the RTM.		
82	The Contractor shall only include requirements that NCTA has directed or agreed to, and the RTM shall track the original requirements, any modifications made to requirements, and contain notes on any changes made to requirements as agreed to by NCTA.		
83	The Contractor shall be responsible for developing a Preliminary System Design Document (PSDD) which outlines the As-Intended To-Be Design of each iteration.		
	<ul style="list-style-type: none"> This design shall provide System overview (High level system description), System Architecture (software tools, middleware and hardware configuration). 		
	<ul style="list-style-type: none"> This design shall include storage and sizing analysis. 		
	<ul style="list-style-type: none"> This design shall include system access, network design and data security methodologies. 		
	<ul style="list-style-type: none"> This design shall include all software components provided by Contractor or third-party. 		
	<ul style="list-style-type: none"> This design shall include the database architecture, replication approach supporting high availability requirements. 		
84	The Contractor shall be responsible for developing an Iterative System Design Document which outlines the As-Intended To-Be Design of each iteration.		
	<ul style="list-style-type: none"> This design shall provide System overview (High level system description), System Architecture (software tools, middleware and hardware configuration), and Data security. 		
	<ul style="list-style-type: none"> This design shall include descriptions and visual representations, where applicable, of all, code, data flows, integrations, sequence diagrams and solution behavior. 		
	The Contractor shall be responsible for updating the Iterative System Design Document to reflect the As-Built Design of each iteration prior to System Acceptance.		

Requirement No.	Requirements	Technology Stack	Comments	
		Technology Name / Description	Comment required if there's a non-conformance, optional otherwise.	
85	<ul style="list-style-type: none"> This design shall provide System overview (High level system description), System Architecture (software tools, middleware and hardware configuration), and Data security. This design shall include descriptions and visual representations, where applicable, of all, code, data flows, integrations, sequence diagrams and solution behavior. 			
86	As part of System Acceptance, the Contractor shall submit the Iterative System Design Document to reflect the As-Built Design of each iteration for NCTA's Approval.			
87	The Contractor shall include the Bill of Materials (BOM) for all Equipment and Hardware supplied for the TISDSR.			
88	Prior to purchase of any hardware or software and as part of its design, the Contractor shall submit the final BOM to NCTA for Approval. No hardware or software shall be purchased by the Contractor prior to Approval of the BOM and the design, unless otherwise authorized in writing by NCTA authorized representative.			
89	The Contractor shall provide an initial BOM and Updates to the BOM whenever hardware or software changes occur and at a minimum on a semi-annual basis over the Contract Term. All hardware and software changes shall be subject to the Approval of NCTA.			
90	The Contractor shall be responsible for developing a Master Test Plan to address all of NCTA's testing phases.			
	a. The Contractor shall develop a Master Test Plan that will be the basis for all testing conducted on the system, including internal and formal testing.			
	b. The Master Test Plan shall outline the scope and testing concepts to be used to validate the systems from initial development throughout deployment and acceptance.			
	c. The objective of the Master Test Plan is to ensure the Contractor's systems meet all contractual requirements and are tested and certified to be operational and compliant with the NCTA's system requirements and interoperable agencies.			
	d. This plan shall detail all tests and aspects of the testing to be fulfilled with each test.			
	e. The Master Test Plan shall contain at a minimum the following items:			
	<ul style="list-style-type: none"> Description of all the different test scenarios and events Methodology of testing, including coordination with external entities (e.g. air integrators and air entities with which a data interface is required). 			
	Note: Unless otherwise directed and Approved by NCTA in advance of communications, NCTA and/or its designee shall be responsible for communicating with external entities on Application interface testing. If NCTA authorizes direct communication with one of its external entities, the Contractor shall copy the NCTA Project Manager on every written correspondence.			
	<ul style="list-style-type: none"> Proposed duration of test events Staffing matrix, identifying names and responsibilities during each test Number and types of other Contractor assistance needed to support testing Sample test cases and procedures How test failures will be handled Any special tools, equipment, or personnel required for testing Proposed schedule in days for all tests the Contractor is expected to perform 			
	f. The Master Test Plan shall be submitted to NCTA no later than sixty (60) Calendar Days after NTP.			
	g. No formal testing can proceed without a NCTA Approved Master Test Plan.			
	91	The Contractor is responsible for all aspects of system internal testing (MAT and AAT) and formal testing (UAT).		
	92	The Contractor shall be responsible for the completion of all required internal testing (e.g. unit testing, regression testing, etc.), and development of testing and defect tracking reports to be submitted every two (2) weeks for NCTA review.		
93	The Contractor shall conduct formal testing in various phases and stages to validate the system's integrity, reliability, and functionality.			
94	The Contractor shall use production volume data in preparation and execution for system testing.			
95	The Contractor shall provide required support personnel, test equipment and test environment(s) as Approved in the Master Test Plan.			
96	Should any issues or defects be discovered after the TISDSR service has been accepted, the Contractor shall go through the processes described in their PMP with regard to configuration management, code update and release. The Contractor shall never change the system without prior authorization from NCTA.			
97	The Contractor shall be responsible for Internal and External Penetration Testing in accordance with the current version of PCI-DSS and producing vulnerability scan reports.			
98	The Contractor shall be responsible for the development of a Compensating Control Worksheet addressing all system vulnerabilities that the Contractor cannot rectify, including the Contractor's risk-based scoring methodology.			
	Note: NCTA must Approve all Compensating Controls relating to security and compliance requirements (e.g., PCI-DSS, NIST CSF, Statewide Information Security).			
99	The Contractor(s) shall provide and maintain separate non-production environments throughout the duration of the Contract term utilized for separate and distinct testing from the UAT environment. These are Automated API Testing (AAT), Manual API Testing (MAT), and User Acceptance Testing (UAT). The non-UAT environments shall be available to NCTA at all times (i.e. total transparency). All of these environments shall reside in the cloud, and access to NCTA shall be provided.			
100	All data stored within the test environment shall be the property of NCTA and shall not be purged without prior authorization from NCTA.			

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
101	The Contractor shall develop formal test cases and procedures that emulate various conditions and scenarios that occur in the normal operations of the systems to verify the systems' functionality and the systems' ability to handle such conditions and scenarios.		
102	The Contractor shall develop separate test cases and detailed procedures shall be developed for each test phase (e.g., Automated API Testing, Manual Testing of APIs, User Acceptance Testing).		
103	Contractor's test cases and procedures shall be submitted and Approved by NCTA prior to beginning any testing. These submissions will be stored for audit purposes.		
104	The test procedures shall contain a step-by-step logical testing process with the purpose to demonstrate a level of acceptance for the item being tested. Note: Reference the sample test scenarios / results in Attachment 4: Sample Scenario-Based Test Matrix .		
105	The Contactor shall be responsible for developing test reports for every (MAT, AAT, UAT) test performed during the course of the TISDSR Design & Implementation.		
106	The Contractor shall submit a test report within five (5) Calendar Days following the completion of each individual test.		
107	Test reports shall document each test scenario and the outcome of every test, including but not limited to: the success or failure of script/procedure, any issues noted during the test, modifications made to test scripts during the test, items need to be completed to formally pass the test, recommendations for addressing issues discovered during testing, etc. Note: Reference the sample test scenarios / results in Attachment 4: Sample Scenario-Based Test Matrix .		
108	The Contractor shall coordinate with NCTA to dictate a priority level (critical-P1, high-P2, medium-P3, low-P4) for each issue / punch list item identified during each test. The Contractor shall be responsible for fixing and retesting P1 and P2 for NCTA's Approval before an individual test can be completed and Approved by NCTA.		
109	The Contractor shall coordinate with NCTA to develop a retesting schedule for lower priority items. If Approved by NCTA, items of lower priority may be retested or rolled into a future test phase.		
110	When NCTA has received all relevant documentation and deems that all punch list items have passed testing, the Contractor completes that test phase.		
111	The Contractor shall be responsible for producing a test observation log after every formal test. The observation log shall document all corrective actions that need to be taken to complete a formal test.		
112	The Contractor shall be responsible for completing all corrective actions identified during a formal test.		
113	Acceptance of any phase or aspect of testing shall not relieve the Contractor from their responsibility in meeting the complete functional and Performance Requirements.		
114	NCTA reserves the right to withhold Approval of the test, pending completion of the required corrective actions.		
115	Throughout system development efforts, the Contractor shall be required to submit development and internal test reports for NCTA review every two (2) weeks. Development and test reports shall include: the status of system development progress made, results of internal testing efforts, a list of defects discovered through internal system testing, and the status/priority of each defect at the time of the report's creation.		
116	The Contractor shall define the scenarios to be tested, including positive, negative, boundary, and performance cases. Note: Reference the sample test scenarios / results in Attachment 4: Sample Scenario-Based Test Matrix		
117	The Contractor shall test APIs via tools like Postman, Curl Send requests to the API endpoints manually to verify functionality, response codes, and data.		
118	The Contractor shall validate responses by comparing the API responses against expected outcomes including status codes, response formats (JSON/XML), and data accuracy.		
119	The Contractor shall verify error handling and edge case testing, that might not be covered or easily automated, such as invalid inputs or unexpected behaviors or irregular system operations.		
120	The Contractor in case of test failures shall debug issues and document them for issue resolution.		
121	The Contractor shall define the scenarios to be tested, including positive, negative, boundary, and performance cases. Note: Reference the sample test scenarios / results in Attachment 4: Sample Scenario-Based Test Matrix		
122	The Contractor shall use automation API testing framework tools like Postman, Rest Assured.		
123	The Contractor shall create automated test scripts to automate common functional tests, such as CRUD operations, input validation, and response verification.		
124	The Contractor shall automate repetitive tests using different data sets by leveraging data-driven testing techniques.		
125	The Contractor shall Automate performance tests to validate the API under stress (e.g., using tools like JMeter or Locust). Exact volume will be determined during the design phase.		
126	The Contractor shall automate scenarios where APIs are integrated into a larger workflows to ensure end-to-end functionality.		
127	The Contractor in case of test failures shall debug issues and document them for issue resolution.		
128	The Contractor shall support NCTA's Independent Validation and Verification (IV&V) testing before NCTA Approves entry into UAT.		
129	The Contractor shall conduct UAT using NCTA Approved test case scenarios and procedures. It is the Contractor's responsibility to ensure that each requirement is certified and/or tested for compliance.		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
130	The Contractor shall use hybrid approach for testing that includes Manual and automation tests. Start with manual testing for quick validation of new features and use automation for regression and repetitive scenarios. In a hybrid approach, the goal is to leverage automation where it's most efficient while using manual testing for complex, one-off scenarios or initial validation of new APIs.		
131	The Contractor shall use manual testing for edge cases. Some scenarios may be too complex or require subjective evaluation that can only be done manually (e.g., visual inspections of complex data or timing-specific validations).		
132	Upon completion of the UAT, the Contractor shall submit a test report that details the results of the test to NCTA for review and Approval. NCTA will determine if a re-test of the entire UAT or part of the UAT is required.		
133	Upon the successful completion of the UAT, any further changes to the software shall be fully documented and made only with the Approval of NCTA.		
134	Successful completion of the UAT and Approval by NCTA is required before the Contractor will be given the authorization to move forward with the development of the next (iteration) functional capability.		
135	The Contractor shall submit Approved UAT test reports from each of the iterations for NCTA review and Approval.		
136	The Contractor shall submit resolution or retest report of all the punch list items identified during the previous phases of test.		
137	The Contractor shall submit the Iterative As-Built-System Design Document for NCTA's Approval.		
138	The Contractor shall submit the following which must be approved by NCTA for final System Acceptance:		
	• Final As-Built Approved Tolling Integration Service and Data System of Record (TISDSR) Design Documentation		
	• Final As-Built Approved Tolling Integration Service and Data System of Record (TISDSR) Architecture Documentation		
	• Approved Final System Hardware / Hosting / IMS / Cloud-based Design		
	• Final As-Built Approved Security Configurations Documents that align with required security and compliance standards (e.g. PCI-DSS, NIST CSF, Statewide Security Policy)		
	• Final As-Built Approved Network and Dataflow Diagrams		
	• Final As-Built Approved Hardware Architecture		
	• Final Approved Interface Control Documents		
	• Final As-Built Approved System Security (System Access) Design		
	• Final Approved Testing Results Documentation		
139	The TISDSR must be designed and implemented to guarantee delivery of all data processed through and stored within the TISDSR.		
140	The TISDSR shall include end-to-end monitoring and tracking of any file, transaction, message or data in general that is processed by the TISDSR.		
141	The TISDSR shall include monitoring of all hardware and software and support configurable reporting on performance and any defined SLAs.		
142	The TISDSR must support future integration with AI/Chat/Chatbot or like technology.		
143	The TISDSR shall support the automation of NCTA data retention requirements, ex: automated data migration to lower tier storage, automated deletion of records, etc.		
144	The TISDSR shall support the receipt and processing of ETC transactions, image-based transactions and interoperable transactions, and posting them to customer accounts in accordance with Attachment 1: NC Quick Pass Business Policies and Attachment 6: Business Rules defined and the requirements herein.		
145	The TISDSR shall be internationalized to allow for properly formatted input and output of non-US addresses and license plates, especially those from Mexico and Canada without solution changes. The internal elements (e.g. software code) of the solution shall support English only.		
146	The TISDSR shall be structured such that growth is accommodated, maximized performance is considered and access is easy.		
147	The TISDSR must be auditable, including CSR transactions, ETC transactions, image-based transactions, account balances, front counter and call center activity, adjustments, credit card transactions, payments, etc.		
148	The Contractor shall configure and size the TISDSR appropriately to support projected transaction volumes from existing and future toll projects. Today, NCTA is processing close to twenty (20) million transactions a month and expects the system to scale three (3) times at peak volume times. NCTA currently has over three (3) million active accounts, two (2) million Transponders, twenty (20) million vehicles, two (2) million customer correspondence a month, and expects the system to scale two (2) times. An incremental sizing approach wherein the solution is sized accordingly on a quarterly basis, is acceptable.		
	Note: Should the Contractor choose to size the solution in an incremental manner, the Contractor shall develop and submit for Approval a plan that addresses all aspects of solution sizing including but not limited to data storage & communications bandwidth		
149	Services/APIs must be autonomous.		
150	Contractor shall manage all licenses and inform NCTA of renewals six (6) months in advance of contract end dates.		
151	The TISDSR shall support the following functional capabilities areas:		
	• Account Management		
	• Account Assets		
	• Customer Financials		
	• Payment Processing		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
	<ul style="list-style-type: none"> Transaction and Image Transfer Customer Notifications 		
152	The Contractor shall build TISDSR components to support the following capabilities and channels:		
	<ul style="list-style-type: none"> Case Management Customer Service Representative (CSR) Interface Transponder Fulfillment Web User Interface (UI) and Mobile Application Roadside Systems Payment Gateway IOP Hubs (EZIOP & SEHUB) Out of State DMV Look-up Mail Processing Interactive Voice Response (IVR) Business Intelligence / Analytics Customer Financials 		
	153	<p>The Contractor will utilize an NCTA Asset Management solution (ServiceNow) to maintain the details of all solution assets that are part of this solution. It should include, but not be limited to:</p> <ul style="list-style-type: none"> Hardware components Software version & compatibilities between solution components 	
154	<p>The Contractor shall provide staff for technical support, including but not limited to:</p> <ul style="list-style-type: none"> Solution monitoring Performance and availability reporting Installation of necessary database upgrades Installation of necessary patches to all components of the solution Resource engagement/consultation with integrators and any necessary documentation during integration with NCTA's channels, B2B partners and applications. 		
	<ul style="list-style-type: none"> Backup and restore activities - <ul style="list-style-type: none"> Database Backups: Full back up once per week and incremental backups daily. Daily backups for applications and middleware 		
155	<p>The TISDSR shall record and store the date, time and all other transaction attributes of every transaction occurrence transmitted to the solution in accordance with NCTA's business policies, business rules, and interface control documents. Reference Attachment I: NC Quick Pass Business Policies and Attachment 6: Business Rules.</p>		
156	The TISDSR shall comply with NCTA's financial management and accounting policies, procedures and accounting treatment.		
157	The TISDSR shall provide timely, reliable and accurate financial information.		
158	The TISDSR shall support the application of payments to accounts, or a transaction, according to a predetermined order, such as first in-first out (FIFO), as defined by NCTA.		
159	The TISDSR shall provide the ability to locate and consolidate transactions by transaction type, payment type, payment location, in aggregate, by facility, lane and time. The solution shall also identify and report any duplicate, invalid and pending transactions.		
160	The Contractor shall propose commercial-off-the-shelf software, tools and hardware, where appropriate.		
161	The TISDSR shall track and store for future reporting all supported payment types and payment transactions.		
162	The TISDSR shall provide functionality to identify accounts when the current address is incorrect, or mail has been returned.		
163	The Contractor shall analyze NCTA's IVR solution - (877) 769-7277 to build services that will be integrated at a future date.		
164	The Contractor shall analyze NCTA's current website - https://www.ncquickpass.com/ , to build services to support a new website with the same functionality.		
165	The Contractor shall analyze NCTA's Mobile Application (NC Quick Pass) for both iOS & Android, found on the app stores to build services to support a new mobile app with the same functionality.		
166	The TISDSR shall be designed such that any business intelligence and/or analytic tool integration will not impact customer performance.		
167	The Contractor shall check-in, and make available to NCTA staff, all source code, configurations, scripts and any other applicable components, to a source code management/version control solution, Approved by NCTA.		
168	The Contractor shall recommend a COTS monitoring and logging tool or tools for Approval by NCTA.		
169	The Contractor will be responsible for implementing the tool or tools that NCTA has Approved, including all identified monitoring and logging outlined in this RFP.		
170	Provide a service for outbound/inbound email and SMS text messaging that meets the outbound/inbound correspondence Requirements.		
171	Provide a service for fully automated and Configurable storage of historical data (archival) and the permanent deletion of inactive or obsolete data (purging).		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
172	Provide a service to store 100 percent of the NCTA electronic information for seven (7) years, including but not limited to:		
	• Data		
	• Images		
	• Documents		
	• System logs and • Third-party files		
173	Archival and purge routines shall be Configurable for each impacted data element, including but not limited to:		
	• Data		
	• Images		
	• Documents		
	• System logs and • Third-party files		
174	Data shall be archived and purged on a configurable interval.		
175	The Contractor shall maintain payment card industry certification (PCI) while supporting the TISDSR.		
176	The Contractor shall ensure no cardholder data, such as Credit Card numbers or card verification value data, and no PII is present in any non-production environments, including but not limited to the replicated database, training, development and testing environments.		
177	The TISDSR shall provide security and audit measures in accordance with NIST CSF and PCI-DSS to ensure solution and data integrity.		
178	The TISDSR shall be fully auditable allowing authorized users to audit all solution actions in accordance with Sarbanes-Oxley legislation Service Organizational Control (SOC2 Type 2).		
179	The TISDSR shall support the creation of secure, read only auditing roles for internal and external audit groups.		
180	Provide electronic automated Interfaces to the Agencies, Interoperable Agencies, Third-Party Service Providers and Business Partners in accordance with these Requirements.		
181	Provide for Guaranteed transmission of data for all Interfaces and portals.		
182	Provide for 100 percent Reconciliation of the transmitted data and files.		
183	The Contractor shall utilize secure file transmission Protocols (SFTP) for the transfer of data and/or files via Interfaces.		
184	Provide a service to transmit and receive multiple files during each scheduled batch.		
185	Provide a service to transmit and receive multiple files in a day.		
186	Utilize file naming conventions that prevent the over-write of data and/or files. For example, include the date and time of transmission.		
187	Utilize file handling and processing methods that provide a complete log of the data and/or file transfer process. For example, files that are successfully processed are moved to a processed folder.		
188	Validate records and identify errors in the received data and/or files:		
	• mandatory fields		
	• data formats		
	• data validity (such as Customer Account number not found in the NCTA)		
	• duplicate records		
	• unexpected response		
189	• checksum/record count verification		
	• incorrect status		
	Reconcile the transmitted records to the records received and accepted by the receiving entity.		
	Provide a service for Authorized Users to obtain the history of updates to a transaction.		
190	Provide a service to automatically archive successfully processed data and/or files after a Configurable number of days.		
191	Provide a service to automatically archive successfully processed data and/or files after a Configurable number of days.		
192	The TISDSR shall support notifying customers via e-mail or text message requesting that customers update their account address should a valid e-mail or phone number exist on the account. The system shall provide bar code functionality for processing mail with no forwarding address, address does not exist and for change of address.		
193	The TISDSR shall support the ability to obtain more current address information from Approved source databases (e.g. NCDOT DMV, NCOA, collection agency/skip tracing, etc.) and add the address to the account, noting the source of the address update.		
194	The TISDSR shall validate address and name data received from outside sources (e.g. NCDOT DMV, NCOA, etc.), and update address data resulting in a reduced quantity of returned mail.		
195	The TISDSR shall maintain address history for each account.		
196	The TISDSR shall track the date and time any transaction posts to an account.		
197	The TISDSR shall immediately update account balance any time a financial transaction posts to an account.		
198	The TISDSR shall prevent any changes made to transaction data to effect prior accounting periods.		
199	The TISDSR shall support both automated and manual allocation of financial activities to various funds, accounts or programs.		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
200	The TISDSR shall support the export of financial data in multiple formats for input into various NCTA Financial solutions, mapping the sub ledger to a General Ledger (GL).		
201	The TISDSR shall provide automated tools and controls that prevent monetary loss or informational abuse from internal and external users.		
202	The TISDSR shall assign a unique identifier to each payment transaction.		
203	The TISDSR shall support processing all authorized payments to accounts in near real-time, including account replenishments.		
204	The TISDSR shall provide the following payment functions to manage charges to customers and the revenues which result from those charges: <ul style="list-style-type: none"> Payment Interfaces which include Manual (storefront, retail locations and special events), Lockbox (utilizing NCTA's contracted Lockbox services vendor), Point-of-Sale, IVR and Web self-service 		
205	The TISDSR shall support reports showing all refund activity by date range within the solution. These reports shall be designed in coordination with NCTA during the design process.		
206	The TISDSR shall support a Roles and Responsibilities Matrix and prevent unauthorized users from modifying a customer's bankruptcy status.		
207	The TISDSR shall provide a mechanism to track and uniquely identify all accounts in bankruptcy status.		
208	The TISDSR shall prevent system generated payment processing errors. Payment processing errors include, but not limited to: <ul style="list-style-type: none"> Double or over- charging (billing) of a customer's credit card, debit card, or bank account (via ACH). Improperly drawing down a customer's account causing an improper replenishment. 		
209	The TISDSR shall accurately post transactions to the correct account in near real-time.		
210	The TISDSR shall generate and store transaction dates and posting dates when posting transactions.		
211	The TISDSR shall identify the source of all transactions and map the transaction data to the proper customer account.		
212	Support comprehensive Account management Service that allows for the setup and Maintenance of all Account Types and Attributes in accordance with the NCTA Business Rules.		
213	The TISDSR shall accurately track and account for all transactions, customer account activities and other toll-related financial activities conducted by the solution.		
214	The TISDSR shall support payments received through the lockbox interface to be applied to the appropriate account and transaction.		
215	The TISDSR shall contain functionality to route unidentified image-based transactions license plate data, via external interface(s), to local DMVs or other third-party services for identification of vehicle owners via license plate lookup.		
216	The TISDSR shall support a service to identify the owners of out-of-state license plate from a third-party.		
217	The TISDSR shall support home authority and reciprocal authority transaction posting for all Interoperable transactions.		
218	The TISDSR shall support integration with NCTA's Lockbox services vendor.		
219	The TISDSR shall support integration with NCTA's payment vendor. (First Data Merchant Services).		
220	The TISDSR shall provide functionality to process, track and reconcile all exceptions received from the NCTA lock box.		
221	The TISDSR shall capture and store all toll transaction rates transmitted from a RTCS host solution(s) with each transaction.		
222	The Contractor shall coordinate with NCTA, other contractors, other designees and concessionaires to develop and/or implement services to NCTA and concessionaire Express Lane RTCs to receive and process transactions and fully formed image-based transactions with their associated images.		
223	The TISDSR shall track each transaction utilizing a unique identifier from the RTCS host through to final settlement/payment.		
224	The TISDSR shall track unpaid image-based transactions (e.g. via a unique status code) as they age within the solution.		
225	The TISDSR shall track the reason for each image-based transaction ownership reassignment, in accordance with NCTA business policies.		
226	The TISDSR shall track each transaction utilizing a unique identifier from the Roadside Toll Collection System (RTCS) host through to final settlement/payment.		
227	The TISDSR shall automatically and immediately attempt to post transactions to a single customer account once files from a RTCS host have been received and processed.		
228	Provide a service to apply NCTA Business Rules and Account Requirements for each valid Account Type and Attribute combination: <ul style="list-style-type: none"> Multiple (one or more) payment options (hierarchical usage sequence for auto-replenishment methods - Primary, Secondary Payment type). Payment Options can be used for recurring payment or stored card. Replenishment amounts and Low balance thresholds. Account balance. Discount Plan (First Responder, Government, Transit, Standard) applied to any of their License Plates or Transponders or Account. Transponders (1 to many) Number of Vehicles on an Account. For example, a Business Account can have minimum of 1 vehicle, or Private Account can have a maximum of 10 vehicles. Multiple Contact (First Name, Middle name, Last name, Suffix,) for an account. Multiple Doing Business As (DBA) for an account. A Rental or Fleet company could have registered DBA differently across states. Multiple Email (Primary and Secondary) and Multiple Phone (Home, Work, Mobile) linked to contact. Multiple Address (Street-1, Street-2, City, State, Country and County, Address source: Customer, CSR, DMV, NCOA, USPS) for an account. Configuration of mandatory/optional fields required during Account setup. Find API specification and account matrix. 		
	Provide a Service to create and maintain Accounts via methods:		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
229	• Self-Service Website		
	• Self-Service Mobile Application		
	• Self-Service Mobile Website		
	• Customer service agent Application		
	• In Batch mode using information provided by the ROV Lookup Service Provider		
230	Provide a Service for the creation and Maintenance of Account Types:		
	• Prepaid Accounts		
	• Postpaid Accounts		
231	Provide a Service for the Maintenance of Account Attributes designated as:		
	• NC Quick Pass Personal		
	• NC Quick Pass Business		
	• NC Only (Plate Only)		
	• NC Quick Pass Government		
	• NC Quick Pass Transit		
	• NC Quick Pass First Responder		
• Toll Invoice Account (Bill By Mail)			
232	Provide a Service to convert a Postpaid Account to a Prepaid Account while maintaining the same Account number and all Account history.		
233	Provide a Service to change Account Attributes while maintaining the same Account number and all Account history.		
234	Provide a Service (Configurable) to merge or combine Prepaid Accounts into a Prepaid Account or Postpaid Accounts into a Prepaid Accounts.		
235	Provide a Service for two (2) or more Accounts to be linked but remain separate and distinct Accounts, allowing the customer and the NCTA staff to view all linked Accounts at one time. Accounts are linked using the matching criteria (Same Plate and Last name, Same Last Name and Address, Same First Name and Address).		
236	Provide the functionality to apply NCTA Business Rules for each Account Statuses:		
	• Active.		
	• Pending Open (Prepaid Accounts only) - Status until account creation payment is successfully applied to the account.		
	• Pending Convert (BBM, NC Only accounts only) - Status until account conversion payment is successfully applied to the account.		
	• Pending Close (Prepaid Accounts only) and (Provide "X" days in this status before Account is closed).		
	• Inactive (Per NC Quick Pass Business Policy) - Any account with no customer triggered financial activity in the last 24 months.		
237	• Suspended (Prepaid Accounts only) - When Account balance is below \$0.		
	• Closed (Postpaid when account balance is \$0, Prepaid after Pending Closed for "X" days).		
238	Provide a Service for customer Notification (Configurable) when the Account changes Status.		
239	Provide a Service to resume the Account creation process (using a Reference number - provided at start of the process) that was abandoned before completion or intentionally saved for later retrieval if the Account remains in Pending Open status.		
240	Provide a Service to automatically change the pending open Account to a closed status if a Configurable period of time has elapsed, and the minimum information required for opening the Account is still missing.		
241	Provide a Service to automatically set Accounts to pending close status upon a request to close the Account.		
	Provide a Service to set account to Pending Close status to:		
	• Removing payment methods on the Account		
	• Closing vehicle subscriptions		
	• End subscriptions for Transponders and License Plates on the Account		
242	• Capturing reason for Account closure		
	• Determining the refund amount		
243	Provide a Service for the reactivation of an Account in the pending close and closed statuses.		
244	Provide a Service to prevent transactions from Posting to closed Accounts.		
245	Provide a Service (Configurable) to automatically initiate Account closure procedures for Accounts that are inactive and customer has not requested to keep the account Active.		
245	Provide a Service to get or set Account Flags based on conditions and events:		
	• Bad (Nixie) Address		
	• Bad Email Address		
	• Inactive Account		
	• Account Holder Deceased		
	• Excessive ITOL threshold has been exceeded		
	• Account is in Pending Close status		
• Account has an Open Case			

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
	<ul style="list-style-type: none"> Account has a non-revenue Discount Plan applied to any of their License Plates or Transponders Returned check At least one Credit Card is expired or is expiring within a Configurable number of days Account has at least one suspended auto-replenishment method Account has unpaid invoice(s) Account has transactions in collections One or more License Plates on the Account has been placed on Registration Stop 		
246	Provide a Service to fetch all active Flags on an Account upon accessing the Account information.		
247	Provide a Service to automatically clear Flags no longer active on an Account.		
248	Provide a Service for customers to have multiple addresses and contact information on the Account and require that the primary address and contact be identified. All updates and deletes should be stored as history with updated date.		
249	Provide a Service to identify the source when a CSR enters the customer address manually into the NCTA.		
250	Provide a Service to interface with US and Canada Address standardization to: <ul style="list-style-type: none"> Verification, to ensure the address exists Normalization, to standardize U.S. addresses, such as "Drive" becomes "Dr." Selection from all potential address results 		
251	Provide a Service to accept or reject the recommended changes provided during address validation or normalization.		
252	Provide a Service for multiple active addresses, including all prior addresses for all Account Types, in address standardization form: <ul style="list-style-type: none"> Mailing (standardized) Different sources (Customer, CSC agent, Collections, NCOA, Skip tracing) Shipping (standardized) DMV (ROV lookup provided address standardized) Billing (standardized) 		
253	Provide a Service to store address history and make all addresses accessible in the Account with the normalized one being the effective/current mailing address. For		
254	Provide a Service to ensure Bill-By-Mail accounts always have the DMV provided address (Prevent deletion of DMV provided Address).		
255	Provide a Service to enter a forwarding address, obtained from returned mail communicated via Interface from an external vendor or manually input, only if the new address has an effective date after the last updated date. For example, a forwarding address provided by external vendor should not override address provided by manual input after the date external vendor received address update.		
256	Provide a Service to update Account holder's name.		
257	Provide a Service to designate multiple authorized Account contacts.		
258	Provide a Service to capture Email address and Phone number for the Account contacts.		
259	Provide a Service for email address validation by comparing a re-keyed email address. The addition of unmatched entries shall not be allowed.		
260	Provide a Service to send a secure email requesting validation of an email address via delivered code or link for NCTA validation or other alternate validation methods.		
261	Provide a Service to validate selected sets of emails via third-party email address validation service providers by sending a list of email addresses and capturing results (real time or on a Configurable schedule to periodically validate).		
262	Provide a Service to Flag email addresses as "bad" based upon the results of the email validation process, without removing them from Accounts.		
263	Provide a Service to validate a PIN used for identifying an authorized contact. The PIN shall be masked (not visible to CSRs).		
264	Provide a Service to have multiple communication channels: <ul style="list-style-type: none"> phone cell phone additional phone numbers email additional email addresses text mail 		
265	Provide a Service to select a preferred communication channel for specific customer communications. Each communication channel will have a default communication method (Example: Account balance notifications will be via email).		
266	Provide a Service to enter and categorize comments on Accounts.		
267	Provide a Service to edit and remove comments made by CSRs.		
268	Provide a Service to insert system-generated comments on Configurable actions initiated by the CSC agents. Examples (Customer disputes, dismissals, transfer of responsibility, plate change, corrections)		
269	Provide a service to securely email the PIN to the valid primary email address on the Account and require that the PIN be subsequently changed.		
	Provide a Service to log all Account changes and provide a service to view details, including but not limited to:		

Requirement No.	Requirements	Technology Stack		
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.	
270	<ul style="list-style-type: none"> • Prior value • The new value • User ID • Date/time • User information, such as NCTA CSC agent, Authorized User or customer originated 			
	Provide the Account Summary in a printer-friendly format to be used for, including but not limited to:			
	<ul style="list-style-type: none"> • handing to walk-in customers; • inserting with mail Transponder Fulfillment; • mailing to customers and • sending to customers via secure email. 			
	272	Provide a Service to Interface with a third-party Email Address Standardization Service Provider for the functionality described within these Requirements and in accordance with ICDs, to be developed during Project Design.		
	273	Provide a Service to Interface with a third-party Address Standardization Service Provider for the functionality described within these Requirements and in accordance with ICDs to be developed during Project Design.		
274	Provide a Service to create and track multiple inventory types, for example different types of Transponders and other inventory items.			
	<ul style="list-style-type: none"> • Provide a Service to manage any number of Transponder types, currently available: • Sticker Transponders • First responder sticker Transponders • Transit sticker Transponders • Motorcycle sticker Transponders • Hard-case portable Transponders • Hard-case portable HOV 3 position Transponders • Bumper-mount Transponders 			
	275	Provide a Service to receive Transponder inventory boxes:		
	<ul style="list-style-type: none"> • inventory Item description • Model number • manufacturer (TransCore, Kapsch, Starz, Neology etc.) • lot, case and tray information • Transponder communication Protocol (Single protocol - TDM, Sego, 6C, Multi-protocol TDM & Sego, and Tri-protocol (TDM, Sego and 6C) • Transponder style (sticker, hard-case, bumper). 			
	276	Provide a Service to upload a file (manifest) with bulk inventory information using the starting and ending numbers in a range. Prior to importing, the file is validated (invalid files shall not be imported and an error message shall be presented). Individual Transponder inventory item attributes as following:		
		<ul style="list-style-type: none"> • Model number • Procurement cost • Sales price • Manufacture date • Date received • Manifest number • Inventory number • Expiration (if applicable) • Date assigned/purchased • Location assigned to customer from • Staff/NCTA assigned by • Replacement • Warranty start date • Warranty period • Purchase order number/statement or invoice number • Transponder Prefix by Protocol (0033 – 6C, 033 – TDM and 0710 – Sego) • Transponder number (10-digit serial number) • Transponder Manufacturer's number • Transponder class (Class programmed on Transponder - 72 - Class 1, 527 - Class 2 and 727 - Class 3) • Status • Inventory location 		
		Provide a Service to track Individual inventory items by location at end of day:		
		<ul style="list-style-type: none"> • Warehouse (Transponder fulfillment vendor location) 		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
277	<ul style="list-style-type: none"> Walk-in customer service locations In transit between customer service locations Multiple individual Retailers Multiple individual CSRs Customer Account 		
278	Provide a Service to ensure individual inventory pieces are only in a single location at any one time.		
279	Provide a Service to restrict transitions among various inventory Item locations, for example inventory in the "Assigned to CSR" location cannot go to the "Return to Manufacturer" location; it can only go to "inventory" location or "Customer Account" location.		
280	Provide a Service to assign a status to each individual Transponder inventory Item.		
281	Provide a Service to Interface with the Transponder Fulfillment vendor for the functionality described within these Requirements and in accordance with existing ICDs.		
282	Provide a Service to create an inventory Item sale transaction including but not limited to: <ul style="list-style-type: none"> full price sale with Sales Tax full price sale without Sales Tax Warranty sale No sale (replacement) 		
283	Provide a Service to assign multiple types of inventory items to Accounts and record the Transponder number to the Customer's Account.		
284	Provide a Service to fulfill Transponder orders, including but not limited to: <ul style="list-style-type: none"> Individually by type of Transponder By range of Transponders 		
285	Provide a Service to reassign inventory items from one Account to another.		
286	Provide a Service to replace an existing individual inventory Item on an Account with a different item.		
287	Provide a Service to issue Individual inventory items to customers via various distribution methods, including but not limited to: <ul style="list-style-type: none"> By mail By web By mobile app Walk-in Through Retailers 		
288	Provide a Service for customer inventory orders to be fulfilled at time of request. For example, at a walk-in Customer Service Center location with the customer present.		
289	Provide a Service for customer inventory orders to be fulfilled and mailed to the customer when the customer is not physically present. For example, a Transponder was requested during a call to a CSR or using the Self-Service Website.		
290	Provide a Service to alert when the vehicle requires an externally mounted Transponder (bumper mount) or special mounting location.		
291	Provide a Service to track customer inventory orders as a single order regardless of the number of items requested. For example, if a customer wants two (2) of type A inventory items and two (2) of type B inventory items, that order will be a single customer inventory order.		
292	Provide a Service for customer inventory orders to be partially fulfilled. For example, while there may not be enough of a certain type of inventory Item to complete the order, those that are available can be fulfilled.		
293	Provide a Service to make modifications to the inventory orders prior to fulfilling them. For example, a CSR may need to change the Transponder type because the customer's vehicle requires an externally mounted Transponder (bumper mount) or add another Transponder to the order based on a customer request.		
294	Provide a Service to notify the customer that an inventory Item(s) has been placed in the mail.		
295	Provide a Service to return inventory items to stock and update the status, if applicable while preserving full traceability. For example, if a Transponder comes back in returned mail, the System shall retain the history of the Account the Transponder was added to and that it came back undeliverable.		
296	Provide a Service to send and receive files containing Fulfillment orders, inventory assignments and other information required to support the outsourced process.		
297	Provide a Service to track inventory items which are lost by the outsourced Fulfillment provider separately from inventory items lost by customers.		
298	Provide a Service (Configurable) to assess and collect the appropriate sales tax on Transponder and other taxable inventory sales. When purchasing Transponder at physical location the tax rate is based on the locations county in North Carolina. When requesting Transponder via mail, web or mobile APP, Sales tax rate shall be determined based upon the requestors residency county in North Carolina or flat out of state Tax rate to which goods are shipped.		
299	Provide a Service to exempt certain transactions from sales tax. For example, when inventory items are sold to customers who possess a resale permit or are otherwise exempt from paying sales tax.		
300	Provide a Service to track Transponder returns and appropriately account for sales tax.		
301	Provide a Service for customers to return their old Transponder and receive a replacement Transponder of the same type.		

Requirement No.	Requirements	Technology Stack	Comments
		Technology Name / Description	Comment required if there's a non-conformance, optional otherwise.
302	Provide a Service for customers to return Transponders to the NCTA and receive a refund of the purchase price if the Transponder is defective and still within the manufacturer's warranty period.		
303	Provide a Service to send a replacement Transponder to the customer upon the receipt of the warranty claim.		
304	Provide a Service to track the return of the old Transponder and update the Account upon the successful receipt of the old Transponder.		
305	Provide a Service to establish and maintain Transponder return thresholds and their resale status, based on where the Transponder was purchased. For example, if the Transponder was purchased at CVS, the customer can return their Transponder within 30 days.		
306	Provide a Service to accept Transponder returns if they are within the established return threshold.		
307	Provide a Service to over-ride the Transponder return threshold and accept the return Transponder but require the entry of comments.		
308	Provide a Service to note all Transponder returns on the Customer Account.		
309	Provide a Service to sell inventory to Retailers.		
310	Provide a Service to track sales to Retailers.		
311	Provide a Service to receive a manifest file from the Transponder fulfillment vendor with details on all Transponders shipped to Retailers.		
312	Provide a Service to create an invoice for Transponders sold to the Retailers.		
313	Provide a Service to track inventory returns from Retailers.		
314	Provide a Service to issue refunds to Retailers.		
315	Provide for Configurable Transponder statuses:		
	• Initializing (prior to Fulfillment)		
	• Pending Activation (Retail Transponder not registered)		
	• Active (Customer Account) - Prepaid Only Valid in Transponder Status File (when balance is greater than or equal to \$0, Invalid when balance is less than \$0). Postpaid Account is valid irrespective of the balance.		
	• Lost (Customer Account)		
	• Stolen (Customer Account)		
	• Lost In Mail (After Fulfillment before customer receives)		
316	• Retained (Customer deactivates Transponder)		
	• Defective (Customer Returned Transponder defective)		
317	Provide a Service for recording Transponder issue date and time.		
318	Provide a Service to record and associate a payment for every Transponder sold (including Sales Tax, County Tax)		
319	Provide a Service to change Transponder statuses, such as when a customer calls to report a Transponder has been Lost or when Activating a Retail Transponder.		
320	Provide a Service to track a Transponder's status transitions, status change timestamp, and maintain status history.		
321	Provide a Service to notify customer when the Transponder changes status.		
322	Provide a Service for a customer to register a retail Transponder by requiring customers to enter the Transponder number and manufacturer's validation code when activating a retail Transponder.		
	Provide a Service to associate information with a License Plate:		
	• License Plate type		
	• License Plate jurisdiction		
	• License Plate issue date		
	• Vehicle make (from a drop-down list)		
	• Vehicle model (from a drop-down list)		
	• Vehicle year		
	• Indication the License Plate is a temporary License Plate (expiration date is required)		
	• Linked Transponder		
323	• DMV lookup date		
	Provide a Service to manage a drop-down list of vehicle makes and models:		
	• Vehicle manufacturer		
	• Vehicle make		
324	• Transponder exception specifying that the make and model requires an externally mounted Transponder or special mounting locations for windshield Transponders and		
	• Vehicle class		
325	Provide a Service to add multiple License Plates and associated vehicle information to an Account.		
326	Provide a Service to associate multiple Transponders to an Account.		
327	Provide a Service for a Transponder to be optionally linked with a vehicle License Plate on an Account.		
328	Provide a Service for customers to change the License Plate associated with a Transponder on their Account.		
	Provide a Service, when adding a new License Plate to an Account, to automatically identify other Account(s) associated with that License Plate:		
	• Invoice Accounts that have unpaid transactions (Return message to make payment on the other account before this plate can be added)		
	• Accounts where the License Plate is active on another Prepaid Account (Return message that the plate is already linked to another account)		

Requirement No.	Requirements	Technology Stack		
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.	
329	Provide a Service for recording the history of ROV information provided by DMV as a response and parsed data associated with each License Plate.			
330	Provide a Service for transferring vehicle(s) and associated License Plate(s) between Accounts. At any given time, plate can be active only on one account.			
331	Provide a Service to prevent removal of vehicle(s) on Bill-By-Mail account with an outstanding dues. At any given time, plate can be active only on one account.			
332	Provide a Service to assign Discount Plans at the Account or Transponder or Plate level.			
333	Provide a Service to enroll customers in Discount Plans in multiple ways: <ul style="list-style-type: none"> Automatically based on eligibility (First Responder, Government or Transit) Customer elects to participate (Ride Share, Motorcycle) 			
334	Provide a Service for individual participation in a discount plan to be terminated if the customer no longer meets the required criteria.			
335	Provide Configurable replenishment parameters for all Account Types and Payment Method: <ul style="list-style-type: none"> Low Balance or Replenishment Threshold (configurable percentage of Replenishment Amount) Example: For Personal Account with Auto Replenishment 25% minimum replenishment threshold (a minimum of \$5) minimum replenishment amount required (\$10) replenishment amount based on the number of Transponders on the Account - for first two, Transponders is \$10 and subsequent each Transponder is additional \$10 replenishment amount based on the number of Vehicles on the Account - for first two, vehicles is \$10 and subsequent each Vehicle is additional \$10 replenishment amount based on the replenishment type (manual or automatic) replenishment amounts calculated based on average use for a Configurable period of time (30 days) number of months used to calculate monthly average use (One month) number of replenishment failures before next method is attempted number of declines before a replenishment method is suspended, based on appropriate reject reasons replenishment amount by payment type, such as default replenishment amount for cash replenishment might be higher than for Credit Card replenishment 			
	336	Provide a Service for Authorized Users to identify and set individual Accounts that are not subjected to auto-replenishment recalculation.		
	337	Provide a Service for automatic Account replenishments via Credit Card.		
	338	Provide a Service for automatic Account replenishments via ACH, with options for checking or savings Accounts.		
	339	Provide a Service to support replenishment attempts and determine the required actions on the Account, based upon the reason the payment method is declined. For example, if a credit card is declined because it was reported stolen, no additional attempts will be made on that card.		
	340	Provide a Service for a stepped approach to failed auto-replenishments where an attempt is made to collect from the primary replenishment method a Configurable number of times, followed by the secondary method and continuing until attempts have been made to replenish from all replenishment methods.		
	341	Provide a Service to make the secondary payment method the primary replenishment method when the primary method has been suspended and the secondary method was successful.		
	342	Provide a Service for automatically suspending an auto-replenishment method because of a Configurable number of declines.		
	343	Provide a Service for automatically removing the suspension of an auto-replenishment method when there is an update to the Credit Card number, expiration date or any other related information. Replenishment Amount and Threshold should be recalculated based on the new payment method.		
	344	Provide a Service for automatically removing the suspension of an auto-replenishment method when there's an update to the ACH routing number, Account number or any other related information. Replenishment Amount and Threshold should be recalculated based on the new payment method.		
345	Provide a Service to store payment information on the Account but not have it as part of the hierarchical auto-replenishment list of payment methods. Such payment methods shall be used for manual Account replenishment.			
346	Provide a Service for the manual replenishing of Accounts, regardless of payment method.			
347	Provide a Service to remove all auto-replenishment methods from an Account.			
348	Provide a Service to check Account balances each time a transaction is posted to an Account, as well as automatically submit an auto-replenishment attempt using the primary valid replenishment method when replenishment criteria is met.			
349	Provide a Service to add a payment method to a Postpaid Account.			
350	Provide a Service to automatically pay the Toll invoice using the payment method on the Account, after Configurable number of days after the invoice was issued.			
351	Provide an integrated, Configurable, self-balancing GAAP-compliant Accounting Module for all transactions.			
352	Provide for double entry recording of all financial transactions.			
353	Create journal automatic entries for recording and tracking all transactions and payment events.			
354	Provide an audit trail for each transaction.			
355	Every payment that resulted in a receivable being marked paid shall be traceable to the receivable(s) it paid.			

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
356	Every paid receivable shall be traceable to one or more payments that were allocated to its payment.		
357	The Contractor shall develop a journal entry template for every NCTA transaction that impacts revenue, liability balances (for example, Prepaid Accounts) or asset balances (for example, Accounts receivable) to be Approved by the NCTA Toll Revenue Group.		
358	All entries to the System shall consider payable and receivable balances between:		
	• the customer and the NCTA		
	• the NCTA and the NC Roadways		
	• the NCTA and Interoperable Agencies (E-Zpass Hub/ SEHUB)		
359	• the NCTA and Third-Party Service Providers		
359	The System shall record a payable to the NC Roadways simultaneously with the recording of a customer payment against a transaction.		
360	Create all financial entries as individual records, which may be used in combination with other financial entries to make a net effect, but do not allow the original entry to be modified. For example, a transaction was originally posted to an Account at the Bill-By-Mail rate of \$1.00, and later it is determined the transaction shall be charged at the NCTA rate of \$0.85, in which Case, a credit of \$1.00 is posted to reverse the original transaction and the correct amount of \$0.85 is Posted. The sum of the original transaction and all adjustments shall not be lower than zero (for example, a credit adjustment shall not exceed the original transaction amount).		
361	Ensure each debit entry to a financial Account has a corresponding and equal credit amount and each credit entry to a financial Account has a corresponding and equal debit amount so the financial Accounts balance at all times.		
362	Provide a Service to process the below payment transactions:		
	• Transponder Sale, which includes tax		
	• Retail Transponder Sale, which includes tax		
	• Chargebacks		
	• Check bounce fees		
	• Bankruptcy		
	• Reversals		
	• Waivers		
	• Adjustments		
	• Balance Transfer (Payment across Prepaid or Postpaid accounts)		
	• Voids		
• Refunds (except for cash)			
363	Provide a Service for the processing of all payments and account replenishments:		
	• Account Prepaid balance		
	• Tolls		
	• Processing fees		
	• Civil Penalties		
	• Invoices		
	• Transponder sales (Full price, Returns under Warranty, Tax Exemption)		
	• Discount Plans		
• Inventory purchases from Retailer or Transponder manufacturer			
364	Provide a Service to identify and process over payments upon customer request:		
	• Do balance transfer to an alternate Account		
	• Refund overpaid amounts		
	• Apply overpaid amounts to Account balance		
365	Provide a Service to configure the payment source and payment type that is not acceptable for a specified notification type.		
366	Provide a Service to calculate the required payment during Account creation based on the Prepayment requirements, based on number of Transponders, Sales Tax or		
367	Provide a Service to store Credit Card and bank account information for one-time payments (for example, permit customers to enter Credit Card information once and		
368	Provide a Service to accept payments, including but not limited to:		
	• one-time payments		
	• recurring fixed amount payments		
	• recurring payments a Configurable, fixed number of days after the invoice is issued		
	• recurring payments triggered by Account balance		
369	Provide a Service to accept payments from Retailers and Money Services Providers (ex: MoneyGram).		
370	Provide a Service to accept payments from the collections agencies.		
371	Provide a Service to process payments directly in the NCTA for invoices in collections.		
372	Post payment transaction(s) to the Account when payment related actions occur:		
	• successful payment processing		
	• Account balance change		
	• unsuccessful payment processing, for example recording a failed attempt		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
	<ul style="list-style-type: none"> • payment confirmation 		
373	Provide a Service to accept electronically and process payment information from:		
	<ul style="list-style-type: none"> • the Lockbox Service Provider 		
	<ul style="list-style-type: none"> • from a Banking Services Provider or other financial institution(s) (for ACH clearing) 		
	<ul style="list-style-type: none"> • a Merchant Service Provider(s) 		
	<ul style="list-style-type: none"> • collections agencies 		
	<ul style="list-style-type: none"> • a Money Service Provider(s) 		
374	Provide a Service to prevent the acceptance of checks after a Configurable number of bounced checks in last 12 months.		
375	Provide a Service to prevent the acceptance of credit cards after a Configurable number of chargebacks in last 12 months.		
376	Provide a Service for an Authorized User to correct or reverse payments applied in error, including to payments applied to multiple transactions or Accounts, via Cases.		
377	Provide a Service to prevent corrections to or reversals of payments that have already been refunded, for example, payments that have been reversed entirely cannot be reversed again or refunded.		
378	Prevent payment reversals when the funds have already been refunded including when a single payment has been spread across multiple Accounts.		
379	Provide a Service to set a Configurable period of time an Account can remain in pending close status. For example, Accounts with a request to close remain in this status to allow for final transactions to clear. Account replenishments continue to occur when an Account is in pending close status.		
380	Provide a Service to record Payments from the following payment sources. The number and names of payment sources shall be Configurable.		
	<ul style="list-style-type: none"> • merchant accounts 		
	<ul style="list-style-type: none"> • lockbox 		
	<ul style="list-style-type: none"> • Collection 		
	<ul style="list-style-type: none"> • Money service provider (MoneyGram) 		
	<ul style="list-style-type: none"> • check payments (processed at NCTA and walk-in centers) 		
	<ul style="list-style-type: none"> • cash payments (processed at NCTA and walk-in centers) 		
381	Provide tracking of payment transactions by:		
	<ul style="list-style-type: none"> • Transaction Date 		
	<ul style="list-style-type: none"> • Posting Date 		
	<ul style="list-style-type: none"> • Account Number 		
	<ul style="list-style-type: none"> • Transaction Type (Payment, Reversal, Refund, Replenishment) 		
	<ul style="list-style-type: none"> • Payment Type (Visa, MC, Discover, AMEX, ACH) and 		
382	Provide a Service to apply multiple payment methods for a single payment. For example, for a \$25.00 amount due allow payment of \$15.00 from a Credit Card associated with the Account and \$10.00 cash.		
383	Provide a Service where the reversal of any payment shall result in the items paid being marked as unpaid, having the same effect as if those items had never been paid, including the re-opening of transactions and fees that were dismissed/waived.		
384	Provide a Service to use the available Account balance as payment for all inventory items (for example, Transponders, Sales tax, Prepaid balance).		
385	Provide a Service to prevent double-payments by Authorized user or customer from making two identical payments for the following configurations. (For Example: Front end such as Web or Back-end Lockbox payment from applying twice)		
	<ul style="list-style-type: none"> • Posting Date (Configurable within 60 seconds) 		
	<ul style="list-style-type: none"> • Account Number 		
	<ul style="list-style-type: none"> • Payment amount 		
	<ul style="list-style-type: none"> • Transaction Type (Payment, Reversal, Refund, Replenishment) 		
	<ul style="list-style-type: none"> • Payment Type (Visa, MC, Discover, AMEX, ACH) 		
386	Provide a Service that includes payment method details (Credit Card or ACH numbers obscured last 4 digits) and amount to be paid prior to the Authorized User being allowed to submit a payment.		
387	Provide a Service to set a Configurable payment hierarchy that determines the order in which payments are applied, including but not limited to:		
	<ul style="list-style-type: none"> • by Roadway 		
	<ul style="list-style-type: none"> • in FIFO/LIFO order 		
	<ul style="list-style-type: none"> • by Toll Transaction Date 		
	<ul style="list-style-type: none"> • by Toll Posting Date 		
	<ul style="list-style-type: none"> • by payment item type (such as Invoiced Tolls, un-invoiced Tolls, processing fees and civil penalties) 		
	<ul style="list-style-type: none"> • by combination of date and transaction type 		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
388	Provide a Service to apply Payments to Customer Account balances in the following Configurable order (default order is automatically assigned by the NCTA):		
	• Oldest Tolls in collections		
	• Oldest fees in collections		
	• Oldest penalties in collections		
	• Oldest past due Tolls		
	• Oldest past due fees		
	• Oldest past due penalties		
	• current Tolls not yet invoiced		
	• current fees not yet invoiced		
389	Provide a Service to specify which transactions or fees are paid, when making a partial payment. In this case the default Posting order is overridden.		
390	Provide a Service that provides line item for the payments. For example: Payment gets applied for multiple Transponder sales, Sales Taxes and Prepaid Balance. Show aggregated line items and payment reference number (uniquely generated for each payment).		
391	Provide a Service to trace each payment to the transactions paid and each transaction paid or overpayment:		
	• Invoices		
	• Tolls		
	• Prepaid Tolls		
	• Transponder Sales, Sales Tax and County Taxes		
392	• processing fees		
	• civil penalties		
392	Provide a Service, when accepting check or money order payments, to credit accounts immediately on payment to the account.		
393	Provide a Service to reverse all forms of check or money order payment if declined or returned by the Banking Services Provider, including the assessment of applicable fees.		
394	Provide a Service to accept cash as a form of payment, to credit accounts immediately on payment to the account.		
395	Provide a Service to process cash payment reversals.		
396	Provide a Service to set Configurable threshold amounts and role-based limits for cash payment reversals.		
397	Provide a Service to require Approval for cash payment reversals.		
398	Provide a Service for the automated processing of refunds (in Case of successful Account closures) and queue eligible refunds.		
399	Determine eligibility and issue refunds to customers based on various activities on the Account:		
	• closure of an Account		
	• adjustments to Interoperable payments received		
	• customer request for an over payment refund		
	• unapplied checks/money order		
400	• over payment of an invoice where no outstanding invoices or unbilled Tolls exist for a Configurable period		
400	Provide a Service to issue refunds using the same method that the payment was received. For example, a check payment will be refunded by check and Credit Card to the same Credit Card.		
401	Provide a Service to issue refunds by check when the Credit Card which was used for the original payment has been closed or cannot otherwise accept the refund.		
402	Provide a Service to review all eligible refunds and initiate the refund process.		
403	Provide a Service to input all details regarding the check refund issued:		
	• check number		
	• date check was issued		
	• check payee details		
	• the date the check cleared the bank		
	• the reference number		
404	• reason for issuing the check		
404	Provide a Service to void a refund or disbursement check, which shall restore the payable balance.		
405	Provide a Service to void and reissue a refund or disbursement check.		
406	Provide a Service to manually override the refund payee information, for example, when a refund is due to a deceased customer's estate.		
407	Provide a Service to initiate refunds from unapplied payments (for example when a payment that was made to the NCTA in error is deposited but is not applied to an Account and needs to be refunded).		
408	Provide a Service for automated refunds, up to a Configurable amount, to the Account holder of any positive balance on the Account at the time of closing.		
	Provide a Service that shall support the processing of disbursements:		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
409	<ul style="list-style-type: none"> customer refunds 		
	<ul style="list-style-type: none"> settlement with NC Roadways 		
	<ul style="list-style-type: none"> settlement with Interoperable Agencies (E-ZPass Hub or other Hubs) 		
	<ul style="list-style-type: none"> settlement with Retailers 		
	<ul style="list-style-type: none"> settlement with Third-Party Service Providers 		
410	Provide a Service (Configurable) to set the criteria for refund eligibility. Circumstances that might trigger a refund.		
	<ul style="list-style-type: none"> closing of an Account 		
	<ul style="list-style-type: none"> positive balance on a Postpaid Account and there are no outstanding invoices or unbilled Tolls that need to be paid over payment of a customer invoice and there are no outstanding invoices or Toll transactions that need to be paid. 		
411	Provide a Service to obtain Approvals before refund processing is performed to eligible refunds.		
412	Provide a Service to issue refunds to the payment method that was used to create the credit balance.		
413	Provide a Service to issue electronic refunds (for example, by Credit Card or ACH) to the Credit Card or bank account used to make the payment, including but not limited to those Credit Card or bank accounts that are not stored on the Customer Account. For example, the NCTA can utilize a payment reference number to trace back to a payment method without the need for the System to retain the card information.		
414	Provide a Service to issue refunds by check if the Account does not provide for an electronic method.		
415	Provide a Service to issue refunds by check for over payments on:		
	<ul style="list-style-type: none"> prepaid Tolls unapplied balance 		
416	Provide a Service to prevent refunds of greater than the amount of the original transaction amount, adjusted for any prior refunds.		
417	Provide a Service for automated processing of refunds after a Configurable hold period.		
418	Provide a Service to input all details regarding a check that is issued:		
	<ul style="list-style-type: none"> check number date check was issued details of check payee date check cleared the bank the reference number reason for issuing the check notes 		
419	Provide a Service to send a refund Notification electronically and/or by mail to all customers who are issued a refund.		
420	Provide a Service to automatically open a shift for an Authorized User at the time of first applicable transaction.		
421	Provide a Service to include user, location, shift date (shift-ID) for all transactions processed during the shift.		
422	Provide a Service to provide total amount collected during Shift-ID.		
423	Provide a Service to close a shift once it is balanced.		
424	Provide a Service to make corrections, adjustments and reversals to transactions while preserving the original transaction, including the original Transaction Date and amount. Any corrections, adjustments or reversals shall be tied to, but not change, the original transaction.		
425	All corrections, adjustments and reversals shall be posted to the current Date (Posting date).		
426	Provide a Service to transmit details of all corrections, adjustments and reversals to NC Roadway transactions via an amended RTCS Disposition Service.		
427	Provide a Service for full reversals of any type of transaction with a reason code (Configurable), preserving complete history.		
428	Provide a Service for partial reversals of any type of transaction with a reason code (Configurable), preserving complete history.		
429	Prevent the sum of any corrections, adjustments or reversals done to a transaction to exceed the amount of the original transaction.		
430	Provide a Service to configure all relevant parameters related to establishing role-based thresholds for System transactions.		
	<ul style="list-style-type: none"> Adjustments Debits Credits reversals 		
431	Provide a Service that details tracking of individual adjustments, credits and/or reversals and categorize each separately.		
432	Provide a Service to transfer transactions (financial or Tolls) to another Account. For example, a check posted incorrectly to an Account gets reversed and re-posted to the appropriate Account.		
433	Provide a Service to support the assessment of fees and fines (automatically and manually) to Accounts.		
434	Provide a Service to apply fees and fines:		
	<ul style="list-style-type: none"> at the Account level (statement fee) at the invoice level (Processing fees, Civil penalties) at the transaction level (Check bounce fees) 		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
435	Provide a Service to charge Configurable, Account-related fees, with different Configurable amounts depending on Account Type and Attributes: <ul style="list-style-type: none"> Returned Payment Fee Excessive ITOL fee, configurable 15% of tolls posted (transaction date) as ITOLs in a month with a minimum of 10 transactions Statement fee, depending on method of delivery - Mail and frequency – Quarterly 		
436	Provide a Service to assess the returned payment fee to the first Account for which the payment was applied if a payment was made to multiple Accounts.		
437	Provide a Service that complies with PCI and all applicable merchant card association agreements and other applicable regulations for the exchange of Credit Card and Debit Card payments. Note: Payment Gateway API specifications can be found here: https://developer.cardpointe.com/cardconnect-api#rESTful-implementation		
438	Provide a Service to accept all major Credit Cards: <ul style="list-style-type: none"> Visa MasterCard American Express Discover Card 		
439	Provide a Service that complies with the Electronic Payment Association (NACHA) operating rules and other applicable regulations for the exchange of Automated Clearing House (ACH) payments.		
440	Provide a Service that complies with strong end-to-end encryption for sensitive information stored within databases or secure transmissions.		
441	Provide Configurable masks for encrypted information, for example, display the first three (3) and last four (4) digits on screens and reports: <ul style="list-style-type: none"> Credit Card number bank account number bank routing number 		
442	Provide a Service that Interfaces with the Approved Merchant Service Provider Payment Gateway (such as CardConnect) for the purpose of settling Credit Card, Debit Card and ACH transactions in real-time with fully automated payment clearing and processing for all electronic payment methods.		
443	Provide a Service to prevent double-requests going to Payment Gateway from making two identical payments; For a matching request, use the unique Order-ID from the previous request to check status from Payment Gateway. If previous request was successful on the payment gateway, then post the payment to NCTA customer account and update status. if previous request failed, then create a new Order-ID and make a new request to Payment Gateway. (for Example: Web payment calls payment service) <ul style="list-style-type: none"> Posting Date (Configurable within 60 seconds) Account Number Payment amount Transaction Type (Payment, Replenishment) Payment Type (Visa, MC, Discover, AMEX, ACH) Payment channel (Web, IVR, Mobile APP, CRM, Batch) 		
444	Provide a Service that sends replenishment requests for accounts that have balance below replenishment threshold and capture the results (success or failures) returned from the Merchant Service Provider and update Accounts accordingly. All successful payments made via Credit Card have an authorization code for the transaction.		
445	Provide a Service that provides an audit trail for every request prior to calling Merchant Service Provider (MSP) API and send out alert via the logging and monitoring solution regarding failures or loss of communication in the processes that interface with Merchant service provider.		
446	Provide a Service that provides an audit trail and exception handling for one sided (Orphan transactions) where payment is recorded at Merchant Service Provider Payment Gateway (such as CardConnect) but not posted to the NCTA customer's account. One sided Orphan transactions shall be voided before settlement window and reversed after the settlement window.		
447	Provide a Service that queries Merchant Service Provider Payment Gateway (such as CardConnect) for a settlement date and reconcile against NCTA posted requests. Any discrepancies shall be reported and reversed.		
448	Provide a Service to update Customer Accounts with settlement date and funding date from the Merchant Service Provider services.		
449	Provide a Service that provides Authorized Users with the detailed reasons for Credit Card declines, <ul style="list-style-type: none"> invalid card number or bank account number name mismatch card security code mismatch Zip code mismatch address mismatch 		
450	Provide a Service to notify customers about various auto-replenishment activities. For example, replenishment was successful with secondary payment method, or replenishment failed.		
451	Provide a Service to add payment information, for example Credit Card or ACH, on the Account and automatically process a payment when a configurable amount of time (on Invoice Due date) has elapsed after the invoice creation date.		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
452	Provide a Service to Interface to the Banking Services Provider(s) holding the account(s) from which disbursement checks are drawn to support the functionality described within these Requirements and in accordance with ICDs to be developed during Project Design.		
453	Provide a Service to Interface with third-party Money Services Providers (MoneyGram) for the functionality described within these Requirements and in accordance with existing ICDs.		
454	Provide a Service to Interface to the Agencies' Approved Credit Card Update service provider for the functionality described within these Requirements and in accordance with ICDs to be developed during Project Design.		
455	Provide a Service to obtain updated data from the Credit Card update service provider. Data shall include:		
	• updated Credit Card expiration date		
	• updated Credit Card number, including when Credit Card fraud is detected by the Credit Card update service		
	• updated Credit Card issuer		
	• updated Credit Card type		
	• updated name on the Credit Card		
456	Provide a Service to Interface to the Agencies' Approved Merchant Service Provider Payment Gateway (such as CardConnect) for the functionality described within these Requirements and in accordance with ICDs to be developed during Project Design.		
457	Contractor must pass data to the merchant that is not subject to Downgrade.		
458	Provide a Service that provides secure Interface to the Merchant Service Provider for Credit Card payments.		
459	Provide a Service to issue refunds to Credit Cards.		
460	Provide a Service to track data related to Credit Card inquiries, for example, capture date of inquiry, disposition date and disposition results when inquiries about Credit		
461	Provide a Service for Credit Card chargebacks and permit investigation of the details as Cases.		
462	Provide a Service for Authorized Users to reverse Credit Card chargebacks.		
463	Provide a service to credit Accounts immediately upon a successful Credit Card payment authorization.		
464	Provide a Service to validate the formatting for all Credit Card information before submitting it to the Merchant Service Provider:		
	• Credit Card number, by applying the appropriate validation algorithm immediately upon exiting the Credit Card number field		
	• expiration date, by verifying the expiration date is not in the past or too far out in the future		
	• name on the card, by ensuring it is not blank or under a certain number of characters		
	• ZIP code, by verifying it is not blank or an invalid number of characters		
	• billing address, by ensuring it is not blank		
465	Provide an automated Interface to reconcile transactions initiated with the Merchant Service Provider(s).		
466	Provide a Service that provides secure Interface to the Merchant Service Provider for ACH payment.		
467	Provide a Service to process both ACH debits and ACH credits with the Merchant Service Provider or Banking Services Provider.		
468	Provide a Service to verify the account information with the Merchant Service Provider prior to initiating an ACH debit.		
469	Credit Customer's Account immediately upon initiating an ACH debit.		
470	Provide a Service to reverse an ACH payment if declined by the Banking Services Provider.		
471	Provide a Service to validate (at field level) the ACH bank routing number by applying the appropriate validation algorithm.		
472	Provide an automated Interface to reconcile transactions initiated with the Merchant Service Provider(s).		
473	Provide a Service to Interface to an Approved Lockbox Service Provider for the functionality described within these Requirements and in accordance with ICDs to be developed during Project Design.		
474	Provide a Service to receive file from Lockbox, process, post to the appropriate Accounts, and reconcile payments transmitted by the Lockbox Service Provider.		
475	Provide a Service to associate checks and stubs received at the Lockbox Service Provider to the proper Account. Lockbox shall provide the check images associated with the payment.		
476	Provide a Service to receive and process Lockbox Exceptions and ensure payments are appropriately accounted for:		
	• correspondence items and customer comments associated with payments		
	• payments the Lockbox Service Provider is unable to associate to an Account (to post to a System account)		
477	• Provide a service for Authorized Users to research and determine the disposition of Lockbox Exceptions, including but not limited to:		
	• Posting payment to the Account,		
	• refund payment to customer, or		
478	• hold as un-allocated funds.		
478	Provide a Service to accept Lockbox Exceptions and to automatically create Cases/Service Request for Lockbox Exceptions. For example, if a check was received without a payment coupon it cannot be associated with an Account and research must occur.		
479	Provide a Service to electronically receive and process correspondence received at the lockbox, for example changes of address.		
480	Provide an automated Interface to reconcile lockbox deposits.		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
481	Provide a Service to support file transfers between two systems using FTP/SFTP methods to allow NCTA system to receive as well as transmit to third party vendor systems. File transfer parameters shall allow following configurations: <ul style="list-style-type: none"> • Source and Target IP address • Transmission Type (FTP/SFTP) • Username/Hash password • Direction of transmission; (Upload / Download) • Number of transmission attempts • Source and Target Folder 		
482	Provide a Service which optimizes outgoing file transfers NCTA system.		
483	Provide a Service shall support a Configurable retransmission parameter that controls how many times a failed transmission is retried.		
484	Provide a Service change to the designated sub-directory (if so configured) after successfully connecting to the third-party vendor system.		
485	Provide a Service shall attempt to retransmit failed transmissions the configured number of times.		
486	Provide a Service shall move all successfully transmitted files to an associated processed.		
487	Provide a Service shall move all unsuccessfully transmitted files to an associated error directory.		
488	Provide a Service to generate Full Transponder Status file (XTAG - Per RTCS API File specification ICD) for NC Roadways regardless of their status, until such time that the Transponder is physically removed from NCTA inventory. Transponder Status in (XTAG) depends on the following: <ul style="list-style-type: none"> • Transponder Status (Active, Lost, Stolen, Inventory, Defective) • Account Status (Active, Closed) • Account Type (Personal, Business, HOV, First Responder, Motorcycle, Government, Transit) • Financial Status (Prepaid - Good, Low Balance, Zero Balance, PostPaid - Good) 		
489	Provide a Service to generate Incremental Transponder Status file (XTAG - Per RTCS API File specification ICD) for NC Roadways when the status of Transponder changes since the last Full Transponder Status file was generated.		
490	Provide a Service that can Receive and process Transponder-Based and Image-Based Transactions from each NC Roadways. Per the RTCS API Interface document. Validate the Transponder-Based Transactions and Image-Based Transactions transmitted by the NC Roadways meet the processing criteria of: <ul style="list-style-type: none"> • The Transponder-Based Transactions and Image-Based Transactions meet the Requirements of the RTCS API ICD • When a Resubmitted or Correction transaction is received from the NC Roadways • Transponder-Based Transactions where the Transponder was associated to an Account with sufficient balance to pay the Toll. If the Account does not have sufficient funds to pay the Toll then a request for the Image-Based Transaction is sent to the NC Roadways via RTCS Disposition service • Image-Based Transactions have License Plate number, Jurisdiction and License Plate type (if required for states) Country and have the associated images for Bill-By-Mail invoicing • For Image-Based Transactions, Image Transfer service shall pull associated images from the NC Roadway system using a unique transaction sequence number with options to pull: 1) All associated images 2) Only best selected image (overview and ROI) 3) Toll Rate Sign and side camera images. • Image-Based Transactions with images shall attempt to 1) post the Image-Based Transaction as an ITOL Transaction to a Prepaid Account or 2) if the License Plate is on the Plate file (ICLP) received from an Interoperable Agency, the Image-Based Transaction is transmitted to the Interoperable Agency. If the Posting fails, the transaction will be sent to Bill-By-Mail service. • Categorize failed transactions into error codes and exception codes for reconciliation and disposition purposes. • Accept and process corrected transactions that have been previously rejected. All correction transactions shall reverse the original transaction and repost transaction. 		
491	Reject transactions submitted by the NC Roadways based upon a Configurable maximum number of days between the occurrence of the transaction (Transaction Date) and the time it was received at the NCTA. This parameter shall be Configurable for Transponder-Based Transactions (m) and Image-Based Transactions (n).		
492	Validate the transactions to ensure compliance to Interface Requirements and established parameters for each NC Roadways and identify errors and exceptions.		
493	Reject submitted Transponder-Based and Image-Based Transactions that have failed the verifications and cannot be processed further as submitted for collecting Tolls at the NCTA. The NC Roadways can correct the rejected transactions and re-submit the corrected transactions to the NCTA for processing if appropriate and the Configurable maximum time has not elapsed. Such rejected transactions include but are not limited to: <ul style="list-style-type: none"> • transactions are older than the established parameters • transactions do not belong to an Agency on the NC Roadways list • transactions do not belong to a Plaza on the NC Roadway's Plaza list (The NC Roadways can correct such transactions and resubmit them or the NC Roadways can update the Agency's Plaza list and resubmit the rejected transactions to the NCTA for processing) • internal Transponder identification number is not valid • Transponder is unrecognized • Transaction has an invalid axle count value • transaction is an exact duplicate of a posted NCTA Transponder-Based Transaction on the Account 		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
	<ul style="list-style-type: none"> transaction is an exact duplicate of a posted ITOL Transaction on the Account transaction is an exact duplicate of a Bill-By-Mail Transaction on the Account transaction was rejected by the Interoperable Agency transaction is not in compliance with the Approved ICD (the NC Roadways can correct such transactions and resubmit them) 		
494	<p>Provide a Service to configure duplicate transaction verification for each NC Roadways, based on various criteria, as outlined in Attachment 1: NC Quick Pass Business Policies and Attachment 6: Business Rules</p> <ul style="list-style-type: none"> NC Roadways or Interoperable Agency Roadways Plaza direction of travel transaction time differential transaction type (Transponder and Image) Account Type Account Attributes 		
495	Provide a disposition Service to each NC Roadways for each submitted transaction in the form of an RTCS Disposition Service, when amendments and adjustments, as described in the ICD, are made to the transaction.		
496	Provide a Service that shall transmit RTCS Disposition Service Amendments for all changes in status and amount in accordance with the RTCS Disposition Service ICD.		
497	Provide a Service to Reconcile transmitted transaction counts and errors by Transmission Date and Transaction Date. Send status of transaction transmission and/or verification errors to the logging and monitoring solution.		
498	Create transmission failure Alerts based on Configurable parameters: missing Plazas and Configurable variances from expected values.		
499	<p>Provide a Service to Receive and validate Transponder-Based Transactions and Image-Based Transactions from each NC Roadways. Validate the Transponder-Based Transactions and Image-Based Transactions transmitted by the NC Roadways meet the processing criteria of:</p> <ul style="list-style-type: none"> Transmit Transponder-Based Transactions and Image-Based Transactions to the appropriate Interoperable Agency. Transponder-Based Transactions where the Transponder is not in the Inventory table (ITM - Transponders are not issued by NCTA, NCTA currently only issues Transponders starting with a Transponder prefix of 0033). Image-Based Transactions have License Plate number, Jurisdiction and License Plate type (if required for states) Country that matches to ICLP file sent by Interoperable Agency. Receive transaction disposition from the Interoperable Agencies for each transmitted Transponder-Based Transaction and Image-Based Transaction. If the transaction is rejected by Interoperable Agencies, the transaction will be sent to Bill-By-Mail service. 		
500	Send the amended status to the originating NC Roadway facility using RTCS Disposition Service notifying the transaction disposition.		
501	Provide a Service to track payables and receivables between the NCTA and the Interoperable Agencies.		
502	<p>Provide a Service to configure the minimum and maximum number of images associated with Transponder-Based and Image-Based Transactions by Plaza, by Vehicle Class and by Agency. Each Agency has a different Image capture System and therefore may capture and make available a different number of images. The services shall:</p> <ul style="list-style-type: none"> acquire images for transactions initially identified to not have images retry the acquisition of images for transactions initially identified to not have images 		
503	When the NCTA requires an image, obtain the image from the NC Roadways using Image-Based Transactions Image Transfer service and store it in the NCTA storage. Match the acquired image with its transaction.		
504	Identify transactions for which images were expected but are missing and generate an Operational Alert Notification to the logging and monitoring solution if images are missing for more than a Configurable number of transactions.		
505	Reject the transaction with No Image status when image cannot be obtained after a Configurable amount time for a specific Roadway.		
506	Categorize and transmit the status of the failed images into error codes and exception codes to specific Roadway distribution list.		
507	Identify when the actual number of Transponder-Based Transactions and Image-Based Transactions received from a NC Roadways is a Configurable percentage below the expected number for each Plaza and lane and send an Operational Alert Notification to the logging and monitoring solution.		
508	Identify when the actual number of images acquired is a Configurable percentage below the expected amount for each Plaza and lane and send an Operational Alert Notification to the logging and monitoring solution.		
509	Identify if there are missing images from a specific Plaza (Configurable number over a Configurable period of time) and send an Operational Alert Notification to the Application logging and monitoring solution.		
510	<p>Provide a Service to generate Full Transponder Status file (ITAG - Per IAG File specification ICD) for Interoperable roadways regardless of their status, until such time that the Transponder is physically removed from NCTA inventory. Transponder Status in (ITAG) depends on the following:</p> <ul style="list-style-type: none"> Transponder Status (Active, Lost, Stolen, Inventory, Defective) Account Status (Active, Closed) Account Type (Personal, Business, HOV, First Responder, Motorcycle, Government, Transit) Financial Status (Prepaid - Good, Low Balance, Zero Balance, PostPaid - Good) 		

Requirement No.	Requirements	Technology Stack			
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.		
511	Provide a Service to generate Incremental Transponder Status file (ITGU - Per IAG File specification ICD) for Interoperable roadways when the status of Transponder changes since the last Full Transponder Status file (ITAG) was generated.				
512	Provide a Service to generate Full License Plate File (ICLP - Per IAG File specification ICD), to remain in the file until seven (7) days after the subscription end date in the NCTA.				
	<ul style="list-style-type: none"> At least a Transponder linked to an account 				
	<ul style="list-style-type: none"> Account Type (Personal, Business) 				
	<ul style="list-style-type: none"> Account Status (Active) Financial Status (Prepaid - Good, Low Balance, Zero Balance) 				
513	Provide a Service that can transmit and exchange data and files between the NCTA and Interoperable Agencies via one or more HUBs shall be in compliance with the existing ICDs (ICTX, ITXC), and any version updates made to them, to meet the Requirements of the Scope of Work.				
514	Provide a Service that can Receive and process Transponder-Based Transactions and Image-Based Transactions from the Interoperable Agency. Validate that the NCTA Transponder-Based Transactions and Image-Based Transactions transmitted by the Interoperable Agencies meet the criteria: <ul style="list-style-type: none"> NCTA Transponder-Based Transactions and Image-Based Transactions meet the Requirements of the Interface Control Document (ICD). 				
	<ul style="list-style-type: none"> NCTA Transponder-Based Transactions and Image-Based Transactions submitted are not later than Configurable months of the transaction date. 				
	<ul style="list-style-type: none"> NCTA Transponder-Based Transaction or Image-Based Transaction is not a duplicate of a transaction that was already posted to the Account. 				
	<ul style="list-style-type: none"> NCTA Transponder-Based Transactions and Image-Based Transactions transmitted by the Interoperable Agencies are Guaranteed where the associated Account had positive balance at the time of the transaction. 				
	<ul style="list-style-type: none"> NCTA Transponder-Based Transactions where the Transponder was associated to an Account with sufficient balance to pay the Toll. 				
	<ul style="list-style-type: none"> Image-Based Transactions have a License Plate number, Jurisdiction and optional plate type, and the License Plate is associated to an Account with sufficient balance to pay the Toll. 				
	<ul style="list-style-type: none"> Categorize failed transactions into error codes and exception codes for reconciliation and disposition purposes. Accept and process corrected transactions that have been previously rejected. All correction transactions shall reverse the original transaction and repost transaction. 				
515	Provide a Service that can generate a file with the transaction disposition to Interoperable Agencies for each submitted NCTA Transponder-Based Transaction and Image-Based Transaction (ICRX or IRXC Per IAG File specification ICD).				
516	Provide a Service to support filtering transactions by a combination of filter criteria: <ul style="list-style-type: none"> NC Roadways NCTA Account Number Vehicle Class Transaction type (Transponder-Based or Image-Based) Transponder number; or License Plate; Jurisdiction and Plate Type Start and end date criteria Aging level (Collections, Registration Stops) 				
	Apply filters to each NC Roadway's transactions based on the Agency filter rules. <ul style="list-style-type: none"> Plate corrections List - for matching plates to filter criteria - use the correction plate number, jurisdiction. Example for matching ACEI35, NC correct value is ACB135, NC. Vehicle Class Correction List - for matching Transponder or plates to filter criteria - use the corrected vehicle class. Example for matching Transponder 03316700002 with vehicle class of 1 correct it to class 2. Escalation - for matching account number to filter criteria - exclude the account from escalating beyond the Aging level. 				
	517	Provide a Service to set and maintain Configurable rules that define the order and sequence in which transactions are processed for Posting to the various Account Types.			
	518	Provide a Service to set and maintain Configurable rules that define the order in which the transactions will be processed and their final outcome to: <ul style="list-style-type: none"> type of the transaction (Transponder-Based TTOL or Image-Based ITOL) the submitting Agency (NC Roadways or Interoperable Agency) Account Status (Active, Pending Closed, Closed) Account Type (Personal, Business, HOV, First Responder, Motorcycle, Government, Transit) the presence of a Transponder (Transponder-Based) in the transaction and Transponder Status at the time of the transaction (Active, Lost, Stolen, Inventory, Defective) the presence of a License Plate number, Jurisdiction, Plate type and country (Image-Based) in the transaction and subscription at the time of the transaction and the availability of an image. whether the payment is Guaranteed or not, Financial Status at time of posting (Prepaid - Good, Low Balance, Zero Balance, Post-Paid, Good). 			
		519	Provide a Service to transmit Interoperable Transponder-Based Transactions to Interoperable Agencies to post to the Interoperable Agency Customer Accounts. Interoperable is defined as Either Transponder or License plate that does not exist in NCTA customer database.		
		520			

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
521	Provide a Service to validate NCTA Transponder-Based Transactions and Account conditions, and support processing transactions with Transponders:		
	• post a NCTA Transponder-Based Transaction to a NCTA Prepaid Account with sufficient balance to pay Toll in full		
	• post a NCTA Transponder-Based Transaction to a NCTA Prepaid Account that can pay the Toll partially		
	• post a NCTA Transponder-Based Transaction to a NCTA Prepaid Account that is above the Insufficient Balance Threshold		
522	Provide a Service to post NCTA Transponder-Based Transactions to a Government or Transit Postpaid Account.		
523	If a Transponder-Based Transaction cannot be posted to an Account, but it contains the License Plate data, then depending on the reject reason the NCTA shall process the transaction as an Image-Based Transaction. For example, if a Transponder-Based Transaction was rejected by an Interoperable Agency due to insufficient balance on the Account, then the transaction can be processed as Image-Based Transaction.		
524	If a Transponder-Based Transaction cannot be posted to an Account and is rejected by the NCTA, the NC Roadways can resubmit the transaction as an Image-Based Transaction. The NCTA shall provide a service to reprocess such transactions as Image-Based Transactions in accordance with the processing order.		
525	Transmit Interoperable Image-Based Toll Transactions to Interoperable Agencies only for the License Plates that were included in the ICLP provided by the Interoperable Agency for the day in which the Image-Based Toll transactions occurred.		
526	Provide a Service to validate the transaction and Account conditions, and support processing Image-Based Transactions in the Configurable sequence described to:		
	• post an Image-Based Transaction to a Prepaid Account with balance enough to pay the Toll in full as an ITOL transaction		
	• post an Image-Based Transaction to a Prepaid Account that can pay the Toll partially as an ITOL Transaction		
	• post an Image-Based Transaction to a Prepaid Account as a Bill-By-Mail Transaction		
	• post an Image-Based Transaction to an Interoperable Agency (using ICLP file) as an ITOL Transaction		
	• post an Image-Based Transaction to an existing Postpaid Account as a Bill-By-Mail Transaction		
• queue the Image-Based Transaction for posting as a Bill-By-Mail Transaction when a new Postpaid Account is created using the License Plate ROV			
527	Provide a Service to configure whether payments are Guaranteed for both Transponder-Based Toll Transactions and Image-Based Toll Transactions for each Interoperable Agency:		
	• post a NCTA Transponder-Based Transaction that is Guaranteed (based on NCTA ITAG file status for the transaction date) for Interoperable Agencies to the NCTA Account, regardless of the Account balance.		
	• post a NCTA Image-Based Toll Transaction that is Guaranteed (based on NCTA ICLP file with active plate subscription that links to ITAG file status of 1,2 for the transaction date) for Interoperable Agencies to the NCTA Account, regardless of the Account balance.		
	• process Transponder-Based Transactions and Image-Based Transactions to an Account based on date and time the transaction was received by the NCTA first-in, first-out (FIFO).		
528	Provide a Service to attempt to post a Toll transaction (home or Interoperable) that did not post to the Account initially at Configurable intervals for a Configurable amount of time.		
529	Provide a Service for Posting valid Toll transactions to Accounts and applying applicable discounts for Discount Plans associated with the Account, Transponder or License Plate.		
530	Provide a Service for Posting Tolls based on the particular Tolling location. For example, if the Transponder is linked to first responder account type or has a first responder plan for a particular facility, then transactions for that Transponder are charged \$0.00 for transactions on that facility.		
531	Provide a Service to post transactions to a Postpaid Account if the transaction was previously rejected by an Interoperable Agency. For example, if the Transponder-Based Transaction is not Guaranteed it could be rejected by the Interoperable Agency. In that case the NCTA could process it as an Image-Based Transaction (provided there is a retrievable image from the NC Roadways Agency) to be posted to a Postpaid Account.		
532	Provide a Service to post ITOL to an Account even when the License Plate was added to the Account and associated to the Transponder after the time of the transaction.		
533	Provide a Service to check any pending Bill-By-Mail transactions on a License Plate within subscription. If a match is found then Post transaction at NCTA rate to the Account with Vehicle as ITOL and remove all unpaid (processing fees, penalties and dismiss transactions from the Bill-By-Mail Account. (Plate Sweep)		
534	Provide a Service to reverse all ITOL transactions when a customer provides a new ROV for the license plate, remove all unpaid (processing fees, penalties) and process as Image-Based transaction per the processing rules with the exception to use provided ROV for Account creation. (Transfer of Responsibility TOR)		
535	Provide a Service to reverse all ITOL transactions when associated License Plate is identified as incorrect, remove all unpaid (processing fees, penalties) and process as Image-Based transaction per the processing rules with the corrected License Plate within an atomic transaction. (Plate Correction)		
536	Provide a Service to apply the appropriate Toll to the Transponder-Based Transaction and the Image-Based Transaction based on various (Configurable) conditions, including but not limited to:		
	• type of transaction received from the NC Roadways, for example first responder;		
	• type of transaction received from the Interoperable Agencies (Transponder or Image)		
	• type of vehicle classification (axle based versus length based) for example Express Lanes use Length and Expressway use Axles		
	• transaction attributes (location, date time)		
	• Account balance (Above \$0 and below \$0)		
• type of transaction at the time of Posting (NCTA, or Bill-By-Mail);			

Requirement No.	Requirements	Technology Stack	
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537	<ul style="list-style-type: none"> Discount Type (Personal, Business, HOV, First Responder, Motorcycle, Government, Transit) 		
	Provide a Service to establish separate, Configurable ROV lookup parameters to obtain the registered owner of a License Plate, based on various criteria:		
	<ul style="list-style-type: none"> Type of Plate, for example if the License Plate is temporary plate, the DMV lookup is performed once per week 		
	<ul style="list-style-type: none"> Account has a bad address Flag then ROV lookup is performed at Configurable intervals on Configurable Bill-By-Mail Transactions until a new address is obtained 		
	<ul style="list-style-type: none"> Set the length of time (Configurable) before ROV information needs to be rechecked for each Jurisdiction before the License Plate registration information is considered stale and must be acquired again; if the lookup fails to acquire address, the last known address shall be used. 		
	<ul style="list-style-type: none"> Jurisdiction, for example if the License Plate belongs to a Jurisdiction where the License Plates goes with the vehicle when it is sold (California, Hawaii) versus (license plate goes with the Owner - FL, NC, MD), then the ROV lookup is performed more often 		
	<ul style="list-style-type: none"> Interface type (API or Batch) transaction attributes Account Attributes (At time of posting to a Prepaid Account with a balance below Insufficient funds \$0.00) 		
538	Provide a Service to re-submit License Plates for ROV lookup a Configurable number of times and after a Configurable period of time if the License Plate is returned from the ROV Lookup Provider with no match or an error. The configuration shall be based on the type of plate, type of error and the status of the communications.		
539	Automatically trigger Account Creation service to create a new Postpaid Account for the License Plate using the ROV results if there is no match per matching criteria and use the posting service to post the Image-Based Transaction as a Bill-By-Mail transaction depending on the Toll facility where the transaction originated.		
540	Return the Image-Based Transaction to the sending NC Roadway, if ROV lookup is not successful the RTCS Disposition service shall return DMV Reject disposition code. The NC Roadways can correct the License Plate data and re-send the correction information to the NCTA for processing.		
541	Provide a Service to establish mandatory plate type Requirements based on Jurisdiction and plate type, including the entry of prefix and suffix. Transactions that do not meet the mandatory plate requirement will be transmitted to the Agency via the RTCS Disposition Service as unbillable.		
542	Provide a Service to retain all historical ROV lookup information for a vehicle as received from the lookup.		
543	Provide a Service to utilize multiple collections agencies and to place eligible transactions in collections based on Configurable criteria:		
	<ul style="list-style-type: none"> Dollar amount at time of referral, for example, below configurable amount \$100 to Collection Agency 1 and Greater than \$100 to Collection Agency 2 		
	<ul style="list-style-type: none"> Past due amount on the Account eligible for collection 		
	<ul style="list-style-type: none"> Customer Last name prefix, for example: Last name starting from "A to M" to Collection Agency 1 and from "N to Z" to collection Agency 2 Prior placements (by customer name, Account number, License Plate number and Jurisdiction) 		
544	Provide a Service to identify Accounts with unpaid transactions, fees and penalties that are eligible for the collection process based upon Configurable criteria:		
	<ul style="list-style-type: none"> age of debt (greater than 90 days from the first Invoice due date) 		
	<ul style="list-style-type: none"> skip accounts with no toll activity in the last configurable months (For example: Account meets all of eligibility criteria, but has no recent toll activity in the last 18 months) 		
	<ul style="list-style-type: none"> total amount owed (if customer is in-state and amount owed is greater than \$500 or age of debt is older than configurable (17) months) if customer is out-of-state; age of debt is older than configurable (3) months 		
545	Provide a Service to create and transmit a Placement for each invoice cycle for Accounts eligible for collections, when transactions become eligible for collection. Refer to Collections ICD		
546	Provide a Service to accept payments for Placements in collections at the NCTA.		
547	Provide a Service to accept payments for Placements in collections at the collections agency.		
548	Provide a Service to automatically reassign transactions to collections any time a payment is applied to a transactions at NCTA.		
549	Provide a Service for Authorized Users to send an Account to collections that does not meet the minimum eligibility Requirements for collection.		
550	Provide a Service to associate with the Account all correspondence transmitted to the customer from the Collection Agency.		
551	Provide a Service to accept updated addresses from the Collection Agency and update Customer Accounts based on Configurable parameters.		
552	Provide a Service to automatically assign new transactions that reach the collections status or workflow stage to the same Collection Agency that any previous transactions on that Account have been assigned (for example, all transactions for a given Account will always be assigned to the same Collection Agency).		
553	Provide a Service to automatically reassign transactions to collections any time a payment used to pay transactions in collections is reversed in the NCTA (for example, when a customer makes a payment for transactions in collections and that payment is returned by the Banking Services Provider, the Posting of the returned item in the NCTA shall automatically reassign those transactions to the Collection Agency).		
554	Provide a Service to place/release Registration Stops using the NCDMV interface for license plates with NC jurisdiction.		
	Provide a Service to set and maintain the eligibility parameters for the License Plate Registration Stop process based upon Configurable criteria:		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
555	<ul style="list-style-type: none"> Plate Jurisdiction (Only NC plates) days past due (greater than 90 days from the first Invoice due date) 		
556	Provide a service to skip the License Plate Registration Stop process based upon Configurable criteria:		
	<ul style="list-style-type: none"> NCTA Name and Address received at lookup and does not match DMV name and address at the time of placing stop 		
	<ul style="list-style-type: none"> skip accounts with no toll activity in the last configurable months (For example: Account meets all of eligibility criteria, but has no recent toll activity in the last 18 months) 		
	<ul style="list-style-type: none"> exceptions list of plates exceptions list of Accounts 		
557	Provide a Service to notify the customer of the License Plate Registration Stop.		
558	Provide a Service to indicate License Plate Registration Stop and release status, date of request and status.		
559	Provide a Service to release the License Plate Registration Stop if the past due amount for a License Plate has been successfully resolved, for example, outstanding balance is paid or dismissed. No Name and address validations are required before releasing the Registration stops.		
560	Provide a Service to re-request the License Plate Registration Stop if a payment that was received resulted in the release of Registration Stop is subsequently reversed (for example, if a check is returned or if a chargeback is received).		
561	Provide a Service for Authorized Users to manually initiate the release of a License Plate Registration Stop without resolution of past due amounts.		
562	Provide a Service that provides the data elements received from NCDMV web service call.		
563	Provide a Service to automatically display Flags on all Account screens based upon current License Plate Registration Stop status.		
564	Provide a Service to automatically associate all outbound Notifications with the appropriate Account and Case, if applicable.		
565	Provide a Service to automatically initiate customer communications and Notifications based on Account events. See Attachment 9: Correspondence List which provides the complete list of notifications and correspondence. Mail-House (JSON Interface) with fields will be provided during Design phase.		
566	Provide a Service to provide agency default and customer preferred Notifications (primary and secondary) for an Account through distribution channels:		
	<ul style="list-style-type: none"> Mail 		
	<ul style="list-style-type: none"> Email 		
	<ul style="list-style-type: none"> in-person at walk-in center 		
	<ul style="list-style-type: none"> text messaging push notifications 		
567	Provide a Service to use a secondary notification channel for notifications if the primary notification channel is marked as bad. For example, a Credit Card failure notification may be mailed to the customer if the email address is marked as bad.		
568	Provide a Service to transmit Notification items as a data file for printing and distribution.		
569	Provide a Service to generate the statements on the Statement Anniversary Day when the Account has a balance greater than or equal to \$0. Statement Anniversary Day is the day account was opened or converted to Prepaid account. Valid values are between 1 and 28, Account opened on 29, 30 and 31 would have anniversary date of 1.		
570	Provide a Service for distributing statements and assessing fees based on the following:		
	<ul style="list-style-type: none"> delivery channel (mail) - \$5.00 Statement Processing Fees 		
571	Provide a Service to generate Prepaid Account statements that detail all Account activity:		
	<ul style="list-style-type: none"> Previous Statement Balance on the Account 		
	<ul style="list-style-type: none"> Statement Date, Account Number, Replenishment Method 		
	<ul style="list-style-type: none"> Statement Period 		
	<ul style="list-style-type: none"> Toll transaction activity on the Account (Posting date, Transaction Date, Time, Transponder or License Plate, location, Toll amount and running balance) 		
	<ul style="list-style-type: none"> Payments on the Account (replenishment and one-time payments) 		
	<ul style="list-style-type: none"> Adjustments and Credits 		
	<ul style="list-style-type: none"> other financial activity on the Account (affecting balance) 		
	<ul style="list-style-type: none"> purchases of Transponders, other (possibly Sales tax, county tax) items fees assessed on the Account Statement Closing Balance on the Account 		
572	Provide a Service to generate Prepaid Account-based invoicing on the Invoice Anniversary Day when Account balance is below the Insufficient Balance Threshold or last statement date, where the monthly invoice reflects the entire outstanding balance for the License Plates that incurred the Tolls.		
573	Provide a Service to generate the Account-based invoices on the Invoice Anniversary Day only if there is an outstanding due on the Account. Invoice Anniversary Day for Bill-By-Mail account is the day the first toll was posted first toll that drove the account negative.		
574	Provide a Service to evaluate and record each Open Bill-By-Mail account on the Anniversary Day. Invoices shall not be generated if there are no outstanding dues on the Account. See attached scenarios when an invoice is generated.		
575	Provide a Service to pick the one vehicle images for each license plate number associated to the toll transaction appearing on the invoice, at time of sending image to mail house for Invoice generation.		
	Provide a Service (Configurable) to set and maintain invoice generation and transaction aging parameters, including but not limited to:		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
576	<ul style="list-style-type: none"> the number of days from when the transaction posted to the Account to when the Account is eligible for initial invoice, for example, initial invoice is created a Configurable (35) number of days after the first transaction is posted to the Account 		
	<ul style="list-style-type: none"> invoice generation and aging timeline, for example, generate the monthly invoice 35 days from the Anniversary Day, and amount owed is considered past due if not paid within five (5) days (of the due date) 		
	<ul style="list-style-type: none"> invoice due date constraints, such as invoices are due on a Business Day that is a federal or state Holiday, then the invoice shall be due the first business day after the Holiday 		
	<ul style="list-style-type: none"> grace period for aging unpaid transactions on a notice, for example, a five (5) day grace period is applied before transactions are considered past due and a late fee is assessed to the Account. 		
	<ul style="list-style-type: none"> eligibility criteria, for example, if customer has at least one (Configurable) unpaid Toll transaction or other financial transaction within the billing cycle then include the transaction in the monthly invoice 		
	<ul style="list-style-type: none"> aging thresholds and values, for example, if the past due amount on the Account is more than \$0.00 and is more than thirty (35) days past due then processing fee (\$6.00) is assessed; In a calendar year processing fee will not exceed \$48. 		
	<ul style="list-style-type: none"> aging thresholds and values, for example, if the past due amount on the Account is more than \$0.00 and is more than thirty (70) days past due then civil penalty (\$25.00) is assessed and no penalty assessed in the last six month; In a calendar year civil penalty will not exceed \$50. fee and penalty structure are to be assessed at the invoice level 		
577	Provide a Service to continue to progress transactions through the escalation stages even when a good mailing address cannot be found to mail an invoice.		
578	Provide a Service to prevent the charging fees or penalties on invoices to Accounts that have the bad address (Nixie) flag.		
579	Provide a Service to prevent the charging fees or penalties on invoices to specialty Accounts (Government and Transit).		
580	Provide a Service to place a hold on invoice and enter a hold reason, hold expiry date and Alert criteria.		
581	Provide a Service to prevent the further processing of an invoice if there is a hold placed on it.		
582	Provide Configurable parameters for determining eligibility for progressing transactions to the next stage, including but not limited to:		
	<ul style="list-style-type: none"> Account Type 		
	<ul style="list-style-type: none"> Filters 		
	<ul style="list-style-type: none"> due date 		
	<ul style="list-style-type: none"> unpaid Tolls on the Account unpaid amounts (fees or penalties) on the Account last toll activity on the account (Example: Accounts with no new unpaid toll transaction in the last 3 invoice cycle) 		
583	Provide a Service to dismiss selected transactions at any stage.		
584	Ensure that historical data about customers and previous invoices and statements transmitted to customers do not change (remain in their original form) regardless of changes in the parameters.		
585	Provide a Service at each status or workflow stage to perform the following actions, including but not limited to:		
	<ul style="list-style-type: none"> identify the transactions and License Plates that are eligible for the next stage 		
	<ul style="list-style-type: none"> add applicable fees add applicable penalties 		
	<ul style="list-style-type: none"> generate next Notification for the time frame established transmit the Notification to the customer 		
586	Provide a Service to reassign transactions at any stage to a different owner and force the transactions to an earlier stage if needed. For example, when a customer disputes an invoice with proof that vehicle was in the care, custody and control of another individual at the time of the transaction, then such transactions are reassigned to the new owner and new owner is invoiced. (TOR).		
587	Provide a Service to enter a forwarding address, obtained from returned mail communicated via Interface from an external vendor or manually input, which will result in an invoice being sent to the new address. Invoice shall be sent to most recent updated DMV or Mailing address. For example: An Invoice will be sent to Mailing address, if provided by the customer after address was received from DMV. An Invoice will be sent to DMV address, if DMV provided an updated address after the customer or USPS provided address.		
588	Provide a Service to track Notification delivery response for each individual Notification.		
589	Provide a Service to mark returned mail as undeliverable and set the Flag indicating the address is bad.		
590	Provide a Service to prevent Notifications from being sent to addresses with a Flag indicating the address is bad or to continue to send such Notifications.		
591	Provide a Service (Configurable) to send a Notification to a customer regarding an undeliverable mail situation by using a different distribution channel.		
592	Provide periodic Configurable checks for bad (bounced) emails and mark them as undeliverable after a Configurable number of failed delivery attempts.		
593	Provide a Service to mark phone and fax numbers as bad after a Configurable number of failed contact attempts.		
594	Provide a Service (Configurable) to send a Notification to a customer regarding a bad phone/fax number situation by using a different distribution channel.		
595	Provide a Service for an Authorized User to initiate an automated Skip Tracing process.		
596	Provide a Service, when a mailing address is found to be bad, to perform a skip trace and add the acquired mailing address or other contact information to the Account and identify the source of the address as skip trace.		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
597	The Contractor shall build APIs/services for future integration with NCTA's IVR solution - (877) 769-7277 and shall support integration efforts in subsequent phases of the Program.		
598	The Contractor shall build APIs/services for future integration with NCTA's current website - https://www.ncquickpass.com/ , and shall support integration efforts in subsequent phases of the Program.		
599	The Contractor shall build APIs/services for future integration with NCTA's Mobile App (iOS & Android) and shall support integration efforts in subsequent phases of the Program		
600	Provide an Interface to the individual Agencies' existing Host Systems to obtain and acknowledge 100 percent of all transactions and images in accordance with the existing ICDs.		
601	The NCTA RTCS Interface shall be capable of the following:		
	• To Receive and Transmit Home and Away Agency Full & Incremental Transponder status file.		
	• To Receive Original, Corrections or Resubmittal transactions that occurred on NC Turnpike Roadways.		
	• To Pull Image transactions (1 to 8 images) for image-based transactions that occurred on NC Turnpike Roadways.		
602	• To Send Interim and final disposition for every transactions that occurred on NC Turnpike Roadways.		
602	Provide the Interface to the NCDMV for the ROV lookup functionality described within these Requirements and in accordance with Web Services specification.		
603	Provide Direct Interface to up to seven (7) state's DMVs (states other than North Carolina) in accordance with ICDs/API's. ICDs shall be provided during the Design Phase.		
604	Provide the Interface to the third-party lookup services provider of out-of-state DMVs for the functionality described within these Requirements and in accordance with ICDs.		
605	Provide the Interface to the Interoperable Agencies for the functionality described within these Requirements and in accordance with existing ICDs (IAG 1.60.xx) specification or greater:		
	• To Receive and Transmit NC Quick Pass Full & Incremental Transponder status file.		
	• To Receive and Transmit NC Quick Pass Full License Plate file.		
	• To Transmit Away Agency Transactions and corrections that occurred on NC Turnpike Roadways and Receive Reconciliation for the submitted transactions.		
	• To Receive NCTA customer Transactions and corrections from the Away Agency Roadways and Transmit Reconciliation for the received transactions.		
606	• To Receive and transmit Acknowledgement files for the above file exchanges.		
606	The Contractor shall build APIs/services for future integration with NCTA's case management solution, which allows access to customer data.		
607	The Contractor shall build APIs/services for future integration with NCTA's Customer Service Representative (CSR) facing application, which includes all the functionality of self-service provided on the website and handling customer disputes, payment reversals/adjustments, and shift management, and shall support integration efforts in subsequent phases of the Program.		
608	Provide a Service to Interface with a third-party print/mail service provider for the functionality described within these Requirements and in accordance with ICDs.		
609	The Contractor shall build APIs/Services for future integration with NCDOT's finance solution and shall support integration efforts in subsequent phases of the Program.		
610	Provide an Interface to the collections agencies for the functionality described within these Requirements.		
611	The Contractor shall insure the TISDSR will be designed such that NCTA will be able to leverage BI/Analytics tools to integrate without any negative impact to production performance.		
612	The Contractor shall build APIs/services for future integration with NCTA's Transponder fulfillment vendor and shall support integration efforts in subsequent phases of the Program.		
613	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, PCI-DSS and the Statewide Security Manual for review and Approval by NCTA.		
614	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.		
615	The Contractor shall design the cloud-based infrastructure to seamlessly failover to another infrastructure and/or cloud to ensure minimal interference with system availability after a disaster event in order to provide NCTA with business continuity at all times.		
616	The Recovery Time Objective (RTO) shall be five (5) hours.		
617	The Recovery Point Objective (RPO) shall be one (1) minute.		
618	The TISDSR shall be certified PCI compliant prior to the commencement of operations and shall remain compliant for the duration of the Contract. The Contractor shall provide an annual certification of PCI compliance in accordance with the most recent PCI standards. NCTA shall establish the annual certification date, to be Approved by NCTA management.		
619	The TISDSR shall utilize state-of-the-art security features, securing customer information per all applicable standards issued by the PCI Security Standards Council.		
	Note: PCI compliance requirements shall override any conflicting requirements herein.		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
620	The Contractor shall compile scan results into a report, noting any issues uncovered during the scan, and the Contractor's recommendation for resolution. The Contractor shall submit the report to NCTA for review.		
621	The Contractor shall be required to validate PCI-DSS Compliance as a Service Provider using a third-party Qualified Security Assessor (QSA), who will conduct an annual onsite assessment and submit a completed ROC (Report of Compliance), including a signed Attestation of Compliance (AOC), and a compliant executive summary of the most recent network scan as their validation documentation.		
622	The choice of QSA shall be mutually agreed upon by the Contractor and NCTA.		
623	The Contractor shall be responsible for all costs related to the annual assessment audits, all costs associated with obtaining and maintaining PCI certification, and the use of a PCI- Approved scanning vendor.		
624	The TISDSR database(s) shall utilize the latest, fully stable release of the proposed database software at all times. NCTA may grant a temporary exception to this requirement at its sole discretion. Periodic updates to maintain compliance shall be considered part of routine maintenance and no additional compensation will be provided.		
625	All data hosted in the TISDSR shall be readily accessible by NCTA staff for the duration of the agreement. All data shall be owned by NCTA in its entirety.		
626	The Contractor shall be responsible for maintenance of the database(s) and for providing all upgrades, security patches and updates as required and Approved by NCTA.		
627	The Contractor shall house all data such that it is available for real- time access throughout the life of the contract.		
628	The Contractor shall propose state-of-the-art security measures to protect solution data against corruption, loss, intrusion and theft.		
629	The Contractor's Cloud Service Provider shall implement an Information Security Management solution (ISMS) that is ISO/IEC 27001:2013 compliant in order to ensure the security of the system and associated data.		
630	The Contractor's Cloud Service Provider shall, at their own expense, under-go a formal compliance audit by an independent, accredited certification body in order to receive certification of ISO/IEC 27001:2013 compliance. The Contractor shall provide evidence of compliance to NCTA prior to solution go-live and maintain compliance during the term of the Contract.		
631	Access to TISDSR database(s) shall be tightly controlled, and access shall be provided via strict user authentication.		
632	Access to all data stored shall be limited to authorized personnel including NCTA and Contractor personnel and shall be password controlled and vaulted. (SOC 2 Type 2 compliance)		
633	Access control privileges will be role-based and use active directory (or similar) groups, group membership and group permissions to control user access to components of the TISDSR. Note: Access control privileges shall extend to all solutions and applications using the NCTA network.		
634	The Contractor shall develop a Roles and Responsibilities Matrix during the API Design and Implementation phase, and coordinate with NCTA on its review and Approval.		
635	The TISDSR database(s) shall support version control and record traceability at the field level for auditing database functions.		
636	Each user shall have only one user ID and one password for access to any part of the TISDSR to which they are authorized to access. User identification will be facilitated by NCTA.		
637	The TISDSR shall have the ability to require passwords to be changed periodically. The solution shall be configurable so that the period may be changed without additional programming. Password challenge, authentication, length, reuse and expiration shall be designed in accordance with NCTA and Microsoft Active Directory (or similar) standards.		
638	All system, applications, network electronics and software shall be free of all known security vulnerabilities, worms and viruses. The Contractor shall coordinate with NCTA to deploy anti-virus software as required.		
639	The access control shall apply to all solutions and applications using the network.		
640	The TISDSR shall comply with NCTA's security/audit policies, the current versions of NIST CSF, PCI-DSS, and the Statewide Security Manual found in Attachment 2 – State of North Carolina, Statewide Information Security Manual.		
641	The TISDSR shall incorporate a configurable intrusion detection application.		
642	The Contractor shall ensure that the software and data back-ups are maintained, are current, and are available to NCTA to facilitate the transition of production processing from the primary host facility to another host in the event of contract termination or other reason.		
643	Database documentation - The Contractor shall provide thorough detailed documentation of the database(s) structure.		
644	Database growth - The database(s) shall allow for expansion to accommodate NCTA's planned projects and growth of the solution in general, accounting for changes in technologies and operational policies.		
645	Implement secure storage of audit logs, collect machine state and all items required for thorough forensic investigations		
646	The master clock shall be a part of the Contractor's solution and shall utilize an industry standard timing source NTP (Network Time Protocol).		
647	All network switches and components shall support SNTP (Simple Network Time Protocol) to synchronized date/time to all other solutions comprising the system.		
648	All computers, servers, routers and switches shall be synchronized at a minimum to the nearest 1/100 of a second.		
649	The system shall provide an automatic archive capability with the ability to backup data to an off-site facility or demonstrate air gap backup solution.		
650	All data shall be retained for a minimum of configurable months for the duration of the Contract.		

Requirement No.	Requirements	Technology Stack	
		Technology Name / Description	Comments Comment required if there's a non-conformance, optional otherwise.
651	The TISDSR shall support integration with the NCTA General Ledger solution (SAP) and shall have the ability to integrate with major accounting packages and shall be in a data format as may be used by the State of North Carolina required to process proper postings and a journal entries.		
652	The Contractor shall obtain, and provision cloud-based service(s) as required to support the functionality described herein.		
653	The Contractor shall provide secure, reliable network connectivity with sufficient bandwidth to accommodate the traffic and data volumes. Alternative (backup) network connecting pathways shall be available to facilitate continuous operation in the event of a primary path disruption.		
654	The TISDSR shall be available on twenty-four (24) hours a day, seven (7) days a week production schedule excluding scheduled maintenance activities Approved by NCTA.		
655	Scheduled downtime for pre-planned maintenance shall be scheduled in advance and agreed upon by NCTA.		
656	The Contractor shall ensure that all third-party software utilized within the cloud is licensed by the Contractor in NCTA's name.		
657	The cloud-based infrastructure utilized to provide the collective system Host functionality shall be geographically and functionally redundant such that service provision cannot be interrupted by the loss of a single cloud hosting site.		
658	The Contractor shall have methods for satisfying all security concerns for each component of the solution including the physical site, hardware and software, and the environment in general.		
659	The TISDSRs security shall comply with all applicable standards issued by the PCI Security Standards Council, including the PCI DSS and the PA_DSS, and the current version of NIST CSF throughout the term of the contract.		
660	Access control privileges will be role-based and use active directory (or similar) groups, group membership and group permissions to control user access to configuration parameters, and other functionalities per the Approved Roles and Responsibilities Matrix, as determined.		
661	The Contractor shall provide staff for technical support, system monitoring and other services, as directed by NCTA, for all personnel engaged with Contractor's system and according to the Approved Roles and Responsibilities Matrix, including but not limited to:		
	• Issue resolution and troubleshooting		
	• Maintenance records management and tracking		
	• System monitoring to include dashboard functionality and associated alerts		
	• Database monitoring, maintenance, and optimization		
	• System and data back up support		
	• Equipment, software and third-party vendor support for procurements, leases, licenses, equipment repair, etc.		
662	• System and data migrations and upgrades		
	• Warranty Tracking		
662	The Contractor shall be responsible for maintenance of the databases and application platforms (ex: OpenShift, Kafka, Database) and for providing all upgrades, security		
663	The Contractor shall create support and maintenance documentation that would allow another vendor to maintain and run the TISDSR including but not limited to:		
	• Runbooks		
	• Maintenance Plan		
	• Configuration Information		
	• SDLC environment		

Exhibit C-10

HUB Supplemental Vendor Information Form

(A PDF version is “paper clipped” to this Exhibits file for completion.)

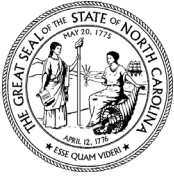


Exhibit C-10: HUB Supplemental Vendor Information

Solicitation #: _____

Vendor Name: _____

Historically Underutilized Businesses (HUBs) consist of minority, women, and disabled business firms that are at least fifty-one percent owned and operated by an individual(s) from one of these categories. Also included in this category are disabled business enterprises and non-profit work centers for the blind and severely disabled.

Pursuant to G.S. 143B-1361(a), 143-48 and 143-128.4, the State invites and encourages participation in this procurement process by businesses owned by minorities, women, the disable, disabled business enterprises, and non-profit work centers for the blind and severely disabled. This includes utilizing individual(s) from these categories as subcontractors to perform the functions required in this Solicitation.

The Vendor shall respond to questions below, as applicable.

PART I: HUB CERTIFICATION

Is Vendor a NC-certified HUB entity? Yes No

If **yes**, provide Vendor #: _____

If **no**, does Vendor qualify for certification as HUB? Yes No

Vendors that check "yes" will be referred to the HUB Office for assistance in acquiring certification.

PART II: PROCUREMENT OF GOODS - SUPPLIERS

For *Goods* procurements, are you using Tier 2 suppliers? Yes No

If **yes**, then provide the following information:

Company Name	Company Address	Website Address	Contact Name	Contact Email	Contact Phone	NC HUB certified?	Percent of total bid price

PART III: PROCUREMENT OF SERVICES - SUBCONTRACTORS

For *Services* procurements, are you using Subcontractors to perform any of the services being procured under this solicitation? **Yes** **No**

If **yes**, then provide the following information:

Company Name	Company Address	Website Address	Contact Name	Contact Email	Contact Phone	NC HUB certified?	Percent of total bid price

Need more information?

Questions concerning the completion of this form should be presented during the Q&A period through the process defined in the Solicitation document.

Questions concerning NC HUB certification, contact the [North Carolina Office of Historically Underutilized Businesses](#) at 984-236-0130 or huboffice.doa@doa.nc.gov

Exhibit D

Payment Schedule

Exhibit D - Payment Schedule

A. Payments for Implementation

Payment Number	Payment Milestone	Pay Items	% Paid (Maximum)	Cum. % Paid	Paid
A-1	Notice to Proceed	Notice to Proceed Received from NCTA	10.00%	10.00%	\$ -
A-2	Completion of Intital Documentation	<ul style="list-style-type: none"> • Approved Tolling Integration Services and Data System of Record (TISDSR) design • A proposal of hardware and software components that shall be utilized to support the TISDSR • Approved Project Management Plan • Approved Quality Management Plan • Approved Project Communication Plan • Approved Software Development Plan • Approved Subcontractor Management Plan • Approved System Hardware / Hosting / IMS / Cloud-based Design • Approved Master Test Plan (including application certification) • Use Case Based Test Plans • Approved Iterative System Design Document • Approved Bill of Materials • Approved Training and User Documentation Plan • Approved Implementation Project Schedule, including all system-related millstones and touchpoints • Approved Requirements Traceability Matrix • Approved Business Continuity / Disaster Recovery Architecture Plan • Approved Security Configurations Documents that align with required security and compliance standards (e.g. PCI-DSS, NIST CSF, Statewide Security Policy) • Approved Network and Dataflow Diagrams • Approved Roles and Responsibilities Matrix that align with required security and compliance standards (e.g., PCI-DSS, NIST CSF) • Approved Cloud-based Architecture • Approved Hardware Architecture • Approved Communications Block Diagrams • Approved Interface Control Documents • Approved Storage and Sizing Analysis • Approved Capacity Analysis • System Security (System Access) • Approved database documentation 	10.00%	20.00%	

Exhibit D - Payment Schedule

A. Payments for Implementation

Payment Number	Payment Milestone	Pay Items	% Paid (Maximum)	Cum. % Paid	Paid
A-3	Iteration 1 – Customer Account and Demographics (Iterative Build/Test/Deploy)	<ul style="list-style-type: none"> • Development and configuration of the TISDSR services related to Customer Account and Demographics. • Development of an updated Compensating Control Worksheet listing the security and compliance requirements and system vulnerabilities that the Contractor cannot meet as currently specified, including each compensating control and the Contractor’s risk-based scoring methodology. NCTA must approve all Compensating Controls relating to security and compliance requirements (e.g., PCI-DSS, NIST CSF, Statewide Information Security). • Approved Test Plans for Individual Formal Tests • Updated and approved Project Schedule, including all system-related milestones and touchpoints • Updated and approved Requirements Traceability Matrix • Providing regular system functionality demonstrations to NCTA, based on a mutually agreed upon schedule between NCTA and the Contractor, and before each software release • Submission of internal test reports for NCTA review • Approved test scripts for each test • Successful transition of data from the NCTA supplied database to the TISDSR database(s) • Successful completion of all formal tests (e.g., Unit Testing, QA Testing, End-to-End Systems Testing (System Acceptance Testing), User Acceptance Testing (UAT)) • Approved test report results documentation for each formal test • Approved Release Notes • Approved Vulnerability Scan Reports • Internal and External Penetration Testing in accordance with the current version of PCI-DSS • Installation and configuration of the TISDSR system software and subsystems. • Approved training materials, help systems, "how-to" and user manuals per the approved Training Plan • Approved Installation Plans and schedule, including all system-related milestones and any necessary system transition activities • Approved Test Report Results Documentation • Approved Equipment And Network Configurations 	10.00%	30.00%	\$ -

Exhibit D - Payment Schedule

A. Payments for Implementation

Payment Number	Payment Milestone	Pay Items	% Paid (Maximum)	Cum. % Paid	Paid
A-4	Iteration 2 – Customer Vehicles, Transponder Details & Activities (Iterative Build/Test/Deploy)	<ul style="list-style-type: none"> • Development and configuration of the TISDSR services related to Customer Vehicles, Transponder Details & Activities. • Development of an updated Compensating Control Worksheet listing the security and compliance requirements and system vulnerabilities that the Contractor cannot meet as currently specified, including each compensating control and the Contractor's risk-based scoring methodology. NCTA must approve all Compensating Controls relating to security and compliance requirements (e.g., PCI-DSS, NIST CSF, Statewide Information Security). • Approved Test Plans for Individual Formal Tests • Updated and approved Project Schedule, including all system-related millstones and touchpoints • Updated and approved Requirements Traceability Matrix • Providing regular system functionality demonstrations to NCTA, based on a mutually agreed upon schedule between NCTA and the Contractor, and before each software release • Submission of internal test reports for NCTA review • Approved test scripts for each test • Successful transition of data from the NCTA supplied database to the TISDSR database(s) • Successful completion of all formal tests (e.g., Unit Testing, QA Testing, End-to-End Systems Testing (System Acceptance Testing), User Acceptance Testing (UAT)) • Approved test report results documentation for each formal test • Approved Release Notes • Approved Vulnerability Scan Reports • Internal and External Penetration Testing in accordance with the current version of PCI-DSS • Installation and configuration of the TISDSR system software and subsystems. • Approved training materials, help systems, "how-to" and user manuals per the approved Training Plan • Approved Installation Plans and schedule, including all system-related milestones and any necessary system transition activities • Approved Test Report Results Documentation • Approved Equipment And Network Configurations 	10.00%	40.00%	\$ -

Exhibit D - Payment Schedule

A. Payments for Implementation

Payment Number	Payment Milestone	Pay Items	% Paid (Maximum)	Cum. % Paid	Paid
A-5	Iteration 3 – Interface to Payment Gateway (Iterative Build/Test/Deploy)	<ul style="list-style-type: none"> • Development and configuration of the TISDSR Interface to Payment Gateway • Development of an updated Compensating Control Worksheet listing the security and compliance requirements and system vulnerabilities that the Contractor cannot meet as currently specified, including each compensating control and the Contractor's risk-based scoring methodology. NCTA must approve all Compensating Controls relating to security and compliance requirements (e.g., PCI-DSS, NIST CSF, Statewide Information Security). • Approved Test Plans for Individual Formal Tests • Updated and approved Project Schedule, including all system-related millstones and touchpoints • Updated and approved Requirements Traceability Matrix • Providing regular system functionality demonstrations to NCTA, based on a mutually agreed upon schedule between NCTA and the Contractor, and before each software release • Submission of internal test reports for NCTA review • Approved test scripts for each test • Successful transition of data from the NCTA supplied database to the TISDSR database(s) • Successful completion of all formal tests (e.g., Unit Testing, QA Testing, End-to-End Systems Testing (System Acceptance Testing), User Acceptance Testing (UAT)). • Approved test report results documentation for each formal test • Approved Release Notes • Approved Vulnerability Scan Reports • Internal and External Penetration Testing in accordance with the current version of PCI-DSS • Installation and configuration of the TISDSR system software and subsystems. • Approved training materials, help systems, "how-to" and user manuals per the approved Training Plan • Approved Installation Plans and schedule, including all system-related milestones and any necessary system transition activities • Approved Test Report Results Documentation • Approved Equipment And Network Configurations 	10.00%	50.00%	\$ -

Exhibit D - Payment Schedule

A. Payments for Implementation

Payment Number	Payment Milestone	Pay Items	% Paid (Maximum)	Cum. % Paid	Paid
A-6	Iteration 4 – Toll Transaction Details: Home & Away (Iterative Build/Test/Deploy)	<ul style="list-style-type: none"> • Development and configuration of the TISDSR services for Toll Transaction Details: Home & Away. • Development of an updated Compensating Control Worksheet listing the security and compliance requirements and system vulnerabilities that the Contractor cannot meet as currently specified, including each compensating control and the Contractor’s risk-based scoring methodology. NCTA must approve all Compensating Controls relating to security and compliance requirements (e.g., PCI-DSS, NIST CSF, Statewide Information Security). • Approved Test Plans for Individual Formal Tests • Updated and approved Project Schedule, including all system-related milestones and touchpoints • Updated and approved Requirements Traceability Matrix • Providing regular system functionality demonstrations to NCTA, based on a mutually agreed upon schedule between NCTA and the Contractor, and before each software release • Submission of internal test reports for NCTA review • Approved test scripts for each test • Successful transition of data from the NCTA supplied database to the TISDSR database(s) • Successful completion of all formal tests (e.g., Unit Testing, QA Testing, End-to-End Systems Testing (System Acceptance Testing), User Acceptance Testing (UAT)) • Approved test report results documentation for each formal test • Approved Release Notes • Approved Vulnerability Scan Reports • Internal and External Penetration Testing in accordance with the current version of PCI-DSS • Installation and configuration of the TISDSR system software and subsystems. • Approved training materials, help systems, "how-to" and user manuals per the approved Training Plan • Approved Installation Plans and schedule, including all system-related milestones and any necessary system transition activities • Approved Test Report Results Documentation • Approved Equipment And Network Configurations 	10.00%	60.00%	\$ -

Exhibit D - Payment Schedule

A. Payments for Implementation

Payment Number	Payment Milestone	Pay Items	% Paid (Maximum)	Cum. % Paid	Paid
A-7	Iteration 5 – Customer Account Financial Details (Iterative Build/Test/Deploy)	<ul style="list-style-type: none"> • Development and configuration of the TISDSR services for Customer Account Financial Details. • Development of an updated Compensating Control Worksheet listing the security and compliance requirements and system vulnerabilities that the Contractor cannot meet as currently specified, including each compensating control and the Contractor’s risk-based scoring methodology. NCTA must approve all Compensating Controls relating to security and compliance requirements (e.g., PCI-DSS, NIST CSF, Statewide Information Security). • Approved Test Plans for Individual Formal Tests • Updated and approved Project Schedule, including all system-related millstones and touchpoints • Updated and approved Requirements Traceability Matrix • Providing regular system functionality demonstrations to NCTA, based on a mutually agreed upon schedule between NCTA and the Contractor, and before each software release • Submission of internal test reports for NCTA review • Approved test scripts for each test • Successful transition of data from the NCTA supplied database to the TISDSR database(s) • Successful completion of all formal tests (e.g., Unit Testing, QA Testing, End-to-End Systems Testing (System Acceptance Testing), User Acceptance Testing (UAT)) • Approved test report results documentation for each formal test • Approved Release Notes • Approved Vulnerability Scan Reports • Internal and External Penetration Testing in in accordance with the current version of PCI-DSS • Installation and configuration of the TISDSR system software and subsystems. • Approved training materials, help systems, "how-to" and user manuals per the approved Training Plan • Approved Installation Plans and schedule, including all system-related milestones and any necessary system transition activities • Approved Test Report Results Documentation • Approved Equipment And Network Configurations 	10.00%	70.00%	\$ -

Exhibit D - Payment Schedule

A. Payments for Implementation

Payment Number	Payment Milestone	Pay Items	% Paid (Maximum)	Cum. % Paid	Paid
A-8	Iteration 6 – Case Management, Customer Requests & Related Materials (Iterative Build/Test/Deploy)	<ul style="list-style-type: none"> • Development and configuration of the TISDSR services for Customer Account Financial Details. • Development of an updated Compensating Control Worksheet listing the security and compliance requirements and system vulnerabilities that the Contractor cannot meet as currently specified, including each compensating control and the Contractor’s risk-based scoring methodology. NCTA must approve all Compensating Controls relating to security and compliance requirements (e.g., PCI-DSS, NIST CSF, Statewide Information Security). • Approved Test Plans for Individual Formal Tests • Updated and approved Project Schedule, including all system-related millstones and touchpoints • Updated and approved Requirements Traceability Matrix • Providing regular system functionality demonstrations to NCTA, based on a mutually agreed upon schedule between NCTA and the Contractor, and before each software release • Submission of internal test reports for NCTA review • Approved test scripts for each test • Successful transition of data from the NCTA supplied database to the TISDSR database(s) • Successful completion of all formal tests (e.g., Unit Testing, QA Testing, End-to-End Systems Testing (System Acceptance Testing), User Acceptance Testing (UAT)) • Approved test report results documentation for each formal test • Approved Release Notes • Approved Vulnerability Scan Reports • Internal and External Penetration Testing in in accordance with the current version of PCI-DSS • Installation and configuration of the TISDSR system software and subsystems. • Approved training materials, help systems, "how-to" and user manuals per the approved Training Plan • Approved Installation Plans and schedule, including all system-related milestones and any necessary system transition activities • Approved Test Report Results Documentation • Approved Equipment And Network Configurations 	10.00%	80.00%	\$ -
A-9	Completion of Final Documentation	<ul style="list-style-type: none"> • Final As-Built Approved Tolling Integration Services and Data System of Record (TISDSR) Design Documentation • Final As-Built Approved Tolling Integration Services and Data System of Record (TISDSR) Architecture Documentation • Approved Final System Hardware / Hosting / IMS / Cloud-based Design • Final As-Built Approved Security Configurations Documents that align with required security and compliance standards (e.g. PCI-DSS, NIST CSF, Statewide Security Policy) • Final As-Built Approved Network and Dataflow Diagrams • Final As-Built Approved Hardware Architecture • Final Approved Interface Control Documents • Final As-Built Approved System Security (System Access) Design • Final As-Built Approved database documentation • Final Approved Testing Results Documentation • Final Approved Maintenance Plan 	10.00%	90.00%	\$ -
A-10	System Acceptance		10.00%	100.00%	\$ -