LOUISVILLE-SOUTHERN INDIANA OHIO RIVER BRIDGES

TOLL COLLECTION SYSTEM
REQUEST FOR PROPOSALS

Mandatory Meeting and Site Visit
RBOC Component: April 29, 2013 10:00 a.m. – 4:00 p.m. Local Time
Electronic Toll Collection Component: June 25, 2013 10:00 a.m. – 12:00 p.m. Local Time
Operations Services Component: July 30, 2013 10:00 a.m. – 12:00 p.m. Local Time
Kentucky International Convention Center
221 South 4th Street
Louisville, KY 40202
Phone: (502) 595-4381

Proposal Due Dates
RBOC Component: May 24, 2013, 4:00 p.m. Local Time
Electronic Toll Collection Component: July 29, 2013, 4:00 p.m. Local Time
Operations Services Component: August 16, 2013, 4:00 p.m. Local Time

Proposal Delivery Address
Kentucky Transportation Cabinet
Division of Construction Procurement
Attn: Ryan Griffith
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, KY 40622
Phone: (502) 564-3500

Industry Draft for Comment
Draft Release: March 15, 2013
Industry Questions to be Submitted No Later Than April 10, 2013

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1. Introduction and Project Description

1.1 General Description of Work

The Joint Board, comprised of KYTC, INDOT, IFA, and KPTIA, is working to complete the LSIORB Project. The LSIORB Project is a construction, modernization and rehabilitation project that addresses cross-river transportation needs in the greater Louisville-Southern Indiana region by providing two new bridges across the Ohio River and reconstructing the existing Kennedy Bridge over the Ohio River. This will create additional capacity, improve transportation efficiency and reliability, and make needed performance and safety enhancements to existing infrastructure. All three bridges will be tolled under a single all electronic toll (AET) collection system. KYTC, on behalf of the Joint Board, is requesting technical and price proposals from proposers interested in providing design, integration, implementation, operation, and maintenance for the tolling components listed below:

Tolling Component One - RBOC Component
Tolling Component Two - Electronic Toll Collection Component
Tolling Component Three - Operations Services Component

The Contracts that may be awarded pursuant to this RFP shall be entered into by the successful Proposer and KPTIA on behalf of the Joint Board. This RFP is issued pursuant to KRS 176 and shall be administered by KYTC in cooperation with IFA and INDOT.

The Joint Board has elected to issue a single RFP with differing dates for proposal submittal for each of the tolling components. The purpose of issuing a single RFP is to provide all proposers with a clear understanding of the LSIORB Project by listing the requirements for all tolling components in one document, notwithstanding the differing proposal due dates. All tolling component proposals will be evaluated individually on their own merits. All proposals must be specific to the LSIORB project.

As an AET System, the LSIORB Project will only collect tolls using ETC or video toll collection. As currently contemplated, tolls will be based upon three general classifications of vehicles. These three classifications include two axle vehicles, medium trucks, and large trucks. Within each classification the toll rate schedule will be set for a discount program based upon frequent use under a Transponder account, a Transponder rate, a registered video rate and another video rate, referred to as unregistered video rate. Transponders and license plates will be detected at Toll Zones. All processing of toll transactions will occur at the Joint Board Operations Center. The final toll classification is subject to change based on LSIORB Business Rules, and rates and discounts will be set by the LSIORB Tolling Body.

The toll collection system is to be a unified toll facility system that will encompass all three bridge crossings. The LSIORB Project is being constructed through two distinct

design and construction contracts. Indiana is responsible for the design and construction of the East End Crossing Bridge. Kentucky is responsible for the design and construction of the Downtown Crossing Bridge and the reconstruction of the existing Kennedy Bridge. Indiana and Kentucky have each separately procured a team to design and construct their respective portions of the Project. IFA has entered into a public-private partnership agreement with a Developer with respect to the East End Crossing Bridge and KYTC has entered into a design-build contract with Walsh Construction Co. as a design-build team with respect to the Downtown Crossing Bridge and the Kennedy Bridge. The Contractor(s) selected through this RFP must communicate and coordinate with the Developer and the design-build contractor and other contractors involved with the toll system equipment and operations, as they design, install, integrate, implement, operate and maintain the AET System. Copies of the public-private partnership agreement and the design-build contract are available for review by Proposers and can be found at www.kyinbridges.com.

Under the construction contracts for all bridges it is anticipated that the toll system roadside contractor will be responsible for the construction of any necessary Toll Zone buildings housing toll collection equipment and for providing emergency generator power. Therefore, it is important to note that in addition to the normal aspects of designing and implementing the toll collection system, the RBOC Contractor is required to coordinate the construction of any necessary buildings, access, emergency power, conduit runs and any other necessary items to operate the toll collection system at all Toll Zones with each construction contractor.

The LSIORB Project toll system for the three bridges will consist of four mainline and two ramp Toll Zones. The new East End Crossing Bridge will have two mainline sets of Toll Zone gantries spanning two travel lanes and two shoulders in each north and south direction. The Kennedy Bridge carrying southbound traffic, will have one mainline set of Toll Zone gantries spanning five travel lanes and two shoulders and one ramp set spanning one travel lane and two shoulders. The Downtown Crossing Bridge, carrying northbound traffic, will have one mainline set of Toll Zone gantries spanning six travel lanes and two shoulders and one set of ramp Toll Zone gantries spanning two travel lanes and two shoulders. Subject to the final design location of the mainline Toll Zone gantries, some travel lanes and shoulders for the Downtown Crossing Bridge and the Kennedy Bridge are required to accommodate reversible tolling. This requirement is dictated by the possibility of bi-directional traffic on each bridge during various stages of construction and reconstruction on the bridges. Further, the Joint Board desires to minimize any possible revenue loss should either bridge require closure for any reason. Proposals and bids for the RBOC are required to address the reversible tolling requirement.

The LSIORB Project will consist of 19 travel lanes, of which 6 are reversible and 11 shoulders of which 2 are reversible for a total of 38 effective toll lanes as depicted in Table 1.1. Figures 1.1 and 1.2 depict a straight line diagram representation of the

locations of the mainline and ramp Toll Zones. Additional information and detail is provided in Appendix B, Technical Scope - Tolling Component One RBOC. All effective toll lanes shall include ETC readers, AVC, video cameras, vehicle separators and any other component that the proposer believes will ensure full toll coverage of the roadside deployment and operation.

Effective Toll Lane Summary						
Toll Zone Number	Toll Zone Locations	Left Shoulder	Travel Lanes	Travel Lanes Width	Right Shoulder	Effective Toll Lanes
R-1	Ramp 1 - I-65 NB to Court Avenue	4 ft	3	12 ft	12 ft	4
DB-1	Downtown Bridge - I-65 Northbound	12 ft	6	12 ft	12 ft	8
KB-1	Kennedy Bridge - I-65 Southbound	12 ft	5	12 ft	12 ft	7
R-2	Ramp 2 - Court Avenue to I-65 SB	6 ft	1	16ft	12 ft	3
EEC-1	East End Crossing - Northbound	10 ft	2	12 ft	14 ft	4
EEC-2	East End Crossing Southbound	14 ft	2	12 ft	10 ft	4
	TOTALS	5	19		6	**30**
Reversible Lanes						
DB-1R	Downtown Bridge - I-65 Southbound Reversible during Phased Reconstruction on Kennedy Bridge		3	12 ft	12ft	4
KB-1R	Kennedy Bridge - I-65 Northbound Reversible during Construction of Downtown Bridge	12 ft	3	12 ft		4
	TOTALS - Reversible	1	6		1	**8**
	3/11/2013					

Table 1.1 - Toll Lane Summary

Figure 1.1 represents a line diagram of the location of the four Toll Zones associated with the Kennedy and Downtown Bridges.

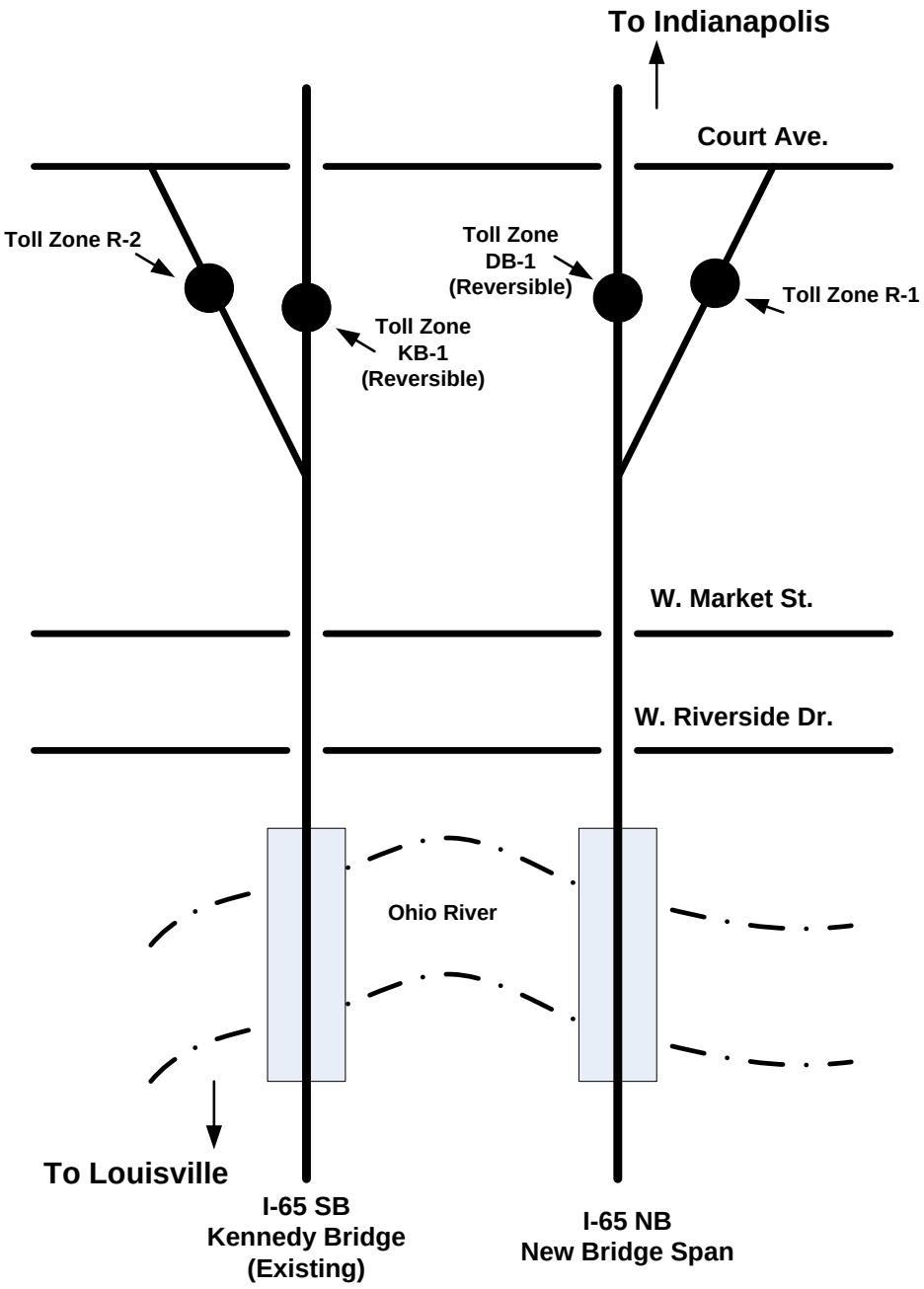

Figure 1.1 - Kennedy and Downtown Bridges Toll Zones

Figure 1.2 represents a line diagram of the two Toll Zone locations for the East End Crossing Bridges.

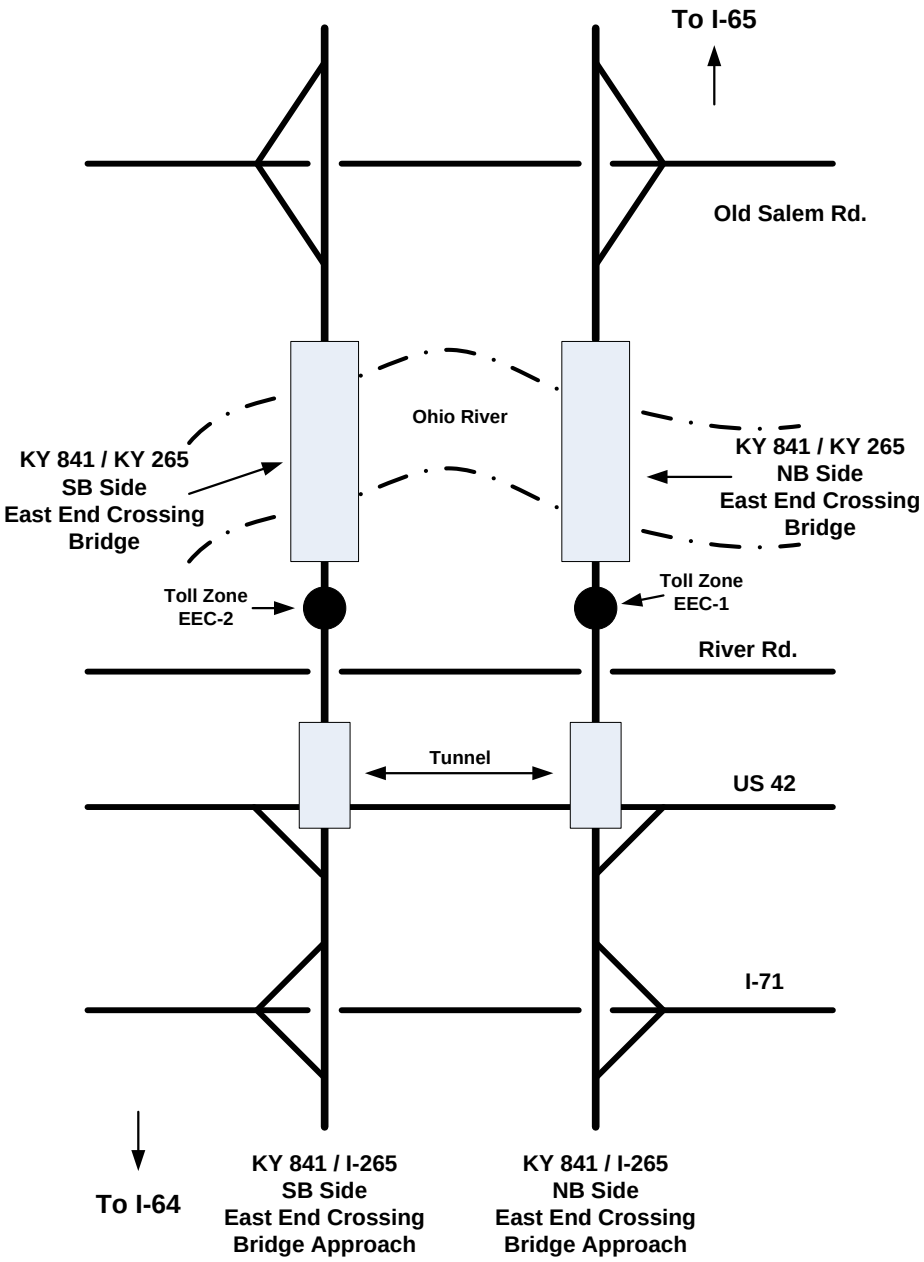

Figure 1.2 - East End Crossing Bridge Toll Zones

A further discussion of the bridges for the LSIORB Project is contained in the consulting engineer's report, which can be found in Appendix J.

The RBOC Contractor is responsible for the provision of all equipment, maintenance and software necessary for AET and back office operations, exclusive of ETC equipment and Transponders. Proposers for the RBOC will be required to coordinate the installation of roadside equipment with Kentucky's design-build contractor and Indiana's Developer and also with the ETC Contractor. In addition, the RBOC Contractor will be required to

coordinate the installation of back office equipment with the Operations Services Contractor. Further, the RBOC Contractor will be required to provide training for the back office system to the Operations Services Contractor. Scope of work, requirements, and specifications for the RBOC are provided in Appendix B of this RFP.

The ETC Contractor is responsible for the provision of all equipment and Transponders necessary to integrate into the roadside tolling system. The ETC Contractor will be required to work in a cooperative manner with the RBOC Contractor. The Joint Board desires to become interoperable with other toll systems within the United States. Interoperability with E-ZPass, SunPass and other interoperable toll systems will require the ETC Contractor to provide multi-protocol readers, antennae and Transponders. Scope of work, requirements and specifications are provided in Appendix C of this RFP.

The Operations Services Contractor shall represent the Joint Board and shall be responsible for all back office toll operations. This will include the build-out of office space, facility management, maintenance and operations of the Customer Service Center (CSC) and potential future storefronts.

The nature and scope of the contract for Operations Services expressly includes the following elements:

(1) The Operations Services Contractor, on behalf of the Joint Board, shall collect tolls for the use of the toll road project for the benefit of the States' Parties;

(2) The Operations Services Contractor shall have the ability to adjust the tolls charged and collected for the use of the toll road project, within the framework of the Toll Policy Agreement and rules and regulations to be promulgated by certain of the States' Parties; provided that tolls shall not exceed the maximum amount thereby established;

(3) The Operations Services Contractor, on behalf of the Joint Board, shall charge and collect tolls and user fees through non-manual methods, including, but not limited to, automatic vehicle identification systems, electronic toll collection systems, global positioning systems and photo or video based toll collection or toll collection enforcement systems, all to the extent permitted by law, including rules and regulations adopted by the States' Parties; and

(4) The Operations Services Contractor may authorize the collection of tolls and other user fees charges by a third party, as set forth in the Operations Services Contract and in accordance with Joint Board Business Rules.

Detailed scope of work, requirements, and specifications for Operations Services are included in Appendix D of this RFP.

1.2 Project Background, Administration, and Schedule

A number of documents required by federal law have been executed and will, in part, govern the Project's completion. The Project's original Record of Decision was issued in September of 2003. The Revised Record of Decision for the project was signed by FHWA on June 22, 2012. The Initial Financial Plan, the Project Management Plan, and the 129 Agreement were signed by FHWA and the appropriate States' Parties on July 30, 2012. The proposals submitted must comply with the terms of these agreements which can be found at http://kyinbridges.com/project/documents.aspx.

The Governors of Kentucky and Indiana signed a memorandum of understanding on March 5, 2012, which outlined the terms and conditions for a Development Agreement, which was signed on December 17, 2012. The Development Agreement defines the roles and responsibilities for the procurement, revenue sharing, financing, constructing, tolling, operation, and maintenance of the Project under a single financial plan and Project Management Plan. The Development Agreement assigns Kentucky responsibility for leading the delivery of the Downtown Crossing and assigns Indiana responsibility for leading the delivery of the East End Crossing.

KYTC awarded a contract on December 6, 2012 for the Downtown Crossing using a design-build procurement method whereby a single contractor was retained to design and construct the Downtown Crossing. KYTC and KPTIA will be responsible for operation and maintenance of the Kennedy Bridge and the Downtown Crossing Bridge, as well as those portions of the Project located in Kentucky with the exception of the East End Crossing Bridge after construction is complete.

IFA has procured the services of a private Developer pursuant to a public private agreement to design, finance, and construct the East End Crossing and to operate and maintain portions of the East End Crossing after construction is complete. IFA will compensate the Developer for its services with milestone payments during the construction period and with availability payments during the remaining term of the public private agreement, subject to adjustments based on the Developer's performance of its operation and maintenance obligations in accordance with agreed upon standards.

To perform the terms of the Development Agreement, the States' Parties have entered into an Interlocal Agreement. The Interlocal Agreement and the Development Agreement create a Joint Board which allows the States' Parties to share those of their powers necessary for completion of the Project, including the procurement described in this RFP. The Joint Board is made up of one representative of IFA, INDOT, KYTC, and KPTIA. The Interlocal Agreement and the Development Agreement also indicate that the Joint Board delegates those of its powers related to toll policy to a Tolling Body which is made up of two representatives each for IFA and KPTIA and one representative each for KYTC and INDOT. The Interlocal Agreement vests power to develop and

approve a tolling policy in a Tolling Body, comprised of the Joint Board and an additional representative each from IFA and KPTIA.

The toll revenues derived from the Project will be allocated between Kentucky and Indiana in accordance with the Development Agreement and the Interlocal Agreement.

To implement tolling, the States' Parties must jointly procure a RBOC Contractor, an ETC Contractor, and an Operations Services Contractor on behalf of the Joint Board. The States' Parties determined that, pursuant to the powers shared in the Interlocal Agreement, KYTC shall procure these services on behalf of the Joint Board using its authority granted in Part I, A., 4., (12) of Kentucky H.B. 2 of the First Extraordinary Session of the 2012 Kentucky General Assembly to procure via design-build contract. Figure 1.3 depicts the project location and its relationship to the surrounding transportation system.

Figure 1.3 - Project Location

2. Procurement Process

2.1 Administrative Matters

2.1.1 Policy Statement

This procurement shall be conducted in accordance with all applicable federal and state laws and regulations, and the policies and procedures of KYTC, as those may be amended. All future amendments to any such laws, regulations and applicable KYTC policies and procedures shall be applicable to this procurement.

2.1.2 Submittal Schedule

Proposers should pay special attention to the dates listed in Table 2.1 due to possible date differences for the various events and deadlines.

LSIORB AET SYSTEM Procurement Schedule				
Event or Deadline		**DATE**		
By KYTC	**By Proposers**	**TC1 - Roadside & Back Office**	**TC2 - ETC**	**TC3 - Operations**
Issue draft RFP for industry comment		March 15, 2013	March 15, 2013	March 15, 2013
	Ask questions and seek clarifications	March 15– April 10, 2013	March 15 – April 10, 2013	March 15, –April 10, 2013
Respond to questions and amend draft RFP		March 22– April 17, 2013	March 22 – April 17, 2013	March 22, –April 17, 2013
Issue official RFP for industry response		April 17, 2013	June 5, 2013	July 10, 2013
Mandatory meeting for all proposers		April 29, 2013	June 25, 2013	July 30, 2013
	Ask questions and seek clarifications	April 17– May 9, 2013	April 17 – June 12, 2013	April 17, –July 15, 2013
Respond to questions and amend RFP		April 24 – May 13, 2013	April 24 – June 28, 2013	April 24 – July 22, 2013
	Proposals due	May 24, 2013	July 29, 2013	August 16, 2013
Oral presentations and interviews for qualified proposers invited		June 28, 2013	August 16, 2013	October 10, 2013
Technical review complete		July 3, 2012	August 22, 2013	October 10, 2013
Price proposal scoring		July 10, 2013	August 23, 2013	October 17, 2013
Results presented to the Joint Board		July 10, 2013	August 30, 2013	October 17, 2013
Select apparent best value proposer and best and final offer negotiations, if used		July 12, 2013	August 30, 2013	October 17, 2013
Contract execution		August 3, 2013	September 6, 2013	October 31, 2013

LSIORB AET SYSTEM Procurement Schedule				
Event or Deadline		DATE		
By KYTC	By Proposers	TC1 - Roadside & Back Office	TC2 - ETC	TC3 - Operations
Notice to proceed		August 16, 2013	September 20, 2013	November 15, 2013

Table 2-1 - AET System RFP Procurement Schedule

2.1.2.1 Mandatory Meeting

KYTC, on behalf of the Joint Board, will convene a mandatory pre-proposal scope of services meeting for interested firms as indicated in Table 2-1. The meetings will begin promptly at 10:00 a.m. local time, at the Kentucky International Conference Center in Louisville, Kentucky. Attendance at the meeting is mandatory for proposers submitting proposals on the tolling component indicated. Proposers are not required, but are encouraged, to attend the meetings for tolling components on which they are not proposing. For purposes of compliance with this RFP, attendance will be verified by the presence of the signature of at least one person who is employed by the firm, preferably an officer of the company, with responsibility over projects of this type. The address for the meeting is:

Kentucky International Convention Center
221 South 4th Street
Louisville, KY 40202
Phone: (502) 595-4381

2.1.2.2 Proposal Due Date

Please note that there are different proposal due dates for each tolling component. Technical proposals and price proposals will be received by KYTC until 4:00 p.m., local time for:

Tolling Component One - RBOC on May 24, 2013
Tolling Component Two - ETC on July 29, 2013
Tolling Component Three - Operations Services on August 16, 2013

Faxed or e-mailed responses will be disqualified. Technical proposals shall be delivered to:

Kentucky Transportation Cabinet
Division of Construction Procurement
Attn: Ryan Griffith
Kentucky Transportation Cabinet
200 Mero Street
Frankfort, KY 40622
Phone: (502) 564-3500

2.1.3 RFP Disbursement and Inquiries

All questions in regard to this notice or requests for an RFP package shall be directed in writing to the Contact Person by letter or e-mail. All inquiries regarding this RFP, by tolling component, will be accepted until the date specified for each tolling component in Table 2.1 at 4:00 p.m. local time. Only inquiries in writing will be accepted by KYTC, and only written responses will be binding upon KYTC and the Joint Board. Any inquiries received after the scheduled deadlines may or may not be answered by KYTC or the Joint Board. All binding answers to inquiries will be posted on the KYTC LSIORB procurement website at http://transportation.ky.gov/Ohio-River-Bridges/Pages/default.aspx. The KYTC LSIORB procurement website will be the website of record for all binding responses, but for convenience those responses will also be posted to http://www.kyinbridges.com.

2.1.4 Non-Solicitation Provision

From the date that this RFP is issued until a Contractor(s) has been selected and given notice to proceed for all three tolling components, firms shall only contact the Contact Person with respect to any facet of this procurement. Proposers, or agents of the proposers, shall not be permitted to contact any of the board members, officers, employees, representatives or agents of the States' Parties or Joint Board, or Evaluation Committee members with respect to this procurement. Violation of this provision shall result in immediate disqualification of the firm's proposal.

2.1.5 Cost Incurred Responsibility

All costs incurred by any proposer in responding to this RFP shall be borne solely by such proposer; the board members, officers, employees, representatives or agents of the States' Parties, or Joint Board, or Evaluation Committee members shall have no responsibility whatsoever for any associated direct or indirect costs.

2.1.6 Right to Reject or Cancel

KYTC retains the right and option to reject any and all proposals. KYTC reserves the right to cancel this RFP if it is determined to be in the best interest of the Joint Board to do so.

2.1.7 Responsiveness of Proposals

KYTC reserves the right to reject any proposal as non-responsive if the proposal fails to include required information. If a proposal fails to include information in the specified order, impairing the ability to ascertain responsiveness, such proposal may be deemed non-responsive. Proposals may be deemed non-responsive if they do not meet the minimum qualifications as set forth in this RFP.

2.1.8 Waivers

Notwithstanding subsection 2.1.7, KYTC may waive minor informalities or irregularities in proposals received where such is merely a matter of form and not substance, and the correction or waiver of which is not prejudicial to other proposers. Minor irregularities are defined as those that will not have an adverse effect on the Joint Board's interest

and will not affect the price of the proposals by giving a proposer an advantage or benefit not enjoyed by other proposers.

2.1.9 Right to Amend

KYTC reserves the right to amend, insert, or delete any item in this RFP if it is determined to be in the best interest of the Joint Board. If it becomes necessary to revise any part of this RFP, a written addendum to the solicitation will be posted to KYTC's LSIORB procurement website and provided to all parties who attended the mandatory scope of services meeting. KYTC expects to issue the last addendum for each tolling component no later than the date indicated on the RFP procurement schedule provided in subsection 2.1.2, Table 2.1. KYTC will not be bound by, and the proposer shall not rely on, any oral or written communication or representation regarding the RFP, except to the extent that it is contained in an addendum to this RFP or the questions and answers as posted on the KYTC LSIORB procurement website, and is not superseded by a later addendum to this RFP.

2.1.10 Oral or Referenced Explanations

KYTC will not be bound by oral explanations or instructions given by anyone at any time during the proposal process or after award. The Evaluation Committee will not consider Contractor information indicated by reference as part of the RFP response. However, the Evaluation Committee may consider other sources in the evaluation of proposals, such as references, for example.

2.1.11 Proposal Submittal Deadline

Complete, separate technical proposals and price proposals shall be delivered to the KYTC Office of Construction Procurement on or before the due date and time, where they will be logged in as received. KYTC will not accept proposals delivered after the due date and time.

2.1.12 Submittal Responsibility

The responsibility for submitting a proposal to KYTC on or before the stated time and date will be solely and strictly the responsibility of the proposer. KYTC will in no way be responsible for delays caused by the United States mail delivery, common carrier or caused by any other occurrence. Proposers are cautioned to be aware of the security in the Kentucky Transportation Building. Delays due to building security checks shall not be justification for acceptance of a late bid. All bids shall be time-stamped in the Division of Construction Procurement no later than the due date and time defined in this solicitation. Bids received after the due date and time may be time stamped, but shall not be considered responsive and will not be considered in any way by the Evaluation Committee.

2.1.13 Proposal Disposition

All original proposals submitted will be maintained on file at the Kentucky Transportation Building. KYTC shall retain copies of the proposals as required to comply with applicable laws or regulations, or to document procurement history in accordance

with KYTC polices or procedures. All other technical and price proposal materials shall become property of the Joint Board.

2.1.14 Confidential Information

The Joint Board is a group created by the Interlocal Agreement between public agencies of Indiana and Kentucky, and is subject to the Indiana and Kentucky Public Records Acts. The Joint Board may maintain confidential information, including any designated as trade secrets or otherwise proprietary, only in accordance with applicable federal and state laws or regulations. The Joint Board, therefore, expects that proposers will keep confidential information designations to a minimum.

A proposer, having formed a good faith opinion, upon consultation with legal or other knowledgeable advisors, that information submitted may contain "confidential or proprietary" information as defined in KRS 61.878(1)(c) or a "trade secret" as defined in IC 24-2-3-2 or other information exempted from the Kentucky or Indiana Public Records Acts pursuant to KRS 61.870 to 61.884 and IC 5-14, may so designate appropriate portions of its proposal by marking the top and bottom of pages containing confidential information in boldface type "CONFIDENTIAL." KYTC, members of the Evaluation Committee, and any of the State's Parties, however, may serve only as a custodian of information a proposer deems confidential. Neither KYTC, nor the Joint Board shall act as an arbiter or defender of any claims related to assertions of confidential information. If a request is made for disclosure of information submitted, or an action is brought to compel KYTC to disclose information marked confidential pursuant to the above referenced statutes, KYTC will notify the affected proposer of such request or action.

In submitting a proposal in response to this RFP, a proposer agrees to: (i) defend its assertions of confidentiality by instituting appropriate legal proceedings, at its own expense and through its counsel, or intervening in an action brought against any of the State's Parties of the Joint Board to compel disclosure, to defend its assertions of confidentiality; and (ii) hold the States' Parties, the Joint Board and their board members, officers, employees, agents, or Evaluation Committee members harmless from any and all damages, costs, and attorney's fees awarded against them arising out of any such actions. Nothing in this section shall preclude the States' Parties or the Joint Board from participating in the defense of such actions, at its own option and expense through its counsel. The States' Parties, or Joint Board's board members, officers, employees, agents, or Evaluation Committee members shall have no liability to a proposer with respect to the disclosure of any information, including confidential information, subject to an order by a court of competent jurisdiction or any other applicable law.

Under no circumstances will IFA be responsible or liable to a Proposer or any other party as a result of disclosing any such materials, including materials marked "CONFIDENTIAL," whether the disclosure is deemed required by Law or by an order of court or IFA general

counsel or occurs through inadvertence, mistake or negligence on the part of IFA or its officers, employees, contractors or consultants.

2.1.15 Modification or Withdrawal of Proposals

KYTC will permit modifications to a proposal after submittal until the specified due date and time for accepting proposals. The proposal may be picked up by a representative of the firm provided that the request to modify is in writing, is executed by the proposer or the proposer's duly authorized representative, and is filed with KYTC. It is the proposer's responsibility to resubmit before the deadline. All proposal modifications shall be hand-delivered to the Contact Person.

A proposer may withdraw a proposal without prejudice prior to the proposal due date, provided that the request is in writing, is executed by the proposer or his or her duly authorized representative, and is filed with KYTC. KYTC will destroy any materials submitted up to that time upon request of the proposer. Any proposer that begins the process of proposing and either attends meetings or otherwise engages with KYTC in this process must notify KYTC, in writing, that it is withdrawing.

2.1.16 Contractual Obligations

Submission of a proposal indicates the proposer's acceptance of the conditions contained in this RFP unless clearly and otherwise specifically noted in the proposal submitted and confirmed in the Contract between KYTC and the proposer.

2.1.17 Procurement Information

It is the responsibility of all firms interested in submitting responses to this RFP to routinely check KYTC's LSIORB procurement website for responses to questions, change of schedule, addenda, announcements and other procurement information at http://transportation.ky.gov/Ohio-River-Bridges/Pages/default.aspx. As mentioned in subsection 2.1.3, for convenience purposes only, procurement information may also be posted to http://www.kyinbridges.com.

2.1.18 Proposer's Proposal

By submitting a proposal to KYTC, the proposer agrees that the proposer's proposal and price shall remain effective for 180 days after the deadline for submitting the proposal. If proposer refuses to enter into a Contract if selected, prior to the expiration of the 180 day period, that proposer shall forfeit its bid bond pursuant to KRS 45A.185.

2.1.19 LSIORB Logo

The Joint Board grants permission to use the LSIORB logo on proposal submittals.

3. Proposal Instructions

3.1 Cooperation and Coordination

3.1.1 Design Build Teams

All Contractors shall cooperate and coordinate with KYTC's design-build team and IFA's Developer. Additionally, all Contractors shall coordinate and work closely with the other marketing and communications firms working on the LSIORB Project, including those working for the design-build team and the Developer and those working for the States' Parties separately.

3.1.2 Other Tolling Component Contractors

All proposers awarded a Contract to do the work described in this RFP must cooperate and coordinate their tasks and Deliverables with one another to ensure that the Joint Board receives a successfully and fully integrated AET System.

The ETC Component and the RBOC must directly interface and work seamlessly with one another. The RBOC and the ETC Component must minimally be able to directly interface through the barcode reader for automatic input of the Transponders into customer accounts and a Transponder inventory application and the portable Transponder reader and tester. The RBOC will provide the primary MOMS for the LSIORB Project and other Contractors will be required to ensure that their individual MOMS systems can communicate with it.

3.1.3 Issues or Conflicts

The Joint Board is interested in a complete functioning AET System that operates smoothly and efficiently with respect to all aspects of tolling operations. Proposers must disclose any ongoing litigation, or litigation concluded within the past five years, which involves firms in the tolling industry that could reasonably be expected to propose on any component of this RFP. In addition, proposers must disclose if they have been subjected to any liquidated damages claims or termination for cause by a tolling agency or body for failure to meet requirements or specifications. Beyond the affirmative requirement to disclose litigation, firms should also disclose any issues or complications with respect to working in a cooperative fashion with potential competitors on projects similar to the LSIORB Project.

Proposers must also identify any similar issues, conflicts, or contractual relationships with KYTC's design-build team and IFA's Developer.

3.2 Technology Requirements

3.2.1 Security Standards

All Contractors shall comply with all applicable standards issued by the PCI Security Standards Council, including the PCI Data Security Standard (PCI DSS) and the Payment

Application Data Security Standard (PA-DSS) at the start of FAT, and remain compliant throughout the term of the Contracts.

Proof of PCI compliance certification is required and the Payment Application Data Security Standard (PA_DSS) at the start of FAT, and remain compliant throughout the term of the Contracts.

The Contractor must treat all data with the utmost care to prevent any disclosure of sensitive or confidential data.

All interfaces with component equipment shall be defined and documented. The Joint Board shall have the right to use the interface documentation to add or change equipment as desired.

3.2.2 Data Output Requirements

Any data or information captured or stored by any component of the AET System shall be capable of being transferred electronically on a daily basis to TED.

3.2.3 Open Source and Open Architecture

It is preferred that, wherever possible, all subsystems and their component parts be based and operated on open source and Open Architecture for the Joint Board to use without restriction including allowing use by other Contractors. The Joint Board will own the right to use the protocol during and after the Contract term. The Joint Board is not seeking exclusive rights to use the protocol.

3.2.4 Internet Protocol Addressability

All subsystems and their component parts must be internet protocol addressable.

3.2.5 Interface Control Document

Contractor must provide an ICD that documents all the required interfaces and functionality of Messages. This includes the interface between the reader and antenna and the Transponder. The ICD will provide a Message level interface, including protocols used, as well as a brief concept of operations that describes how the Messages are used. The Contractor(s) is required to provide the ICDs after the Contracts are awarded, and provide updates and explanations as the documents change. Proposers shall address how and when the ICD requirement will be met, and what will be included in the ICD.

3.3 General Component Requirements

3.3.1 Non-proprietary COTS Preference

Proposers shall employ hardware and software which is non-proprietary COTS and which has a second source.

3.3.2 Ready to Manufacture and Deliver

All proposed equipment and technology shall have been already designed, developed, tested, and tooled for immediate manufacture and delivery, and currently deployed on another AET System with a similar scope.

3.3.3 Multiple Sources

It is preferred that the subsystems, printed circuit boards, and modular subassemblies be available from multiple independent sources. Proposers offering a tolling component with greater numbers of subsystems that can be sourced from multiple places will receive higher evaluation scores.

3.3.4 New Equipment and Parts

All subsystems and their component parts shall be new.

3.3.5 Equipment Cabinets and Other Ancillary Components

The proposers must provide, install, and include in their price proposal any required equipment cabinets and other ancillary components.

3.3.6 Safety – Installation

Components shall comply with applicable safety requirements based on the environment in which they will be installed. All overhead and roadside equipment shall comply with any safety regulations regarding collisions and break-away standards. Equipment shall not pose a health or safety hazard to persons or vehicles. Equipment shall be mountable in accordance with the most current version of the Manual on Uniform Traffic Control Devices published by FHWA.

3.3.7 Safety – Environmental

Equipment shall meet or exceed all applicable safety and environmental requirements related to the technology and its applications. The AET System shall not pose either short-term or long-term health or safety risks to drivers, technicians, and other people who may frequently be in the vicinity of the LSIORB Project.

3.3.8 Safety Labels

Safety labels shall be placed on equipment as appropriate based on prevailing laws, regulations, and standards. The proposer shall provide the material safety data sheet for any materials or equipment utilized or any supplied product that has a material safety data sheet. The proposer shall provide any information regarding any other materials that may be considered hazardous or require special handling or disposal.

3.4 Production Capabilities

3.4.1 Monthly Capabilities and Demand

The proposer must provide production capabilities data including the components that can be produced per month, average order lead times, and current monthly demand and backlog.

3.4.2 Needs and Commitment

The proposer must address production and delivery capabilities directly related to the needs of the LSIORB Project. The proposers must provide specific information on delivery and installation times regarding the proposed equipment and software.

3.4.3 Ongoing Requirements for Maintenance and Warranty Services

The proposers must identify the lead time required for orders of additional and replacement components and spare parts. Proposers also need to identify time frames for repair and replacement of component parts, and specify warranty period. The lead times and warranty period identified must be guaranteed throughout the life of the contract. With respect to Tolling Components One and Two, proposers must guarantee a warranty period of one year, with the exception that Transponders must be warranted for six years. With respect to Tolling Component Three, there is no warranty requirement. Proposers are advised that warranty periods are distinct from, and will be priced differently from, maintenance periods.

3.4.4 Facilities Open for Inspection

The proposer must indicate the location of production, research, and testing sites that would be open for visits and inspections from the Joint Board, the States' Parties, consultants, and Evaluation Committee members.

3.5 Testing Facilities and Results

3.5.1 Testing Facilities

Testing facilities must be of sufficient physical size and possess sufficient technological sophistication to accommodate the proper testing of all major components.

3.5.2 Test Performed and Test Results

The proposer must indicate the tests performed on individual subsystems and their component parts, as well as the proposed tolling component as a whole. The proposer must provide the data and the results of the tests performed. The proposer must indicate the size of the test population and the types of tests performed. The proposer must show that the test results were verified by third party test data.

3.5.3 Testing Environments

The testing performed above must include, at a minimum, the following environments: high and low speeds, dedicated lanes, lanes with a gantry, and most importantly, in an open road environment. The AET System is the configuration for the LSIORB Project. Proposers must indicate the number of lanes in a single direction they have successfully tested with an included shoulder. On the LSIORB project, the largest Toll Zone will consist of six travel lanes and two shoulders.

3.6 ETC Proposal Requirements

3.6.1 Interoperability

It is imperative that the LSIORB Project have the ability to be interoperable with toll agencies throughout the northeast and the southeast regions of the United States and be fully compliant with MAP-21 requirements. The Joint Board is beginning the process of negotiating agreements with toll agencies but has not yet executed any formal agreements. The Joint Board understands the business portion of interoperability is harder than the technology portion and is open to proposers' ideas and suggestions on how best to advance the issue of interoperability for the Joint Board. It is expected that the LSIORB Project will have a significant percentage of traffic from the northeast, the states of Illinois and Michigan, and the southeast regions. Proposers are encouraged to provide innovative, workable, and sound solutions. At a minimum, proposers must address the following:

1. Describe how the LSIORB Project would be able to achieve interoperability and MAP-21 compliance, or compliance with any subsequent federal surface transportation legislation, using the proposer's ETC Component. Identify those issues that restrict the proposer's system's ability to be interoperable,
2. Proposer shall identify and describe any restrictions on the ETC Component, such as the proposer's intellectual property or proprietary solutions as it relates to the LSIORB Project, and
3. Proposer shall provide a discussion on their proposed ETC Component's ability to read other manufacturer's Transponders.

The selected ETC Component shall be capable of being used for other applications beyond the ones discussed in this RFP. Proposer shall address other areas such as parking, drive through payment, congestion pricing, high occupancy toll lanes, and traffic management. Proposer shall identify any intellectual property issues or restrictions associated with the proposed ETC Component as it relates to alternative uses.

3.6.2 ETC Technology

Proposer shall address the overall technology being proposed and explain why the proposer's ETC Component is best suited for the LSIORB Project. This discussion shall include references and explanations regarding, at a minimum, the radio frequency, reliability, accuracy, stability, scalability, maintainability, and marketability.

3.6.2.1 Internet Protocol Addressable

Notwithstanding RFP subsection 3.2.4, the internet protocol addressability requirement does not include the Transponders.

3.6.2.2 Automatic Transponder Functionality

All ETC transactions in the lane shall be automatic without any involvement of the driver. This relates to the interactions between the Transponder and the ETC Component reader and antenna. If the Transponder is properly mounted then the transaction in the lane shall be automatic without additional customer interaction required.

3.6.2.3 Guaranteed Performance

The ETC Component proposer must provide a discussion on the performance of the ETC Component including performance statistics. This should include an absolute guarantee that the ETC tolling component will perform as advertised immediately upon installation including operations, accuracy, availability, and life cycle.

3.6.3 ETC Component Operations and Capabilities

3.6.3.1 Radio Frequency Requirements

3.6.3.1.1 Radio Frequencies

The ETC Component proposer must indicate and discuss the radio frequency bands that will be used for the ETC Component. This discussion should include the advantages and disadvantages of using the proposed radio frequency.

3.6.3.1.2 Radio Frequency Site Survey

A site survey, often referred to as a spectrum analysis, must be included in the services provided for the implementation of the ETC Component.

3.6.3.1.3 Federal Communications Commission Licensing

The proposed ETC Component shall comply with applicable federal, state and local licensing and regulations for the ETC technology proposed. Proposers shall identify all related licensing and regulations associated with their equipment and describe how licensing will be obtained and what is necessary to meet the relevant regulations.

3.6.3.2 ETC Security

The ETC tolling component must be designed to minimize the possibility of the ETC Component integrity being compromised or corrupted. Proposer shall describe the safeguards its ETC Component provides that would prevent unauthorized access to, recording of, or downloading of, any data stored or transmitted from the Transponder, roadside equipment, or remote devices.

3.6.3.3 ETC Read and Write Speed and Capabilities

Proposer shall discuss the internal workings and capabilities of the proposed ETC Component. This shall include the ETC read rate and the number of Handshakes

required to properly process a transaction. Proposer shall address the vehicular speeds at which a vehicle's Transponder can be read under all conditions. The proposer must also discuss any known conditions that have an effect on the read and write capabilities. In order to be interoperable with the IAG interoperable Transponders provided by the ETC contractor must have read and write capabilities.

3.6.3.4 Exceptions to Read Accuracy Requirements

Proposer shall describe the situations and vehicle types that may require alternate mounting locations for Transponders to meet accuracy requirements, for example metal-oxide windshields. If there are vehicle types that cannot meet the accuracy requirements even with an alternate mounting location or specialty Transponder, proposer shall describe the vehicle types, the Transponder used, and the mounting location to achieve the maximum accuracy rate as well as what that accuracy rate will be. The ETC Contractor will provide an updated list on an annual basis.

3.6.3.5 Reader and Antenna Capabilities and Requirements

Proposer must provide detailed information regarding the equipment and ETC Component proposed for the LSIORB Project. The reader and antenna includes the radio frequency antennas and associated reader devices required for communication to the vehicle Transponders and the lane and Toll Zone controllers.

3.6.3.6 Reader – Number of lanes

Proposer must indicate and discuss the number of AET lanes the proposed reader can process and properly manage.

3.6.3.7 Reader – Number of Protocols

Proposer must indicate the number and types of protocols that the reader can process in the same lane, and identify the various protocols the proposed reader can process.

3.6.3.8 Reader – Interface

The readers will interface directly with the lane and Toll Zone controllers. Proposer must indicate the willingness and the ability to interface with the RBOC and provide the data and software necessary to process an ETC transaction in a seamless manner.

3.6.3.9 Reader and Antenna Transaction Processing

Proposer must address the ability of the ETC Component to accurately process Transponder read and write activities in the lanes at various speeds, and to properly assign those read and write transactions to the correct vehicle in association with the RBOC Contractor.

3.6.3.10 Environmental Requirements

The reader and antenna must operate without degradation in performance in all weather conditions including extreme hot or cold weather, rain, snow, high humidity,

high wind conditions (120 mph), and vibrations caused either by wind, vehicles, or aircraft.

3.6.3.11 Physical Characteristics

Proposer must provide the physical characteristics and operational aspects, capabilities, and model numbers of the reader and antenna.

3.6.3.12 Lightning Protection

The reader and antenna and all other components including the gantry and all communication connectors shall allow for proper grounding and protection against lightning strikes.

3.6.3.13 Performance in Various Lane Configurations

Proposer must discuss various lane type equipment configuration requirements including,

1. Dedicated lane, lane requirements, and alternate use requirements,
2. High-speed vs. low speed (100 miles per hour and various speeds down to under one mile per hour),
3. Multi-lane vs. single lane, and
4. Toll highway vs. parking, other low volume locations.

3.6.3.14 Diagnostic Capabilities

Proposer shall describe the diagnostic capabilities of the reader and antenna, the conditions monitored, conditions reported to the lane controller, how the conditions are monitored, and the time needed to go from detection of a failure to notification of the lane controller and when necessary, switchover to any redundant components. Failures should be stored in a failure log capable of being reviewed by the RBOC Contractor or agents or members of the Joint Board via a command electronic communication.

3.6.3.15 Serviceability and Maintenance

Proposer must provide information documenting the ability of all of the electronic parts and equipment that are contained within the ETC Component to meet serviceability and maintenance minimum requirements.

1. MTBF – 30,000 hours
2. MTTR – 30 minutes
3. Life cycle 10 years

3.6.3.16 Installation

Proposer must provide discussions on installation and mounting requirements for readers and antennas, and any other hardware, enclosures, communications, or cabinet space required. The ETC Contractor shall provide all necessary mounting hardware.

3.6.3.17 Other ETC Communication Requirements

Proposer must address the following ETC Component and communications requirements,

1. The proposer shall discuss how the ETC Component will provide redundancy protection,
2. Each reader shall hold up to 20,000 Transponder reads for each lane in its buffer in the event that communication to the lane is lost, and 20,000 Transponder reads in the event communication with the Toll Zone controller is unavailable. The readers shall be expandable through the addition of memory modules to buffer at least 80,000 reads for each travel lane covered,
3. Buffered Transactions shall be automatically sent to the lane Toll Zone controller when communications are reestablished,
4. Buffered Transactions shall include all information necessary to create a unique ETC transaction, including date and time stamp, lane number and required Transponder information,
5. Design shall allow for removal of Buffered Transactions from the reader via a portable data storage device for transaction processing in the event that communications cannot be restored,
6. The reader and antenna shall provide all electronic interaction to the Transponder and ensure that a Transponder identification number is recorded only once per passage through the Toll Zone,
7. The reader and antenna shall communicate the Transponder number to the Toll Zone controller for verification of Transponder status, and
8. The reader shall detect and correctly read Transponders in the presence of interference from, and without creating interference to, the surrounding environment such as radio and television broadcast stations, military communications, bridge structures, and transmitters on vehicles such as cellular telephones and citizens' band radios. Proposer is also responsible for protecting against intentional interference with the ETC Component. The reader and antenna assembly shall not require extensive periodic tuning to obtain an adequate level of performance and accuracy.

3.6.4 Transponder Requirements

3.6.4.1 Read and Write

Transponders must accommodate read and write functionality. Proposers must discuss their proposed solution and any advantages or limitations to their proposed Transponder.

3.6.4.2 Protocols

Proposer must describe the communication protocol being proposed and the number and types of protocols that can be programmed on the Transponder at the same time. Proposers should address the various protocols the Transponder can support and other capabilities of the proposed Transponder.

3.6.4.3 Transponder Data Format

Proposer shall identify the data formats and components on or within the Transponder. The discussion shall include the functionality of the Transponder and the data fields

included on the Transponder including fixed, variable and programmable data fields such as:

1. Transponder numbers shall be unique, fixed, and not reissued under any previous number,
2. State or region code,
3. Agency code,
4. Vehicle class,
5. Vehicle type, and
6. Revenue type

3.6.4.4 Transponder Interface with Back Office

The Transponders shall interface with the RBOC with respect to the back office through both portable electronic readers and testers and barcode readers. The electronic reader and tester and barcode reader must allow for the automatic input of Transponder numbers to the customer account, and allow the back office to use the Transponder information for inventory management.

3.6.4.5 Barcodes

Each Transponder must be bar coded. The Transponder barcode information must match the Transponder number. The Transponder information must be easily read through the barcode for easy entry into the Back Office Host for inventory control and automatic input to customer accounts.

3.6.4.6 Portable Electronic Reader and Tester

Proposer must identify and discuss the portable electronic Transponder reader and tester being proposed. The reader and testers must allow for accurate radio frequency reading and testing of the Transponder. The reader and tester must be able to electronically provide the identification number of the Transponder and provide for a potential interface to the back office to track testing activities and results. The reader and tester must be properly shielded so as to prevent inadvertent cloning of information from one Transponder to another. The reader and tester must be able to test all Transponder types to determine if they are working properly. Proposer may propose a single unit or separate units, but proposer must discuss the functionality of the units and describe how a user could track and report on the results.

3.6.4.7 Physical Specifications

1. Proposer must describe the physical specifications of the proposed Transponder types and the advantages and disadvantages these types have compared to other Transponders.
2. Proposer must describe limits of flexing, bending, or other physical manipulation of the Transponder without any effect on performance and accuracy.
3. Proposer must show that the Transponders can withstand damage or corruption of data when subjected to electrostatic discharge attributable to normal handling by a customer.

3.6.4.8 Battery

Transponders that include a battery should include the ability for the customer to change the battery, and battery life should be a minimum of six years. Proposer must identify the type and size of battery and whether it is field replaceable.

3.6.4.9 Mounting and Usage Requirements

Proposer shall describe specifications and tolerances for a properly mounted Transponder.

3.6.4.10 Environmental Requirements

Transponders should operate in all weather conditions, should withstand very high and low temperatures, and should be dust and impact resistant. Proposer shall specify ambient temperatures ranges and limitations, if any.

3.6.4.11 Three Types of Transponders Must be Proposed

Two types of interior Transponders and an exterior Transponder type must be proposed. The interior Transponders proposed must include a Transponder type that provides no feedback to the customer and a Transponder type that provides audio feedback to the customer. Proposers must submit pricing on all three types of Transponders. The Joint Board encourages proposers to also discuss other available types of Transponders and the advantages of using each in their proposal response.

If additional types of Transponders become available during the design phase, the Joint Board reserves the right to require that the new technology be made available by the ETC Contractor at no additional cost to the Joint Board.

3.6.4.12 Transponder Feedback

The proposer must discuss available methods for ETC Component feedback to the driver. For Transponder audio feedback, proposers should address frequency, decibel range, tone patterns and options, delay or lag time, and duration of tone signal. Proposer is encouraged to address innovative solutions about feedback methods auditory or otherwise.

3.6.4.13 Shipping

Transponders shall comply with all current U.S. and international safety standards to permit unrestricted shipment by mail or common carrier.

3.6.4.14 Disposal

If there are environmental restrictions on disposal of any type of Transponder proposed, proposer must describe the proper disposal procedures and the reason for the restrictions. The ETC Contractor shall be responsible for the disposal of all Transponders at no additional cost to the Joint Board.

3.6.4.15 Ancillary Hardware

Proposer shall address any other associated ancillary hardware and software, including but not limited to:

1. Transponder shield,
2. Transponder holder, and
3. Other

3.7 Operations Services Proposal Requirements

This section of the RFP applies to the proposers submitting their proposal to provide the Tolling Component 3 Operations Services. Services may be expanded in the future to include other statewide or cross state toll projects and additional LSIORB call center services beyond the current operations articulated within the scope of his RFP. The Joint Board reserves the right to solicit separate proposals for each future project or utilize the selected Contractor from this procurement. The term of this contract shall be for a minimum period of two years after the commencement of tolling on the LSIORB Project which is approximately a total period of five and one-half (5 ½) years.

1. Proposers are urged to provide the most-current proven approaches to meeting the Operations Services challenges and to show how compliance with the specifications and performance requirements will be achieved.

2. Proposers shall demonstrate the ability to provide operations in accordance with LSIORB business rules, standard operating procedures and performance requirements throughout the duration of the contract. The selected Contractor shall be required to work with the RBOC (Tolling Component 1) contractor, the Statewide Transportation Operations Center (STOC), and Electronic Toll Collection (ETC) (Tolling Component 2) contractor and other state and local agencies currently engaged and those that may be engaged in the future by LSIORB to provide seamless operations.

3. The proposers on this Tolling Component Three shall be experienced and highly knowledgeable in toll industry back office operations, Call Center and Video/Violation Processing Services and shall provide trained, competent and courteous managers, supervisors and staff to provide the services articulated in this RFP Component. The proposer shall ensure that the LSIORB customers and the motoring public are served in an efficient and courteous manner in uniform compliance with LSIORB approved procedures and practices.

4. The nature and scope of the contract for Tolling Component 3 expressly includes the following elements:
   (1) the operator, on behalf of the Joint Board, shall collect tolls for the use of the toll road project for the benefit of the States' Parties;
   (2) the operator to shall have the ability to adjust the tolls charged and collected for the use of the toll road project, within the framework of the Toll Policy Agreement and rules and regulations to be promulgated by certain of the

States' Parties; provided that tolls shall not exceed the maximum amount thereby established;

(3) the operator, on behalf of the Joint Board, shall charge and collect tolls and user fees through non-manual methods, including, but not limited to, automatic vehicle identification systems, electronic toll collection systems, global positioning systems and photo or video based toll collection or toll collection enforcement systems, all to the extent permitted by law, including rules and regulations adopted by the States' Parties; and

(4) the operator may authorize the collection of tolls and other user fees charges by a third party, as set forth in the Operations Services Contract.

3.8 Insurance Requirements

For the term of these Contracts, the successful Contractor(s) shall maintain insurance that will reasonably protect it from any claims for professional errors, property damage, or personal or bodily injury, which may arise out of performance of these Contracts. The Contractor(s) will procure the insurance policies at the Contractor's own expense and promptly, upon request, furnish KYTC with standard certificates of insurance, in a form reasonably acceptable to KYTC, documenting the coverage required in this subsection.

Without limiting the foregoing, if the Joint Board so directs by notice, the Contractor(s) will promptly obtain and maintain the following types of insurance coverage and comply with the following provisions:

1. Workers' compensation insurance: with limits as required by law.
2. Commercial general liability policy: combined single limits:
   a. $1,000,000.00 per person
   b. $3,000.000.00 per occurrence
   c. The commercial general liability policy shall include contractual liability coverage and must be on an "occurrence" basis. A comprehensive general liability policy may be substituted for the commercial general liability policy if the comprehensive general liability policy has been endorsed to insure contractual liability, broad form property damage, and personal injury liability.
   d. Per person means the liability limit for each person involved in the action that requires policy coverage with a maximum coverage for that group of people for that incident. It does not place any restrictions on how many times this can occur.
3. Business automobile liability policy:
   a. Combined single limits: $1,000,000.00 per person
   b. $3,000,000.00 per occurrence
   c. Per person means the liability limit for each person involved in the action that requires policy coverage with a maximum coverage for that group of people for that incident. It does not place any restrictions on how many times this can occur.

4. Malpractice and professional liability policy: any other provisions herein to the contrary notwithstanding, the malpractice and professional liability policy may be on a "claims made" basis but then must have a tail of at least two years following the termination or expiration of the Contract.
   a. It must provide liability limits of $3,000,000.00 per occurrence.
   b. The Operations Contractor and its subcontractors are required to maintain professional liability insurance that meet Kentucky and Indiana state requirements.
   c. Except as otherwise expressly stated herein, all policies must be on an "occurrence" basis.
5. Subcontractors Insurance: The Contractor(s) shall either require each subcontractor to obtain and maintain workers' compensation insurance, commercial general liability, business automobile liability and professional liability coverage similar to those described in the preceding paragraph, or any other coverage deemed necessary to the successful performance of the Contracts, or cover subcontractors under the Contractor's policies. Such coverage shall be in effect at all times that a subcontractor is performing work under the Contract. The Contractor(s) shall have responsibility to enforce subcontractor compliance with these or similar insurance requirements; however, the Contractor(s) shall upon request provide the Joint Board acceptable evidence of insurance for any subcontractor. The Contractor(s) shall assume all responsibility for risks or casualties of every description, for any and all damage, loss or injury, to persons or property arising out of the nature of the work, including but not limited to the negligence or failure of its subcontractors as well as Contractor's employees, to comply with Contract Documents.

Providing and maintaining insurance coverage is a material obligation of the successful Contractor(s) and is of the essence for the Contracts. All required insurance shall be obtained from companies authorized to provide such coverage and licensed to do business in Indiana and Kentucky. The Contractor(s) shall at all times comply with the terms of such insurance coverage, and all requirements of the insurer, except as such may conflict with existing Kentucky and Indiana laws or the terms of the contract. All required insurance policies shall contain a provision that the policies will not be cancelled, not renewed, or allowed to lapse, for any reason, unless 30 days prior written notice is provided to the Joint Board. The limits of coverage set forth herein shall not be interpreted as limiting the Contractor's liability and obligations arising pursuant to the contract.

3.9 Help Desk

Contractors shall be responsible for assisting the Joint Board or designees in answering user questions. All Contractors with the exception of the Operations Services Contractor shall provide a help desk. Proposers shall provide information regarding the help desk in their proposals.

3.10 Warranties Third Party

The Contractor shall track and assign to the Joint Board any and all third party warranties and representations with respect to the LSIORB Project without any additional charges being made to the Joint Board. The Contractor's agreements with any third parties shall require that such parties consent to the assignment and enforcement of such warranties and representations to the Joint Board.

3.11 Creativity

Proposers will be partially evaluated on their creativity and ability to provide the LSIORB Project with positive productive solutions.

3.12 Cost Effective

All tolling components must be cost effective. The proposers must provide Deliverables at a reasonable cost so the Joint Board can offer customers a reasonable cost to use the facility and reasonable toll rates. The proposers must show that the equipment is being provided at a reasonable cost and that the ongoing maintenance of the tolling components will be reasonable.

3.13 Quality Control

The Contractor(s) shall develop and maintain quality control plans as part of ongoing coordination to track project in the requirements trace matrix, the schedule, and the budget for items where the quantities or conditions vary from those provided by the Joint Board and Contractor(s) cost conditions that may impact the AET System.

3.13.1 Project Documentation

The scope of work includes documentation of all tolling component design, testing, installation and follow-up documentation including as-built drawings and manuals as well as installation plans and shop drawings for each lane type.

Design submittal documentation shall be provided describing how the best available proven technologies and components are to be employed. A compressed design program is anticipated. Proposers shall provide adequate detail to show how the proposed tolling component will meet procurement requirements within the schedule constraints, under traffic.

Detailed Design Documentation. Contractors shall provide a Preliminary Design and Detailed Design Documents for the Joint Board's review and approval. The Detailed Design Documentation shall address all aspects of this RFP, including but not limited to the Toll Facility and Back Office Hosts, database, lane, the CSC, the violations enforcement system, a call center, website, networks and communications, access security, interoperability, and facility security.

Software architecture documentation is required and shall include, but not be limited to:

1. Platforms,

2. Tools,
3. Database,
4. Structure and entity relationship diagram,
5. Data dictionary,
6. Modules and descriptions,
7. Processes,
8. Transaction flow and framing,
9. Revenue flow,
10. Detailed screen shots,
11. Navigation scheme, and
12. Redundancy.

Database documentation shall also include thorough documentation of database structure and training for database administration, and a plan for database management.

Other documentation items required include:

1. Equipment layouts,
2. Hardware architecture,
3. Communications block diagrams,
4. ICDs,
5. Storage and sizing analysis,
6. Capacity analysis,
7. Video image processing analysis
8. Power and heat load analysis,
9. Surge suppression analysis
10. Grounding analysis,
11. Performance metrics,
12. Reliability analysis,
13. Communication loss analysis,
14. System security and access
15. Hardware specifications on environmental, electrical, communications, appearance and performance, and
16. Redundancy analysis.

Testing documentation shall include plans and records for testing throughout the project including:

1. FAT Program. Upon design approval or Joint Board notice, the Contractor(s) shall conduct a FAT program for owner and representative observation, which will exercise all subsystems and their components parts for each applicable tolling component in a test lab environment,
2. Acceptance Testing. The Contractor(s) shall prepare the acceptance test program and procedures and scripts to exercise all components and ensure all requirements are met, on a lane-by-lane basis. The Contractor(s) test scripts are subject to the review and approval of the Joint Board and or its designees, and
3. Final Test Program**.** The Contractor(s) shall prepare the final test program and procedures and scripts to exercise the tolling component and review operations

over a discrete period of time. The final test program and scripts are subject to the review and approval of the Joint Board and or its designees.

Project As-Built Documentation and Records. The Contractor(s) shall provide in written and soft copy form as-built drawings and sketches, cut sheets, inventory numbers and information, such that the Joint Board will be able to make changes or hardware change outs in the future.

3.14 Contractor Responsibilities

The table below shows the allocation of delivery responsibility for the LSIORB Project AET System.

Contractor Responsibility Matrix

Location or System	Equipment, System or Service	RBOC	ETC	Operations	DB/Developer
LSIORB Project Toll Operations Center	Lease Space and Maintain CSC, Operations Center, CSC Walk-in Center			X	
LSIORB Project Toll Operations Center	Space Build-out with •IT Room with Environmental Controls •Secured Room for Transponders •Toll Operations Center •CSC Workstations •Mailroom •Storefront Counter •Loading Dock •Storage •Hearing Offices •Joint Board On-Site Offices •Conference Rooms •Break Room			X	
LSIORB Project Toll Operations Center	Furnishings and Fixtures. Furnishings will be handled as a pass through cost and should not be included in the price proposal. Costs will be determined during the design phase.			X	
LSIORB Project Toll Operations Center	Utilities (power, water, sewer, etc.)			X	
LSIORB Project Toll Operations Center	Telco Communications for normal Operations Center telephone operations and digital switchboard and telephone network (desk telephones, conference room telephones, fax lines, high-speed Internet). For the purpose of pricing, the proposer should price 30 CSR terminals.	X			
LSIORB Project Toll Operations Center	Telecommunications for back office: public telephone lines to access the CSC, high-speed Internet service to support access to the web server.	X			
LSIORB Project Toll Operations Center	Operations Center IT Room UPS	X			
LSIORB Project Toll Operations Center	Operations Center LAN	X			

Contractor Responsibility Matrix

Location or System	Equipment, System or Service	RBOC	ETC	Operations	DB/Developer
LSIORB Project Toll Operations Center	LSIORB Project Operations Virtual Private Network for data access to Administrative Headquarters	X			
LSIORB Project Toll Operations Center	Integration into other LSIORB Project systems such as GL software	X			
LSIORB Project Toll Operations Center	BOS •Host HW •COTS SW •Application SW •CSC Application •IVR System •Web Server •CSC Workstations •Host OCR and ALPR Application •Video Review Workstations	X			
LSIORB Project Toll Operations Center	Toll Facility Host •Host HW •COTS SW •Toll Host Application SW •Access Control Host Control •CCTV Host •Toll Operations Center Custom Workstation	X			
LSIORB Project Toll Operations Center	Communications WAN between the Toll Facility Host and the Toll Zones(s)	X			
LSIORB Project Toll Operations Center	Dark Trunk Line Fiber from Fiber Patch Panel in Toll Zone to Patch Panel in LSIORB Project Toll Operations Center IT Room	X			
Toll Zone Building	Building Construction	X			
Toll Zone Building	Utility Power to Power Panel and Automatic Transfer Switch	X			
Toll Zone Building	Backup Generator	X			
Toll Zone Building	UPS	X			
Toll Zone Building	Trunk Line Fiber Conduit to Toll Zone Building	X			
Toll Zone Building	Dark Trunk Line Fiber between Patch Panels in Toll Zone Buildings	X			
Toll Zone Building	Fiber Patch Panel to Toll Zone LAN	X			
Toll Zone Building	Toll Zone LAN (all fiber) within Building and to Gantries	X			

Contractor Responsibility Matrix

Location or System	Equipment, System or Service	RBOC	ETC	Operations	DB/Developer
Toll Zone Building	Toll Zone System: • Toll Zone LAN hardware and software • Toll Zone Server • Toll Zone OCR and ALPR • Toll Zone Access Control • Toll Zone CCTV (Overview and Security) • Rack-Mounted Maintenance Workstation Accessible to the Joint Board	X			
Toll Zone Building	Proximity Card Access Control	X			
Toll Zone	In-Ground Junction Boxes	x			
Toll Zone	Conduit from Toll Zone Building to Junction Boxes by Gantry	x			
Toll Zone	Gantry Structure				X
Toll Zone	Additional NEMA 4x AC Cabinets on or by Gantries As Needed	X			
Toll Zone	Conduit and Fittings on Gantry to Side and Overhead Mounting Region	X			
Toll Zone	Lane Controller	X			
Toll Zone	Installation of ETC Components (Antennae, Readers, RF Modules if any, etc.)	X	X		
Toll Zone	Video Transaction Cameras, Lighting, Other	X			
Toll Zone	Roadside OCR or ALPR hardware and software	X			
Toll Zone	Roadway Overview CCTV	X			
Toll Zone	Facility Security CCTV	X			
Toll Zone	Automatic Vehicle Classification System – Overhead Equipment	X			
Toll Zone	Automatic Vehicle Classification System – In-Pavement Work if Needed	X			
Toll Zone	Cabinet Access Control – Keys	X			
Toll Zone	Data Terminations – All	X			
Toll Zone	Power Terminations – Toll Collection System	X			
Toll Zone	Power Terminations – Any Highway Lighting, etc.				X
CSC	ETC Component Transponders Interface with RBOC	X	X		
CSC and Toll Zone	Provide Transponders	X			
Toll Zone and Toll Facility	ETC Component functional operations	X			
Toll Zone	ETC Component interface with RBOC	X			

Contractor Responsibility Matrix					
Location or System	**Equipment, System or Service**	**RBOC**	**ETC**	**Operations**	**DB/Developer**
Toll Zone	Tune and Calibrate ETC equipment	X			

Table 3.1 - Contractor Requirements Matrix

The Federal Communications Commission licensing process for the ETC Component shall be delivered through the Transponder and reader procurement and it is the responsibility of the ETC Contractor to obtain the proper licensing. The UPS will be part of, and monitored by, the RBOC and dependent upon the CSC design. The provider of the information technology room will have to provide space based on design requirements coordinated with the RBOC contractor. Transponders will be kept in secured inventory at the Operations Center.

3.14.1 Project Phases

This section defines the structure for the development in phases, the schedule, and the testing requirements. This structure shall form the organization for the Contractor's Project Management Plan as well as for the master schedule and the test program. Although the contractors will receive Notice of Award and Notice to Proceed according to the schedule set forth in subsection 3.12.2 Project Milestones the contractors are required to synchronize their schedules so that collectively they meet the Project Milestone dates.

Project Phase Descriptions	
Phase	**Phase Definition and Description**
Notice to Proceed and Preliminary Work	Upon Contract Signature and the Joint Board written authorization to begin work
Phase I	Design
Phase II	FAT, Installation, Testing
Phase III	Evaluation of the New Toll Collection System during Initial Operations, Final Acceptance Tests.
Phase IV	Warranty period begins.

Table 3.2 - Project Phase Descriptions

3.14.2 Project Milestones

The table below provides the Contract milestones for project liquidated damages and incentive payments. Amounts and terms are described below in the tolling component specific sections.

PROJECT MILESTONES			
Milestone	**RBOC**	**ETC**	**Operations**
Notice to Proceed	8/9/2013	9/27/2013	11/18/2013
Phase I - Preliminary Design Approval	1/2/2014	1/2/2014	1/2/2014
Phase I – Detail Design Approval	7/1/2014	7/1/2014	7/1/2014
Phase II – Factory Acceptance Test Approval (Toll Zone and Toll Facility Host, Back Office Host)	12/1/2014	12/1/2014	12/1/2014
Sites, Buildings, Gantries Available Downtown Crossing Bridge and Kennedy Bridge	7/1/2015	7/1/2015	
Sites, Buildings, Gantries Available East End Crossing Bridge	2/1/2016	2/1/2016	
Phase II Operations Center Build-out Complete (Available to RBOC Contractor)	10/1/2015	10/1/2015	10/1/2015
Phase II Operations Center Site Acceptance (Begin Test Operations)	10/1/2015	10/1/2015	10/1/2015
Phase II Begin CSC Operations (6 months in advance of East End Crossing Bridge Opening)		4/1/2016	4/1/2016
Phase II Downtown Crossing Bridge Site Acceptance (Phased Traffic test included for Kennedy Bridge)	2/1/2016	2/1/2016	
Substantial Completion - Downtown Crossing Bridge Design-Build Contract	3/1/2016	3/1/2016	
Phase II Kennedy Bridge Toll System Site Acceptance	3/1/2016	3/1/2016	

PROJECT MILESTONES			
Milestone	**RBOC**	**ETC**	**Operations**
Phase II Downtown Crossing Bridge **Begin Bi-Directional Toll Operations**	4/1/2016	4/1/2016	
Start Collecting Tolls	4/15/2016		4/15/2016
Phase III Final Acceptance Operations Center	8/1/2016	8/1/2016	
Phase II – Shift 1 Downtown Crossing Bridge Shift Bi-Directional Toll Operations	1/2/2017	1/2/2017	
Phase III Final Acceptance Downtown Crossing Bridge (Cease Bi-Directional Toll Operations)	8/1/2017	8/1/2017	
Phase II East End Crossing Bridge Site Acceptance	8/1/2016	8/1/2016	
Substantial Completion –East End Crossing Bridge Design-Build Contract		9/1/2016	
Phase III Final Acceptance Toll System East End Crossing Bridge	1/31/2017	1/31/2017	
Phase II Kennedy Bridge Toll System Site Acceptance	3/1/2016	3/1/2016	
Phase II – Shift 3 Downtown Crossing Bridge Begin Bi-Directional Toll Operations	4/1/2016	4/1/2016	
Phase II Downtown Crossing Bridge Shift Bi-Directional Toll Operations	1/2/2017	1/2/2017	
Phase III Final Acceptance Kennedy Bridge	TBD	TBD	

Table 3.3 - Project Milestones

3.14.3 Project Phase I – Design

This phase includes the following:

1. The Project Management Plan finalization with schedule.
2. Tolling component design:
   a. Tolling component general design and operations plan,
   b. Tolling component hardware design and cut sheets,
   c. Tolling component software design,
   d. Tolling component network evaluation,

e. Tolling component test program design,
3. FAT plan,
4. Installation preparation,
5. Pre-construction walk-through, and
6. System hardware installation shop drawings.

3.14.3.1 Phase I Project Management Plan Finalization with Schedule.

Mobilization Conference. The Joint Board and the Contractors shall schedule mobilization conference(s) within 14 days of the execution of the Contracts. A number of initial submittals shall be required before the conduct of the mobilization conference, and subsequent to the final approval of those submittals, the Joint Board will issue a notice to proceed. These initial submittals to be reviewed, revised and approved by the Joint Board include,

1. Project schedule,
2. Project Management Plan, with project staffing chart, contact information, and hierarchy for both oral and written communication,
3. Project concept operations plan and procedures,
4. Project requirements trace matrix.

Project Master Schedule and Progress Schedules. The Contractors shall prepare the project schedule in Primavera in adequate detail to coordinate and control field activities, and to notify the Joint Board of all Contractors activities, but also be able to be rolled up into a summary version for biweekly status updates without unnecessary detail. After notice of award, and prior to an initial mobilization conference, the Contractors shall prepare and submit a detailed progress schedule outlining the order in which they propose that work shall be performed. This schedule shall be based on anticipated dates by which the Contractors plan to start controlling items and dates for completion. The specific installation deadlines set forth in this RFP shall be identified in the schedule to be submitted. The schedule shall be in critical path method format and used as a basis for progress tracking throughout the course of work. The summary schedules are to be used in the progress meetings to show work progress over the last month and project work for the upcoming month. The schedule may be modified based upon coordination with Kentucky's design-build team and Indiana's developer.

Tolling Project Management Plan. The Contractors shall develop the tolling project management plan in a simple, easy to follow manner to establish schedules, Deliverable formats, points of contact, design, review, quality control procedures, inventory control, site control, traffic control and maintenance of toll operations.

Project Concept Operations Plan and Procedures. The Contractors shall provide an updated, condensed version of the proposed plan and procedures for their respective system.

System Design Requirements Trace Matrix. The Contractors shall provide a

requirements trace matrix to be used throughout development, to enable simple ongoing determination of respective Contract compliance. This will also be utilized as a final acceptance document to prove that all system functionality has been delivered. This shall be provided prior to the mobilization conference to allow for Joint Board review and approval.

Conform to Schedule. The Contractors shall use all practical means to make the progress of the work conform fully to that shown on the approved progress schedule. If the Contractors fail to meet the schedule, the Contractors will take whatever steps necessary to bring work back into the schedule at no additional cost to the Joint Board including but not limited to:

- Perform overtime work;
- Increase the number of personnel assigned to the project; and
- Increase plant or machine capacity.

Project Schedule Revisions. If an increase in the schedule arises due to circumstances beyond Contractor control, the affected Contractors shall submit a revised project schedule within ten days after request by the Joint Board. Any failure or delinquency in submission of an updated schedule shall be treated as default on the part of the Contractor, who will then become liable for all possible actions which can be taken, including withholding of any payments due on the appropriate Contract.

Monthly Progress Reports. The Contractor shall prepare and submit monthly progress reports on the status of all major items and activities. The monthly progress report shall include an updated schedule.

Monthly Progress Meetings. Progress meetings shall be conducted approximately monthly at the Joint Board or the Joint Board members' offices, at a schedule to be proposed by the Contractors. The purpose of these meetings will be to monitor progress, discuss design issues and plan for installation, test and start up of operations.

3.14.3.2 Phase I Design

During design, the Contractor(s) shall provide the following:

System General Design and Operations Plan. The proposers shall provide the tolling component overall design and plan with the technical proposal. The general design shall identify the fundamentals of operation, back office functionality including the Back Office Host, database management system, CSC and VPS, Toll Zone procedures, staff procedures, maintenance and operations, and the control of ETC Component.

System Hardware Design and Cut Sheets. The Contractor(s) shall provide a tentative bill of material and hardware cut sheets. The hardware design shall identify how the hardware components meet requirements in the trace matrix, will tabulate power and environmental requirements, installation requirements, servicing requirements, as well

as how the function of the hardware component will be monitored and tested. This document set shall be updated during design development.

System Software Design. This design shall identify how the commercial software will be used and configured, and how any custom software will be designed and developed. It will include information such as:

1. Transaction message format incorporating and building on requirements,
2. Commercial software applications identification and description,
3. System software modules,
4. Software language and development tools,
5. Software heritage,
6. Lane controller software processes, drivers, logical flow diagrams, and
7. Interface specifications.

System Network Evaluation. The Contractor(s) shall review and catalog the necessary links, components and applied technologies, and assess the capability and adequacy of the proposed network based on current and future loads. This shall be done for both for volumes of daily data and real-time data requirements. This evaluation shall consider potential for expansion and life-cycle analysis of major elements.

Test Program Design. The Contractor(s) shall design the test program to verify the performance requirements are met and that the functionality and requirements of the trace matrix are achieved. The design shall be completed at a high level for the entire program, and at a detail level for the FATs.

3.14.3.3 Phase I Design Review and Approval

Preliminary Design Review. This is the first in depth review of the design and will be performed after the Contractor(s) have made the initial changes to their designs to accommodate the requirements of the LSIORB Project. It is assumed that the preliminary design review meeting will take place at the Joint Board's or the Joint Board members' offices. The PDD must be received from the Contractor(s) no less than four weeks in advance of the meeting. This will allow the Joint Board time to review the documents in detail prior to the meeting. The preliminary design review meeting will entail an in-depth review with the Contractor(s). The Contractor(s) shall provide minutes and meeting notes to all meetings and will address and track all comments submitted and discussed by the Joint Board.

Detail Design Review. The detailed design review meeting should provide the final review of the DDD, assuming the Contractor(s) have implemented the changes requested. The detailed design review meeting will take place at the Joint Board's or the Joint Board members' offices. The DDD must be received from the Contractor(s) no less than four weeks in advance of the meeting. This will allow the Joint Board time to review the documents in detail prior to the meeting. There will be an in depth review of the DDD with the Contractor(s). The Contractor(s) shall provide minutes and meeting

notes to all meetings and will address and track all comments submitted and discussed by the Joint Board.

3.14.3.4 Phase I Test Program Design

The Contractor(s) will submit a written test program to include all test components and types. The testing program will be included as particular items in the schedule.

Test Program. The test program will verify that the tolling components meet the performance and functional requirements of the respective tolling components, and that the components perform as required. The test program, including the design, conduct and review of the test, shall be conducted and evaluated by the Contractor(s) under the observation and review of the Joint board or its designees. The Joint Board retains the right to review the test programs as well as conduct ad hoc tests as pieces are installed, to include designed to fail tests.

Test Plan. The test plan is the description of which types of tests will be run, how the functional requirements of the tolling components will be tested, by whom, and how success or failure and remediation shall be determined and measured. The test plan will include expected results for each test for comparative purposes to actual test results. Test procedures and scripts are used to execute the test plan, with instructions for the test team and evaluators. The Joint Board reserves the right to review the test plans before they are executed.

Test Results Evaluation. In the review of the conduct of each test level, there will be a results evaluation phase. Delinquency reports shall be created by the Contractor(s) to include results from the evaluation of the test procedures and the results that did not pass. It should be assumed that there will be delinquency reports to be documented which require repeat testing. All retesting should be completed within two weeks. All tests at all levels and all delinquency reports should be corrected and accepted prior to the conduct of a FAT. For a period of 90 days, the tolling component must operate in a burn-in mode. FAT will occur after this period.

Test Levels. The test levels are:
1. FAT,
2. Proof of concept tests,
3. Site acceptance tests,
4. Performance evaluation, and
5. Final Acceptance Test.

Test Components. The test components at the various levels are developed as follows:
1. Test plan,
2. Test procedures and scripts, and
3. Test result analysis, fixes and regression testing.

Approvals. Any approvals, corrections, or determination by the Joint Board regarding the test program or test results does not relieve the Contractor(s) of responsibility to provide a complete AET System in accordance with the RFP.

3.14.3.5 Phase I Installation Preparation

Operations Center Pre-Construction Walk-Through. The RBOC Contractor and the Operations Services Contractor shall participate with the Joint Board in a pre-build-out design meeting and subsequent walk through of the proposed Operations Center, to consider the design requirements with respect to common areas of concern, particularly the location and configuration of the information technology center, LAN routing through the building for offices and CSC workstations, and service panels. The Operations Services Contractor, responsible for the build-out, shall provide meeting minutes and annotated drawings.

Toll Facility Host, Back Office Host and Walk-in Centers Hardware Installation and Shop Drawings. The RBOC Contractor shall provide detailed installation instructions for hardware to be provided to include the servers, network hardware, LAN and WAN equipment, and workstations. The RBOC Contractor shall provide coordination details with the Developer and Design-Build Team to ensure all work is performed correctly. These shall show the 19" rack configurations and physical and logical networking of, among other things:

1. Networking and interface requirements,
2. Installation, housing and environmental requirements for each component, showing proper location and equipment placement and rack diagrams,
3. Cabling and terminations requirements,
4. Workstation and call center hardware configuration and layout,
5. Component software configurations, drivers and switch settings, and
6. Proper handling and placement details.

For pricing purposes, the proposers should price for 50 LAN network connections for workstations in addition to other requirements by the RBOC Contractor.

Lane Preconstruction Walk Through. The Contractor(s) shall conduct a preliminary design meeting and, where possible, walkthrough, with the Joint Board and its representatives and staff, to identify precise locations for in-lane hardware, lane controller cabinets, and gantry hardware to include the antennae, readers, cameras and other hardware. The RBOC Contractor shall provide meeting minutes and annotated drawings for the Joint Board and other Contractors. The Toll Zone controller shall be located at the Toll Zone.

Lane Hardware Installation and Shop Drawings. The RBOC Contractor shall provide detail installation instructions for hardware, for example the ETC hardware, OCR, video cameras, AVC hardware, and signs. These drawings shall provide, among other things:

1. Standard networking and interfacing requirements for all components,

2. Standard installation, housing and environmental requirements for each component, showing proper location and placement of equipment,
3. Controller hardware configuration including drives, boards, types and amounts of memory, port types and equipment linkages,
4. Any applicable component software configuration, drivers, switch settings, and
5. Proper handling and placement details.

3.14.4 Project Development Phase II – Installation and Testing

This phase includes the following:

1. FAT
2. Proof of concept test,
3. Installation plans and schedule,
4. Installation schedule,
5. Phase II design and report submittals,
6. Equipment delivery and installation approval,
7. Site acceptance tests and commissioning,
8. Schedule and transition plan requirements,
9. Joint Board Support, and
10. Installation punch list.

3.14.4.1 Phase II Factory Acceptance Test

System Test Plan and Test Scripts. The Contractor(s) will be required to develop a test plan and test scripts for the FAT. This plan must be designed to show the functionality of the tolling component and to stress the tolling component to ensure that it can withstand volume processing loads. Functionality, accuracy, capacity, all modules, interfaces, and ease of use will be tested. The Contractor(s) must provide simulated transaction data that will mimic the Joint Board's expected actual data. The Contractor(s) will address issues as the test continues. The FAT plan documents must be received two weeks prior to the FAT. The Joint Board will review the FAT plan documents in detail and return them to the Contractor(s) one week prior to the FAT. The Contractor(s) shall provide minutes and meeting notes to all meetings and will address and track all comments submitted and discussed by the Joint Board.

Test Site. The Contractor(s) shall conduct the FAT at a site proposed by the Contractor(s) and approved by the Joint Board during initial development. The FAT will be observed and evaluated by the Joint Board and its representatives.

The RBOC FAT with respect to the roadside shall test at least a three-effective-lane gantry networked together with a Toll Zone LAN and a test server functioning as a Toll Facility Host for the sake of report production. The RBOC FAT with respect to the roadside shall test all functional requirements, but emphasize testing of,

1. Vehicle tracking and correlation across lanes, mixed with ETC and non-ETC vehicles,
2. Correct vehicle classifications across lanes,

3. Vehicle ETC performance,
4. Vehicle license plate reading, checking, proper categorization, and
5. Transaction composition and entering in the Toll Facility Host.

The RBOC FAT with respect to the back office shall use a test host server and other servers to verify the integration and function of all the back office components, such as,

1. Ability to pull transactions from a test Toll Facility Host server, the LAN, CSC functions, IVR and web server basic functions related to automated responses and automated database access,
2. Populating the thin client application for management reviews, reports and dashboards, and
3. Populating the thin client application for CSC operations at remote sites, and report generation.

Factory tests are conducted during development to confirm that functional requirements, hardware and software are consistent with the RFP and that all components are properly integrated in a controlled environment. Test data with known results will be developed by the Contractor(s) to simulate, via computer, a variety of actual conditions including maintenance, traffic and revenue reporting. Successful communications will also be simulated and demonstrated. The results of the factory tests must be successfully accepted before equipment can be installed in the field.

Any functions defined in this RFP shall be subject to detailed testing and verification during the FAT. If, in the Joint Board's judgment, the FAT indicates that the toll collection equipment and software appear to be functioning satisfactorily, in accordance with a predefined and approved test plan, and all functional and technical requirements are met, the Joint Board will issue written approval of the FAT results. Pending coordination with the design-build contractor, Indiana's Developer, and the Joint Board, the RBOC Contractor will be able to begin shipment of equipment to the site for field installation. Pending coordination with the Joint Board with respect to the Operations Center, the RBOC Contractor will be able to begin installation of the Back Office Host.

This approval of the FAT results shall in no way reduce or eliminate any Contractors' full responsibility to resolve any problems and make the AET System work in full conformance with the requirements of this RFP. Nor shall FAT result acceptance limit the rights of the Joint Board to identify and bring problems at any time to the attention of the Contractor(s) for immediate resolution or remediation at no cost to the Joint Board.

For the purposes of project management, the milestone for phase I cannot be completed until the FAT results and report are accepted by the Joint Board.

Test Database. The Contractor(s) shall develop and maintain separate test databases throughout the duration of all testing for all Toll Zones and the CSC, separate and distinct from the live database. The test databases shall be the property of the Joint Board and

shall not be purged.

3.14.4.2 Phase II Design and Report Submittals

During installation, the Contractor(s) shall provide the following,

1. Final installation plans and procedures for field installation,
2. Installation progress reports,
3. Equipment and network configurations, network maintenance of operations plans,
4. Inspection punch list, punch list progress, and final reports,
5. As-built drawings, revised cut sheets, equipment inventory reports,
6. Roadside test plan and procedures: Toll Zone, Toll Facility Host, interface with Back Office Host,
7. Training plan,
8. Maintenance plan,
9. Maintenance manual,
10. Final RBOC Contractor manual with respect to the roadside, and
11. Final RBOC Contractor manual with respect to the back office.

3.14.4.3 Phase II Equipment Delivery and Installation Approval

After Joint Board approval of the FAT results and the coordination and approval required for shipment and installation, the Contractor(s) may begin shipment of RBOC equipment to the project sites and begin the installation phase. No actual equipment installation activity shall take place on site until FAT result approval has been obtained. However, if any conduit installation or other minor physical modifications to the Toll Zone building, gantries, or back office facilities are required, these may be performed prior to approval of the FAT results. Any pre-FAT result approval installation activity shall be approved in writing by the Joint Board.

The RBOC Contractor shall prepare installation plans and shop drawings for each facility and Toll Zone, for Joint Board review and approval, as well as installation team direction.

The Contractors shall coordinate installation activities with the Joint Board, the design-build contractor, Indiana's Developer, and any other entity required to properly complete the installation phase.

Updated schedules shall be provided monthly during the design phase, and bi-weekly during installation.

3.14.4.4 Phase II Toll Zone Installation Scope of Work

Toll Zone installation includes all activities required to complete the installation of all roadside related equipment for complete functioning. The Joint Board requires new, off-the-shelf hardware in standard configurations.

Provision and installation of all necessary conduits, wiring, and cabling, including

communications and power shall be the responsibility of the Contractor(s).

The Contractor(s) shall take all necessary precautions to see that no damage is done to any existing structures due to their operations. In the event that any structure is damaged due to Contractor activity, such damage shall be repaired immediately at the Contractor's expense and to the satisfaction of the Joint Board in coordination with the design-build contractor and Developer.

Field Tests. The Contractor(s) shall field test each component as it is installed to ensure that it is working properly and that all interfaces are complete. This applies to each gantry, Toll Zone, and at the Back Office Host level.

System installation shall be organized into these general areas:
1. Operations Center – RBOC Front End Server,
2. East End Crossing Bridge Toll Zones ,
3. Downtown Crossing Bridge Toll Zones,
4. Kennedy Bridge Toll Zones.

Operations Center Installation. The Contractor(s) shall furnish, install, test and burn-in the new Toll Facility Host, Back Office Host and Walk-in Centers. Establishing the network links between these hosts via the Operations Center LAN is the responsibility of the RBOC Contractor. The Contractor(s) must demonstrate the proper function of the two-way interface, to include movement of transactions as well as data required for the RBOC, between:
1. The Toll Facility Host,
2. The RBOC and Operations Center LAN and test workstations, and
3. Back Office and Walk-in Centers Network and Workstations Installation. The RBOC Contractor, upon approval of the Joint Board after the phase I test installation and completion of the Operations Center build out, shall complete the installation of the workstations and other elements in accordance with the installation plan and schedule to include all conduit runs, wiring, terminations, and communications services. All equipment in the AET System shall be installed and fully tested by the Contractor(s) prior to official release to the Joint Board for final testing.

3.14.4.5 Phase II Installation Punch List

Installation punch list refers to the checklist of installation and work items resulting from the walkthrough with the Contractor(s) and the Joint Board, to address, but not be limited to AET System function issues including issues of completion, workmanship, thorough protection and complete sealing of all possible penetrations of water and roadway grime, and complete site restoration after construction.

3.14.4.6 Phase II Site Acceptance Test

Site acceptance includes functional test of the Toll Zone and lane components both individually and jointly, as well as inspection to verify proper materials and proper

installation of those materials have been provided. Commissioning completes testing to demonstrate the applicable tolling component is ready for revenue collection operations. It tests all the tolling component functionality including equipment, software, and communications interfaces under field conditions. Hardware locations and installations are approved. Equipment and software are tested to confirm that the tests conducted in a controlled factory environment will be operational in the field and that the communications links are operational. Test data will simulate operations and the results compared to FAT results. Field testing will also include scripted tests. Scripted tests use vehicles with predetermined characteristics to simulate actual conditions with predictable results. Field testing will also include report generation and data transfers. Communications will be tested under actual conditions. Tests must be successfully completed and results accepted before the tolling component can be placed in full operation.

The Joint Board may elect to run any test routine on an ad-hoc basis from the FAT series and expect the AET System to perform correctly without failure of any kind when the AET System is in installation, operation, or warranty. Any remedial work required by the Contractor(s) shall be included in the scope of the project at no additional cost to the Joint Board.

Commissioning means that the Joint Board has approved the FAT results for any tolling component and will declare the tolling component ready for revenue collection. The tolling component has not yet passed the performance evaluation, but appears to meet all design requirements after installation.

The Contractor(s) shall fully test the toll equipment in the field prior to initiation of toll collection. This testing shall include individual lane equipment, communication networks and any other reasonable test that may be required to verify proper functioning of the AET System. The successful results of the FAT shall be replicated as the AET System is installed in the field. As the gantries are checked out and the lane performance and performance requirements are met, the Joint Board will allow the AET System to be opened to toll collection operations in either a temporary configuration mode or in final configuration mode.

The RBOC will be commissioned separately with respect to the roadside and the back office, and each shall be ready for use after respective commissioning. If problems are detected during the data analysis and performance evaluation period, and the subsystems and their component parts are not operating at an acceptable level of performance, the RBOC Contractor shall promptly resolve the problems or have payments withheld and face liquidated damages until such time as the AET System is performing within acceptable levels in accordance with the Contract, as determined by the Joint Board.

3.14.5 Project Development Phase III – Performance Evaluation

During the initial operation of the AET System, or shakedown phase, the Contractor(s) shall provide:

1. Installed equipment list,
2. Spare parts list,
3. Final Acceptance Test documentation, and
4. Schedule of preventative maintenance.

During Phase III, a 90 day period of observation and evaluation of the new AET System operating under actual use shall occur. The Contractor(s) shall be required to fully support and maintain the AET System. All problems detected during the monitoring of the AET System during phase III shall be immediately brought to the attention of the Contractor(s) for remedial action. At the conclusion of this evaluation period, if the AET System is deemed by the Joint Board to be operating fully in compliance with the requirements of the Contracts, the Joint Board shall provide the Contractor(s) with written notice of final approval.

3.14.5.1 Phase III Performance Evaluation and Final Acceptance Testing

Final Acceptance Testing is performed after the AET System has been operational for 90 continuous days without major interruptions or data errors. During the initial period of operation, data generated by the AET System will be retained and evaluated in Final Acceptance Testing. The review will analyze the entire AET System under actual toll revenue collection conditions to determine efficiency of the AET System, the incorporation of administration and accounting controls, the audit and reconciliation of data, and the compliance of the installed AET System with the RFP specifications. Final Acceptance Testing will ensure that all required documents are present in an acceptable format. These documents shall include but not be limited to, hardware schematics, software design flows, operations manuals, training manuals, and descriptions.

Each of the above types of tests will be divided into levels. Each level will consider hardware, software, peripheral equipment, and the functionality required within that level. Successive test levels will build upon the preceding tests.

Levels within each type of tests are defined as follows, independent of which Contractor(s) provided component parts:

1. Lane controller, software, peripheral equipment toll transaction creation,
2. Toll Facilities Host computers, software, peripheral equipment and communication to lane equipment programs and reports, and
3. RBOC testing addresses the Back Office Host, database and CSC functions, including all service store operations, audit, reconciliation, accounting functions and final reports.

A test plan will be developed, reviewed and approved prior to commencement of testing. The tests may be monitored by an independent party. Deficiencies of the tested tolling component will be documented with sequentially numbered delinquency reports. Delinquency reports will provide a narrative description of the issue, a priority rating and a date that corrections will be completed. Periodic meetings will be held to determine the status and resolution of the delinquency reports. Additional tests may be conducted after discrepancy resolution. Critical deficiencies detected during any type of test must be resolved prior to progressing to the next stage of testing.

Reports shall be generated for each test conducted. A detailed report shall be produced after Final Acceptance Testing.

For successful completion of this phase, the AET System must function for a continuous 90 day period with no major failures, lane outages or performance below specification levels. A major failure restarts the 90 day period. Phase III may be extended beyond the 90 day period to accomplish this milestone.

At the successful conclusion of this phase, the Contractor(s) shall provide a final parts list, a Final Acceptance Test documentation history, and a schedule of preventive maintenance measures.

3.14.6 Project Closeout

Upon completion of phase III and during the initial warranty period, the Contractor(s) shall provide,

1. Final software documentation,
2. Final as-built drawings, and
3. Final maintenance service manual

At the conclusion of the continuous 90 day operational period, if the AET System is operating in full accordance with specifications, the Joint Board will grant written Final Acceptance.

All Contractors, with the exception of the Operations Services Contractor, must maintain the AET System at its performance level at Final Acceptance for at least five years.

3.15 Data Transfer Requirements

All computers, servers, databases and electronic storage devices, specifically including, but not limited to, Toll Zone controllers, the Toll Facility Host, and the Back Office Host shall be capable of providing daily transactional data to TED for the purposes of required reporting, analysis and auditing. The data transfer shall be done in an automated fashion and be achieved via secure methods. The required frequency of transfer is daily. The two most recent years of data stored online, or subsets of that data, shall be downloadable on demand. KYTC retains the option to require the electronic provision of other readily available operational data without charge using the same mechanism.

3.16 Pass Through Costs

Pass through costs will not be authorized except where specifically allowed within this RFP, or if otherwise determined to be appropriate at the sole discretion of the Joint Board. For purposes of crafting an RFP response, proposers should assume that all pass through costs authorized require that the proposer provide a per unit cost for the pass through item, and also provide an estimate of how many units will be required to adequately provide the level of service contemplated in the RFP. Pass through costs shall be direct costs only and shall not include overhead or other indirect costs.

3.17 Appendices and Reference Documents

Proposers are cautioned and advised to review the appendices and reference documents for this RFP. They are all incorporated by reference and are therefore binding as though included herein.

4. Technical and Price Proposal Requirements

4.1 Technical Proposal Outline and Contents

4.1.1 Separate Technical and Price Proposals

The proposer shall prepare a technical proposal set, and a price proposal set, in clearly marked separate packages.

4.1.2 Required Completeness

Proposers must provide a complete technical proposal. Proposers must address all aspects of the functional requirements and the scope of work. It is the proposers' responsibility to address all the areas required to provide a thorough understanding of the tolling component to which the proposer's proposal applies and that tolling component's capabilities.

4.1.3 Title Pages

All technical proposals shall be submitted in sealed envelopes or boxes, bearing on the outside the following:

Technical Proposal:
LSIORB Project
Toll Collection System
Request for Proposals
Indication of to which tolling components the proposal applies:
RBOC Component
Electronic Toll Collection Component
Operations Services Component

Submitted By:
Proposer's name
Proposer's address
City, state, zip code
Proposer's telephone number
Point of contact name
Date submitted

4.1.4 Form of Submission

Proposers shall submit technical proposals in printed form and on compact disc. Proposers shall provide the print copies of technical proposals, in separate three-ring binders for each volume, as shown in the proposal outline in subsection 2.2.16. The electronic copy must be provided in searchable Adobe PDF format. Each volume and major section shall be a separate file. Any proposal information prepared either as graphics or with other programs such as scheduling programs shall be viewable and searchable on the Adobe PDF file without any other software.

4.1.5 Page Presentation

Technical proposal text shall be single-spaced, a minimum of 10-point Arial or 12-point Times New Roman font, printed on one side of the page only. Each page header or footer shall include the proposer's name and technical proposal section, along with page numbers and the date of the proposal. Technical proposals shall be no more than 150 pages in length. For purposes of this subsection, and all other instances which refer to a page limitation, a "page" is defined as a single side of a piece of paper or the electronic equivalent thereof. Any piece of paper or the electronic equivalent thereof, with printing on both sides, will be counted as two "pages".

4.1.6 Number of Copies

Proposers shall provide fifteen printed copies and fifteen copies of compact discs of all portions of the technical proposal.

4.1.7 Easy to Read and Cross-Reference

The proposer need not duplicate or quote in detail from attached reference materials or marketing information, provided that a summary is included in the technical section and a clear and easy means to locate references to the information is provided. The reference shall include the document name, page number(s) in the document, and paragraph numbers(s) or line number(s) where the referenced information is located. Underlining, boxing, highlighting, etc. that will call attention to referenced information in a manner that will assist in locating it is recommended. Proposers may submit marketing information in the technical proposal as specified in subsection 2.2.16 of this RFP. The attachments and reference materials should be pertinent and reasonable in number.

4.1.8 Writing Style

Proposals should provide an example of what project design documentation will look like. The Joint Board prefers economy of words, direct writing, active voice, and a minimum of marketing superlatives. Proposers may submit supplemental materials in technical proposal, as appendices, as specified in subsection 2.2.16 of this RFP. Appendix materials shall be constrained to a maximum of 300 pages for all appendices combined. Failure to comply with this, or any other page limit set forth in the RFP may result in a finding of non-responsiveness.

4.1.9 Cover Letter

Proposers shall provide a cover letter signed by an officer of the firm with signature authority to enter into a Contract with KYTC on behalf of the Joint Board. This cover letter should be very brief and provide the corporate commitment to meet the scope and schedule of the LSIORB Project RFP and the relevant proposal. The letter should also include the RFP number; provide the name of the proposed project manager, the names of any proposed subcontractors and their respective responsibilities. The cover letter shall be limited to two pages. The copy of the proposal with the original cover letter shall be clearly marked.

4.1.10 Executive Summary

The technical proposal shall include its own executive summary, which shall be a brief overview, not to exceed five pages, summarizing the technical proposal and explaining how the proposal being offered best addresses the evaluation criteria listed in this RFP. The proposer shall describe its understanding of LSIORB Project's needs and its approach in developing the integration, the coordination with the Downtown Crossing design-build contractor and the East End Crossing Developer and the other contractors, and how the AET System's integrity will be protected and enhanced over the life of the Contract.

4.1.11 Qualifications

4.1.11.1 General Qualifications Requirements

Proposers shall depict their experience, knowledge, and understanding of all aspects of AET Systems, video processing capabilities, account creation, account management, and collection of tolls, processing of traffic, the audit process, reporting, hardware and software maintenance, and production capabilities including the ability to recover from disasters.

The lead proposer shall describe the firm's qualifications and the Major Subcontractors' qualifications, referencing specific similar projects that were deployed by these firms. Sole proposers or team proposers shall demonstrate that they are qualified to manage the implementation of a project similar or larger in scope to the LSIORB Project. They shall demonstrate their management expertise and financial wherewithal to properly design, test, integrate, implement, maintain, and operate, if applicable, the Project.

The proposer shall identify the lead firm and project contact and the roles of all other firms on the project team. Information shall include the name and background of the principal in charge, firm name, home office address, telephone number, e-mail address for the primary contact person, former firm names if any, and Kentucky or Indiana office address, if different from home office, for each firm which is part of the proposing team. If a firm has branch offices, it shall state which offices will be performing the majority of the work.

The proposer shall clearly identify all proposed subcontractors for the Project. The same information required for proposers is required for Major Subcontractors. The proposal shall clearly describe the work to be performed by each subcontractor, and the percentage of the total effort that the work represents. Subcontractor substitutions shall require prior approval by the Joint Board. Representatives of all subcontractors are encouraged to accompany the prime proposer to the scope of services meeting and site visit and to any oral presentation and interview if the proposer gives one. The proposer shall require subcontractors to comply with the terms and conditions of this RFP and the resulting Contract Documents, including but not limited to, the insurance terms set forth in subsection 3.6.

The proposer shall demonstrate significant current experience in advancing the state of toll collection and video enforcement. The proposal should include a discussion of the top risk areas and problems that have been overcome regarding both video and Transponder collection as well as risk mitigation action steps. The proposer shall identify at least one major innovation in their practice that demonstrates ability to meet new project demands without precedent. The proposer shall document the resultant benefits.

Proposers shall indicate their commitment to working seamlessly with other project contractors and discuss their experience working with other contractors on large projects.

Proposers shall disclose any litigation pending or resolved in the past five years with customers of the proposer as well as any liquidated damages paid to customers by the proposer.

4.1.11.2 Tolling Component Specific Qualifications

Tolling Component One – RBOC: Those bidding on the RBOC tolling component shall demonstrate:

1. At least one major AET System completed within the past five years or at least one major toll project with multi-lane free-flow lanes for a toll facility financially dependent upon proper operation of the multi-lane free-flow lanes. For example, a toll facility with over 70% ETC participation would qualify. The AET System presented for this qualification shall include at least 30 total lanes of toll collection and
2. At least one AET System with at least three Toll Zones which are heavily reliant on license plate video image processing.
3. At least one major toll or vehicle fee project in the past five years which processes at least 200,000 transactions per day.
4. At least one major project designed to process, validate, and lookup at least 10,000 license plate images per day.
5. At least one major project designed to bill and collect on at least $5 million per month in revenues.
6. Any major project that includes reversible AET or open road toll lanes, such as a managed lane project.

Proposers must also provide production capabilities data, average order lead times, and current monthly demand and backlog. Proposers must address production and delivery capabilities directly related to the needs of the LSIORB Project and the commitment to do whatever is necessary to satisfy the needs of the Project. Proposers must provide specific information on delivery and installation times regarding the proposed

equipment and software for the roadside. The proposers must identify the lead time required for orders of spare parts. Proposers shall identify time frames for repair and replacement of component parts, and specify warranty period. The lead times and warranty period identified must be guaranteed throughout the life of the RBOC Contract. Proposers shall indicate the location of production, research, and testing sites that would be open for visits and inspections from the Joint Board, the States' Parties, consultants, and Evaluation Committee members.

Tolling Component Two – ETC: Those bidding on the ETC tolling component shall demonstrate experience, knowledge and understanding of all aspects of ETC. This includes the success of the proposed tolling component in other installations, equipment capabilities, Transponder performance and read rates, interfaces and the tie-in to transaction processing and the audit process, processing of traffic, hardware and software maintenance, Transponder life, warranty terms, and inventory issues. The proposer must have a working ETC Component in revenue collection service mode that successfully performs at the required level of availability, accuracy, and processing speed. The proposer must have readers, antennae and Transponders that are multi-protocol and can operate using two or more protocols at the same time for interoperability with other regional toll systems. The proposer shall provide a table of all related ETC Component projects, including descriptions of how their participation facilitated the advancement of interoperability. Each project identified by the proposer shall include the name of the project manager, a brief description of the project including scope, functionality, number of lanes installed, operated, and maintained, number of Transponders involved, project cost, project start and completion dates, and the name of the project owner including contact information such as telephone number and e-mail address. The names provided may be used as reference checks by the Evaluation Committee.

Proposers must also provide production capabilities data, including as applicable, the number of Transponders, antennas and readers that can be produced per month, average order lead times, and current monthly demand and backlog. Proposers must also identify if there are secondary or tertiary facilities in operation that could produce these devices as well the secondary manufacturing capability. Proposers must address production and delivery capabilities directly related to the needs of the LSIORB Project. Proposer shall commit to do whatever is necessary to satisfy the needs of the LSIORB Project. Proposers must provide specific information on delivery and installation times regarding the proposed equipment and software for the ETC Component. The proposers must identify the lead time required for orders of additional and replacement Transponders, antennas, readers, and other spare parts. Proposers shall identify time frames for repair and replacement of component parts, and specify warranty period. The lead times and warranty period identified must be guaranteed throughout the life of the ETC Contract. Proposers shall indicate the location of production, research, and testing sites that would be open for visits and inspections from the Joint Board, the States' Parties, consultants, and Evaluation Committee members.

Tolling Component Three – OPS: Proposers bidding on the Operations Services Component must demonstrate participation in at least one major toll or vehicle fee collection operation with a toll road volume of at least 200,000 transactions per day. Additionally, proposers must demonstrate experience with managing and operating a toll road collection project with a minimum of 100,000 accounts. For purposes of this requirement, the proposer may count both ETC and video based accounts. Proposers shall demonstrate their experience, knowledge and understanding of all aspects of customer account management systems, including, but not limited to, customer service centers, telephone centers, Transponder inventory control, video processing, violation processing, and collections.

4.1.11.3 Bond Requirements

Proposals shall include evidence that proposer is capable of obtaining payment and performance bonds each in an amount equal to 100% of the Contract lump sum price. The payment and performance bonds shall be equal to 100% of the Contract lump sum price through Final Acceptance. For the Operations Services Contractor the payment and performance bond will be reduced to be equal to one year's operating budget. A surety letter submitted with the proposal is acceptable evidence of the bond requirement. The bonding level remains at 100% of total Contract price but will be decreased after site acceptance, Final Acceptance, and annual decreases in remaining Contract value.

4.1.11.4 Project Manager Qualifications

Proposers shall demonstrate that the project manager listed in their technical proposal has experience in management of technology and software development for public sector projects. The project manager must have at least five years of relevant experience. Information provided within the project manager's résumé shall demonstrate the manager's background, knowledge, competence and experience in all project areas.

The proposer shall appoint a project manager for the duration of the Contract(s). The project manager shall be the focal point for all correspondence and liaison activities.

4.1.11.5 Key Personnel Qualifications

Résumés must be provided for the following key personnel. The tolling component for which each of the key personnel is required as indicated in parenthesis. It is acceptable to propose one individual for a position on multiple tolling components, as long as the full time equivalency reported for the individual does not sum to more than one.

1. Project manager (all),
2. Application development manager (RBOC),
3. Project database administrator (RBOC),
4. Reports designer (RBOC),

5. Network and communications development manager (RBOC),
6. Installation manager (RBOC),
7. Maintenance manager (RBOC),
8. CSC manager (Operations Services), and
9. Finance manager (RBOC and Operations Services)

Résumés for key personnel must include information regarding the individual's education, professional registrations [type, number, and state(s) where registered], years of experience, years with firm, and actual work performed by the individual. Résumés should also include the key personnel's availability as well as any unique qualifications they may have. Proposers may use their own résumé format as long as all the requested information is contained within the résumé. No résumé shall be longer than two pages. Résumés shall be customized to relate to the LSIORB Project.

The proposer shall demonstrate that the key personnel listed in the technical proposal will support the full scope of work on which the proposer is making its proposal. The proposer shall demonstrate their full commitment to the LSIORB Project goals through its proposed staffing selections and mobilization plans. The proposer shall provide the percentage of time available for key personnel to work on the LSIORB project on a full time equivalent basis. These figures will be cross checked with existing commitments made to other project sponsors.

The project manager shall, at a minimum, be on site to attend monthly project meetings in Louisville, and be available as requested or needed. Key personnel should anticipate, at a minimum, weekly teleconferences. During deployment and testing on site, the project manager should be physically present at the project location. Other key personnel shall be located in the Louisville metropolitan area five days per week during their active portions of the Contract(s).

In cases where key personnel are no longer with the firm or fail to meet Joint Board expectations, Contractors shall gain approval and permission from the Joint Board for any proposed changes in personnel. The Joint Board has the right to require a replacement of key personnel.

The Joint Board reserves the right to impose a liquid damage assessment of twenty thousand dollars ($20,000.00) for any key personnel that are changed within the first twelve months following execution of the Contract should the personnel remain with the Contractor's organization in any form. A liquid damage assessment of ten thousand dollars ($10,000.00) may be imposed for any key personnel that are changed during the second year of the contract should the personnel remain with the Contractor's organization in any form. These penalties are on a per occurrence basis.

4.1.11.6 Financial Stability and Resource Qualifications

Proposals shall include financial documentation demonstrating that proposers possess adequate financial resources necessary for this project, to include the ability to finance

and implement the project, obtain the required bonding, and provide proof of insurance. A newly founded company, such as a team proposer, should submit financial statements from each of the companies which partnered for this RFP. A parent guarantee may be submitted but it must be supported with the required financial documentation as described in subsection 4.1.11.7. A parent guarantee may not be substituted for the required bonds.

4.1.11.7 Financial Stability and Resource Qualifications

Proposers, including those proposing as Major Subcontractors, shall provide their most current audited financial statement, which means not more than 12 months old, which shall include, but is not necessarily limited to, an opinion of a certified public accountant on the statements, a balance sheet, an income statement, a statement of cash flows, notes to financial statements, a statement of direct operational costs, a statement of indirect costs, and other financial information necessary for the Joint Board to determine financial adequacy of the firm(s). The Joint Board requires that the service auditor's report, or approved equivalent, must present an unqualified opinion indicating that the proposer's description of its organizational controls is presented fairly, such controls are designed effectively, such controls are placed in operation as of a specified date, and such controls are operating effectively over a specified period of time. If a proposer is unable to provide statements according to U.S. GAAP because financial results are prepared according to IFRS, the IFRS financial statements are acceptable if the proposer has an audit report performed by an internationally recognized certified public accounting firm or equivalent. Financial statements should meet the parameters as shown in the RFP.

4.1.11.8 Statement on Standards for Attestation Engagements 16

The successful Contractors for the RBOC and Operations Services Contracts will be required to submit a service auditor's report (type II) prepared in accordance with, and resulting from an audit according to Statement on Standards for Attestation Engagements No. 16 (SSAE 16). The intent is to produce a report that allows a reader to understand the control environment and control activities of the service provider. The successful Contractors for the RBOC and Operations Services shall provide the most current report on controls at service organizations and indicate the level and type of report provided.

4.1.11.9 Audit, Reconciliation, and Reporting

Proposers must discuss current audit and reconciliation processes and reporting capabilities with specific references to current projects. Contractors will be required to audit and reconcile all transactions by location and all trips by transactions. There will also be a requirement that the successful Contractor(s) reconcile all trip transactions processed between each Toll Facility and the Back Office Host. Proposers must describe the audit and reconciliation tools available and used on current projects. Please specify whether such tools are automated, manual, or a combination thereof.

4.1.12 Exceptions to the Terms and Conditions

The proposers shall include clear and detailed discussions of proposed changes in the Contract or tolling component requirements as described in this RFP. This detailed discussion shall describe the approach and effort required for functional compliance with the tolling component design and the impacts on legal requirements. Proposers shall describe how they will address the legal requirements as set forth in this RFP.

4.1.13 Technical Response

The response to each section shall include remarks on how the proposer currently provides these types of services, and how it plans to approach the design and implementation for the LSIORB Project. Proposers shall not write sections saying "will comply", but must fully describe how the firm already complies, how they will comply, and what expertise and unique insights it has in developing a compliant solution. Note that the technical response section has a 75 page limit.

4.1.14 Technical Proposal Alternatives

The proposer shall use the proposal alternatives section of its technical proposal to discuss any proposed alternatives or options that it believes will be in the Joint Board's best interest to consider. Note that any and all sections of the RFP will become elements of the ultimate Contract(s) unless specifically addressed in this section and approved in Contract negotiations.

4.1.15 Tolling Project Management Plan

Proposer shall completely describe its approach to the Project and the scope requirements. The tolling project management plan shall include a project schedule. The project schedule shall be a detailed critical path method schedule addressing design, hardware procurement, software development, implementation and testing, commissioning, training, and maintenance. The schedule shall indicate:

1. Resources required and availability of resources,
2. Work flow and assignments ensuring harmonious collaboration with other entities engaged on the LSIORB Project,
3. Project correspondence and report delivery, tracking, reviews, and approvals,
4. Proposed management initiatives and innovations for site effectiveness and efficiency, such as management and cost control techniques, and cost saving ideas, and
5. Quality Control Plan. A plan that describes the proposer's procedures and techniques for quality control and quality assurance in all areas including development of requirements, functional requirements, and design documentation, hardware procurement, software development, implementation and testing, commissioning, maintenance, and issue tracking. Each proposer shall specifically address quality control and quality assurance.

4.1.16 Certificate of Good Standing

Proposers for all tolling components shall submit with their proposals a certificate of good standing or existence from the Secretary of State for both Indiana and Kentucky or

other appropriate state office of its incorporation, and a certificate of authority to conduct business in both Kentucky and Indiana from each state's Secretary of State.

4.2 Technical Proposal Outline and Format

This outline is presented as a guideline. It is the proposers' responsibility to ensure that all areas in the RFP have been addressed. The limits or page counts for sections of the proposal are noted below after each major section. If there are no page numbers indicated then there are no limits on that section.

4.2.1 Tolling Component One - RBOC Outline and Format

1 Cover letter
2 Executive summary (5 pages maximum)
3 Qualifications – experience, personnel, technology, and financial
  3.1 Relevant successful firm qualifications and experience
    3.1.1 Team structure: prime contractor, subcontractors, supporting vendors
    3.1.2 General description, size, resources
  3.2 Project descriptions with references and contact info
  3.3 Relevant key personnel experience
    3.3.1 Organization chart
    3.3.2 Discussion of key personnel team
    3.3.3 Resumes
  3.4 State of the art technology solutions
  3.5 Registration to do business in Kentucky and Indiana
  3.6 Financial stability and resources
  3.7 Audited financial statements
4 Exceptions to the terms and conditions
5 Technical response
  5.1 Section 1 – Roadside (75 pages maximum)
    5.1.1. Concept
    5.1.2. General requirements
    5.1.3. Toll Facility Host requirements
    5.1.4. Toll Zone requirements
    5.1.5. Toll Zone system requirements video
    5.1.6. CCTV
    5.1.7. ETC
    5.1.8. Vehicle classification
    5.1.9. Network and communications
    5.1.10. Access control
    5.1.11. Software licensing and ownership
    5.1.12. Roadside Project Management Plan
      5.1.12.1Roadside scheduling and phasing
      5.1.12.2Roadside quality control

5.1.12.3 Roadside documentation
5.1.14 Roadside maintenance services
5.2. Section 2 – Back office (75 pages maximum)
5.2.1. Back office concept
5.2.2. CSC application
5.2.3. Video processing
5.2.4. Host system
5.2.5. Database
5.2.6. System serviceability and reliability
5.2.7. Software licensing and ownership
5.2.8. System hardware / software maintenance
5.2.9. Back office Project Management Plan
5.2.9.1 Back office schedule and phasing
5.2.9.2 Back office quality control
5.2.9.3 Back office documentation
5.3 Technical proposal alternatives
6 Appendix A Hardware cut sheets.
7 Appendix B Draft schedule.
8 Appendix C Draft operations plan
9 Appendix E Supplemental materials
10 Appendix F Sample reports

4.2.2 Tolling Component Two - Electronic Toll Collection Outline and Format

1 Cover letter (2 pages maximum)
2 Executive summary (5 pages maximum)
3 Qualifications – experience, personnel, technology, and financial
3.1 Relevant successful firm qualifications and experience
3.1.1 Team structure: prime contractor, subcontractors, supporting vendors
3.1.2 General description, size, resources (prime contractor, subcontractors and supporting vendors)
3.1.3 Project descriptions with references and contact information with at least one project utilizing an AET System.
3.2 Relevant key personnel experience
3.2.1 Organization chart (include: key personnel, subcontractors, supporting vendors)
3.2.2 Discussion of key personnel team
3.2.3 Résumés
3.3 State of the art technology solutions
3.4 Production capabilities and locations of primary and secondary manufacturing sites
3.5 Testing facilities and results
3.6 Registration to do business in Kentucky and Indiana

- 3.7 Financial stability and resources
- 3.8 Audited financial statements

4 Exceptions to any of the terms and conditions

5 Technical response (75 pages maximum)

- 5.1 General project requirements and concepts
  - 5.1.1 General
  - 5.1.2 Technology and concept
  - 5.1.3 Marketing and distribution support
  - 5.1.4 Interoperability
  - 5.1.5 Alternative applications
- 5.2 General Requirements
  - 5.2.1 Internet protocol addressable
  - 5.2.2 Liquid crystal display
  - 5.2.3 Open architecture
  - 5.2.4 Cost effective
  - 5.2.5 Customer interaction
  - 5.2.6 Guaranteed performance
  - 5.2.7 Warranties
  - 5.2.8 Warranties (third party)
- 5.3 System and components
  - 5.3.1 General component requirements
  - 5.3.2 Radio Frequencies
  - 5.3.3 System security
  - 5.3.4 Read and write
  - 5.3.5 Exceptions
- 5.4 Antenna and reader functionalities
  - 5.4.1 Technical capabilities
    - 5.4.1.1 Number of lanes
    - 5.4.1.2 Number of protocols
    - 5.4.1.3 Interface requirements
    - 5.4.1.4 Transaction processing
    - 5.4.1.5 Environmental
    - 5.4.1.6 Physical characteristics
    - 5.4.1.7 Lightning protection
    - 5.4.1.8 Performance
    - 5.4.1.9 Diagnostic capabilities
    - 5.4.1.10 Serviceability including MTTR and MTBF
  - 5.4.2 Equipment installation requirements
  - 5.4.3 Communication and memory requirements
  - 5.4.4 Software licensing and ownership
- 5.5 Transponder
  - 5.5.1 Technical specifications
    - 5.5.1.1 Read and write
    - 5.5.1.2 Protocols

5.5.1.3 Data format
5.5.1.4 Transponder interface
5.5.1.5 Barcodes
5.5.1.6 Portable reader and tester
5.5.1.7 Physical specifications
5.5.1.8 Battery
5.5.1.9 Installation
5.5.1.10 Environmental specs
5.5.1.11 Transponder feedback
5.5.1.12 Warranty
5.5.1.13 Shipping
5.5.1.14 Disposal
5.5.2 Programming
5.5.3 Inventory management
5.6 Scope of work
5.6.1 General scope of work
5.6.2 Integrated system
5.6.3 Project development
5.6.3.1 Project management
5.6.3.2 Schedule and milestones
5.6.4 Project Management Plan
5.6.5 Phasing
5.6.5.1 Phase i - Design
5.6.5.2 Phase ii – Installation and testing
5.6.5.3 Phase iii – Performance evaluation
5.6.5.4 Phase iv - Maintenance
5.6.6 Quality control
5.6.7 Documentation
5.6.8 Maintenance plan and support
5.7 Performance specifications
5.8 Technical proposal alternatives
6 Appendix A Hardware Cut Sheets
7 Appendix B Marketing Information
8 Appendix C Supplemental Materials

4.2.3 Tolling Component Three - Operations Services Outline and Format

1 Cover letter
2 Executive summary (5 page maximum)
3 Qualifications – experience, personnel, technology, and financial
3.1 Relevant successful firm qualifications and experience
3.1.1 Team structure: prime contractor, subcontractors, supporting vendors
3.1.2 General description, size, resources

3.1.3 Project descriptions with references and contact info
3.2 Relevant key personnel experience
3.2.1 Organization chart
3.2.2 Discussion of key personnel team
3.2.3 Resumes
3.3 State of the art technology solutions
3.4 Registration to do business in Kentucky and Indiana
3.5 Financial stability and resources
3.6 Audited financial statements
4 Exceptions to the terms and conditions
5 Technical response
5.1 Operations Services (75 page maximum)
5.1.1 Toll operations concept
5.1.2 LSIORB Operations Center CSC activities
5.1.3 Tolls CSC storefront activities
5.1.4 Facilities support for design, build-out, management and maintenance (address the implementation of CSC build out from design through completion. The draft plans refer to the space plans which should be submitted as part of the overall design.)
5.1.5 Operations Project Management Plan
5.1.5.1 Operations schedule and phasing
5.1.5.2 Operations quality control
5.1.5.3 Operations documentation
5.2 Technical proposal alternatives
6 Appendix A Hardware cut sheets.
7 Appendix B Draft schedule.
8 Appendix C Draft operations plan
9 Appendix D Sample reports

4.3 Price Proposal Outline and Contents

4.3.1 Separate and Sealed

The proposer shall prepare a technical proposal set, and a price proposal set, in clearly marked separate, sealed packages.

4.3.2 Required Completeness

The price proposal must represent the full price for a complete tolling component or components. If a proposer is bidding on more than one tolling component the price proposal shall reflect any cost savings associated with having one Contractor for multiple tolling components. For pass-through cost items, proposer's must identify a per unit price and provide an estimate for the quantity of units necessary to provide the level of service and support contemplated in this RFP.

4.3.3 Title Pages

All price proposals shall be submitted in clearly marked and sealed envelopes or boxes, bearing on the outside the following:

Price Proposal:
LSIORB Project
Toll Collection System
Request for Proposals
Indication of to which tolling component the proposal applies:
RBOC Component
Electronic Toll Collection Component
Operations Services Component

Submitted By:
Proposer's name
Proposer's address
City, state, zip code
Proposer's telephone number
Point of contact name
Date submitted

4.3.4 Form of Submission

Price proposals shall be filled out and submitted using both the forms in Appendix H and using the Microsoft Excel spreadsheet file provided.

4.3.5 Page Presentation

The spreadsheets must be printed using a minimum of 10-point Arial or 12-point Times New Roman font. The printed versions shall be printed on one side of the page only. Each page header or footer should include the proposer's name and price proposal section, along with page numbers and dates. The proposer's duly authorized representative must sign and date each pricing sheet whether submitted in written format or embedded within the Microsoft Excel file.

4.3.6 Number of Copies.

Proposers shall provide four copies in print and on four compact discs of all portions of the printed price proposal.

4.3.7 Bonding Requirements

Proposer shall submit with its price proposal a bid bond in the amount of at least 5% of the amount of the price proposal. Pass through costs are not included. The Contract sum respective to the bonding must include staff and labor costs for operations.

Corporate guarantees will not be acceptable in lieu of bonds.

4.3.8 No Pricing for ETC Protocol Integration

The RBOC Contractor is not to include the cost of integration with ETC Component protocols in any of the pay items listed, or to include it as a separate pay item on the RBOC price proposal sheet. There will be no separate price for ETC integration accepted at a later date.

4.3.9 Price Proposal Contents:

Proposal part 1 - Completely filled out pricing and compensation forms
Proposal part 2 - Alternate pricing offers to apply in the event the proposer is awarded Contracts for multiple tolling components
Proposal part 3 - Bid bonds

5. Evaluation Criteria and Scoring

5.1 Evaluation Criteria and Scoring

After the oral presentation and the interviews, the Evaluation Committee shall score the technical proposal. When paired later with the price proposal, the Evaluation Committee shall recommend to the Joint Board which proposal they believe offers the best value for each tolling component.

5.1.1 Pass or Fail Screening

Proposals will undergo a pass or fail screening to determine whether or not the proposal meets the completeness and minimum qualifications criteria for advancing to technical review and scoring. Proposers that do not meet the pass or fail screening will be notified immediately after the screening is complete.

5.1.1.1 Completeness

Packages will be opened upon receipt and checked for completeness. Submittals which are incomplete will not be evaluated further. Completeness will encompass, at a minimum, the following:

1. Accurate number of technical proposal copies, compact discs and original,
2. Cover letter,
3. Executive summary,
4. Firm information including description, size, resources, and full time equivalencies for key personnel,
5. Organizational charts,
6. Registration to do business in Kentucky and Indiana certificates,
7. DBE plan with listed DBE subcontractors,
8. Date and time deadlines met,
9. Conformance with all applicable page limitations
10. Attendance of mandatory scope of services meeting verified,
11. Financial forms and related material,
12. Bid Bond, and
13. Separate technical and price proposal packages

5.1.1.2 Minimum Qualifications.

Technical Proposals will subsequently be reviewed in proposal sections 1 through 4 (from the cover letter through to the exceptions and alternatives) to ensure that the proposer meets the project qualifications and would likely be able to enter into a Contract with the Joint Board. If it is determined that the proposer does not meet the project qualifications the technical section of the proposal will not be evaluated and will not be scored.

5.1.2 Technical Proposal Evaluation

5.1.2.1 General

The evaluation process will consist of a quantitative appraisal and ranking of the technical proposals to ascertain which proposers best meet the Joint Board's needs for the LSIORB Project. The technical proposals will be evaluated on their material content and their responsiveness to the functional requirements and scope of work set forth in this RFP. The Evaluation Committee will review and evaluate the technical proposals and perform reference checks to ensure that proposers understand the AET System functional requirements and scope and have clearly expressed their intent to meet the requirements of the Contract(s).

The scoring methodology outlined below has been designed to reflect the Joint Board's overarching goal of selecting the highest quality proposer proving the best value for each tolling component. Price proposals must be submitted for each individual tolling component without assuming that multiple components will be awarded to the same proposer. The RBOC will require separate price proposals for each of the subsystems (roadside and back office) comprising the tolling component. If a proposer is awarded multiple tolling components, the price contained in the price proposals may be negotiated in the best and final offer process, if and only if KYTC on behalf of the Joint Board elects to solicit one or more best and final offers. The Joint Board will allow firms to be a part of multiple proposing teams on the same, or different, tolling components, if the firm finds that doing so is in its best interest.

5.1.2.2 Initial Technical Scoring

Following technical proposal review, the Evaluation Committee will score the proposals according to Tables 5.1, 5.2, 5.3 and 5.4. This requirement is also applicable to subsystem evaluation for Tolling Component One. This means that if either the roadside or back office subsystem is scored below 400 then Tolling Component One will be considered non-compliant and will not be considered further.

The RBOC consists of two subsystems, the roadside subsystem and the back office subsystem. As stated in the Introduction to this RFP it is imperative that the RBOC form a seamless interface with each other. The selection of the RBOC Contractor will be based upon the combined score for the RBOC technical and price proposals (Tables 5.1 and 5.2).

TABLE 5.1 PROPOSAL SCORING Tolling Component One – Roadside Subsystem	
PROPOSAL ELEMENT	**MAXIMUM SCORE**
Firm Qualifications	100
Key Personnel Qualifications	75
Financial Stability/Resources	50
Firm's Qualifications and Resources POINTS	**225**
Roadside Concept	100
Roadside System Approach and Technology	75
Roadside Video Technology	75
Other Technology	50
Technology and Software POINTS	**300**
Software Licensing and Ownership	25
Maintenance	100
Project Management Plan	50
Software Licensing, Maintenance and PMP POINTS	**175**
Orals	NOT SCORED
MAXIMUM POSSIBLE TECHNICAL POINTS	***700***
MAXIMUM POSSIBLE PRICE POINTS	***300***
MAXIMUM TOTAL POSSIBLE POINTS	**1000**

Table 5.1 - Roadside Scoring (Tolling Component 1)

TABLE 5.2 PROPOSAL SCORING Tolling Component One – Back Office Subsystem	
PROPOSAL ELEMENT	**MAXIMUM SCORE**
Firm Qualifications	100
Key Personnel Qualifications	75
Financial Stability/Resources	50
Firm's Qualifications and Resources POINTS	**225**
Back Office Concept	75
Back Office System Approach	75
Back Office Customer Accounts	75
Back Office Video Processing	75
Technology and Software POINTS	**300**
Software Licensing and Ownership	25
Reporting Approach/Reports	50
Maintenance	50
Project Management Plan	50
Software Licensing, Maintenance and PMP POINTS	**175**
Orals	NOT SCORED
MAXIMUM POSSIBLE TECHNICAL POINTS	***700***
MAXIMUM POSSIBLE PRICE POINTS	***300***
MAXIMUM TOTAL POSSIBLE POINTS	**1000**

Table 5.2 Back Office Scoring (Tolling Component 1)

TABLE 5.3 PROPOSAL SCORING Tolling Component Two - ETC	
PROPOSAL ELEMENT	**MAXIMUM SCORE**
Firm Qualifications	100
Key Personnel Qualifications	50
Financial Stability/Resources	50
Firm's Qualifications and Resources POINTS	**200**
ETC Interoperability	125
Project and System Concepts	75
General System Requirements	50
System and Component Requirements	75
Interoperability and Requirements	**325**
General Scope of Work	50
Subsystem Integration	75
Subsystem Maintenance	50
Scope of Work, Integration, Maintenance POINTS	**175**
Orals	NOT SCORED
MAXIMUM POSSIBLE TECHNICAL POINTS	***700***
MAXIMUM POSSIBLE PRICE POINTS	***300***
MAXIMUM TOTAL POSSIBLE POINTS	**1000**

Table 5.3 ETC Scoring (Tolling Component 2)

TABLE 5.4 PROPOSAL SCORING Tolling Component Three – Operations Services	
PROPOSAL ELEMENT	**MAXIMUM SCORE**
Firm Qualifications	100
Key Personnel Qualifications	100
Financial Stability/Resources	50
Firm's Qualifications and Resources POINTS	**250**
Toll Customer Service Center Operations	150
Facilities Support for Design, Buildout, Management and Maintenance	100
CSC Operations, Facilities Support POINTS	**250**
Operations Concept	75
Reporting Approach & Reports	75
Quality Control Plan Approach	50
Operations and Reporting	**200**
Orals	NOT SCORED
MAXIMUM POSSIBLE TECHNICAL POINTS	***700***
MAXIMUM POSSIBLE PRICE POINTS	***300***
MAXIMUM TOTAL POSSIBLE POINTS	**1000**

Table 5.4 - Operations Scoring (Tolling Component 3)

5.1.3 Oral Presentations and Interviews

Each oral interview is anticipated to last no more than two hours. Time frames for oral interviews will be determined by the number of responsive proposals received and the time available. Each responsive proposer for each tolling component will have equal time for orals interviews. Oral interviews shall not be used to fill in missing or incomplete information in the written technical proposal. Rather, the interviews and the presentations will be used to clarify the contents of the technical proposals. Topics or issues not addressed in the written technical proposal shall not be discussed during the oral interview. The price proposal shall not be discussed under any circumstances. Any disclosure of pricing information may result in proposer disqualification. The Evaluation Committee will ask the proposers specific questions relative to their technical proposals. Follow-up questions from the Evaluation Committee will be permitted.

The key personnel listed in subsection 2.2.11.5 of this RFP, and up to two other individuals at the proposers' or the Evaluation Committee's discretion must attend the oral presentation and interview. A list of proposer representatives and their positions shall be provided by the proposer to the Evaluation Committee prior to the interview. No person shall be permitted at the interview that is not included on the list of proposer representatives. Members of the Evaluation Committee and others as deemed appropriate by the Joint Board will attend each oral interview. Additional subject matter experts may also attend the interviews. Elected officials shall not be permitted to attend.

Persons with any special needs may request a reasonable accommodation such as a sign language interpreter. Requests for accommodations must be made one week in advance of the meeting, to allow time to arrange for the accommodation.

5.1.4 Price Proposal Evaluation

5.1.4.1 Pass or Fail Criteria for Price Proposals

After the oral presentations and interviews have been held and the technical proposals have been scored, price proposals will later be opened. The Evaluation Committee will evaluate the price proposals for:

1. Completeness of the price proposal packages,
2. Balanced proposal prices, and
3. Overall proposal prices within a reasonable proximity to the Engineer's Estimate.

5.1.4.2 Price Score Calculation

Price scores are calculated in general by dividing the lowest price by the proposed price, and multiplying that ratio by 300.

5.1.5 Consolidated Technical, Oral Presentation and Interview, and Price Proposal Evaluations

Technical proposals are 70% of the overall score and price proposals are 30% of the overall score.

Nothing in the scoring and ranking process shall limit the Evaluation Committee's ability to determine the best value contractor, or combination of contractors for the LSIORB Project.

5.2 Award and Execution of Contract

5.2.1 Joint Board Approval of Evaluations and Proposal Rankings

A KYTC representative participating in this procurement will present an overview of the evaluation process and the results of the technical and price proposal scoring to the members of the Joint Board and make a recommendation to the Joint Board for approval of the ranking of the top firms.

5.2.2 Announcement of Apparent Best Value

After the Joint Board authorizes the recommendation of the Evaluation Committee, KYTC will deliver an announcement of apparent best value proposer by letter, either in person or through certified mail.

5.2.3 Negotiations

Upon Joint Board approval via resolution, KYTC will begin negotiations with the top-ranked proposer. The best value proposer and any other ranked firm for whom a price proposal was opened may be allowed to submit a best and final offer subsequent to negotiated changes to its initial offer. KYTC, on behalf of the Joint Board, reserves the right, at its discretion, to request best and final offers for technical and cost proposals. However, proposers are cautioned to propose their best possible offers at the outset of the process, as there is no guarantee that any proposer will be allowed an opportunity to submit a best and final technical or cost proposal.

5.2.4 Execution Process

After negotiations are complete, KYTC will issue original Contracts for execution by the Contractor(s). The Contractor(s) has seven days to execute the Contract or respond to KYTC that it refuses to adhere to the negotiated terms. After the Contracts are executed by the Contractor(s), KYTC will execute the Contracts on behalf of the Joint Board. After execution, a duplicate copy will be mailed back to the Contractor(s).

The original copies will be retained by KYTC. A true copy will be sent to INDOT, IFA, KPTIA, the Contractor, and FHWA.

5.2.5 Bonding Process

The successful proposer shall furnish 100% performance and payment bonds upon award of the Contract pursuant to KRS 176.080. If the successful proposer defaults or otherwise is unable to enter into a Contract with the Joint Board, then KYTC, on behalf of the Joint Board, may begin negotiations with the proposer offering the next best value.

All bid, payment, and performance bonds will be handled as provided in the current KYTC specifications which can be found at: http://transportation.ky.gov/Construction/Standard%20amd%20Supplemental%20Specifications/Complete%20KYTC%20Standard%20Specifications-2012.pdf. All bid bonds will be retained by the KYTC Director of the Division of Construction Procurement or his designee until the performance and payment bonds are furnished by the successful proposer. After such time, all bid bonds will be destroyed, unless the individual bid bond forms contain a note indicating that the bonds be returned to the proposer or surety.

Each proposer further understands and agrees that if they should refuse or be unable to enter into the Contract(s) as provided herein; should refuse or be unable to furnish adequate and acceptable insurance as provided in the Contract(s); should refuse or be unable to secure payment and performance bonds upon award as provided in KRS 45A.190; or should refuse or be unable to furnish any commitments made in its proposal, it may result in forfeiture of its bid bonds, at the sole discretion of the Joint Board.

5.2.6 Protest Procedure

Protests of the award of the Contracts shall proceed in compliance with KRS Chapter 176.

Appendix A: Definitions and Acronyms

The following terms, when used in the RFP, have the meaning described below unless the context demands otherwise.

1. **129 Agreement:** The agreement required pursuant to 23 U.S.C. 129, entered into between the States and FHWA on July 30, 2012.

2. **All Electronic Tolling (AET) System:** The identification and processing of all vehicles and tolls in an open road environment through electronic means either through the use of an RFID Transponder or an electronic camera image of the license plate or a combination of those modes.

3. **As-Built Drawings:** Documents and other items set forth in the scope of work that constitute a complete and accurate record of the ETC Component, RBOC, and Operations Service as designed, delivered, installed, and approved.

4. **Automatic Vehicle Classification (AVC):** Shall mean the process for automatic vehicle detection, separation, and classification of vehicles used for the determination of tolls due.

5. **Automatic Vehicle Identification (AVI):** Shall mean a process consisting of RF antenna(s) and reader equipment installed for a toll lane and a compatible Transponder mounted in a vehicle for automatic unique identification of the vehicle upon the electronic read of the Transponder as it passes through the lane.

6. **Back Office Host**: The central control node of the RBOC which includes the Back Office Host, database, CSC and the video and VPS. The Back Office Host shall control all aspects of the RBOC with respect to the back office and shall be configurable and flexible to accommodate additional facilities and different functionalities.

7. **Buffered Transactions:** Transponder reads that are retained in the AVI reader when communications between the reader and the zone controller are down and not transmitted to the Toll Zone controller at the time of the Transponder read. Upon reestablishment of the communications such Transponder reads are transmitted to the Toll Zone controller for further processing.

8. **Business Rules:** The set of rules established by the Tolling Body that details how the ETC Contractor, the RBOC Contractor, and Operations Services Contractor shall respond to various operating situations that occur during the toll collection process based on business case and policy decisions and the treatment of those transactions throughout the account maintenance and violation enforcement phases.

9. **CCTV:** Closed Circuit Television

10. **Contact Person**: Mr. Ryan Griffith, Executive Director of the KYTC Office of Construction Procurement, 200 Mero Street, Frankfort, KY 40622, (502) 564-3500, ryan.griffith@ky.gov

11. **Contract:** The written contract or contracts between the Joint Board and the selected Contractor(s) which shall incorporate this RFP and any addenda and appendices; the Contractor's price and technical proposals; the bid bond, performance bond, and payment bond; Kentucky and Indiana standard specifications, supplemental specifications, standard drawings, special provisions, and special notes; and the notice of award and notice to proceed. As the context requires, the term refers to multiple contracts where the work identified in this RFP is divided among multiple persons, firms, corporations, or entities.

12. **Contract Documents:** Documents including, but not limited to, all information, communications and data, whether in writing or stored on a computer, computer disks, microfilm, writings, working papers, drafts, computer printouts, field notes, charts, or any other data compilations, books of account, photographs, videotapes and audiotapes, supporting documents, any other papers or preserved data in whatever form, related to the Contract or the Contractor's performance of the Contract determined necessary or desirable by the Joint Board for any purpose.

13. **Contractor:** A person(s), firm(s), corporation(s), or entities undertaking the execution of the work or a portion of the work identified in this RFP and with whom the Joint Board has entered into a Contract or Contracts. As the context requires, the term refers to situations where the work identified in this RFP is divided among multiple persons, firms, corporations, or entities.

14. **Contractor Technology**: Rights in various concepts, ideas, methods, methodologies, procedures, processes, know-how, techniques, models, templates, and general purpose consulting and software tools, utilities and routines acquired by the Contractor in relation to the services provided to the Joint Board.

15. **Correspondence:** Any and all information written or soft copy sent to and from the CSC.

16. **COTS:** Commercially off-the-shelf hardware and software supplied by the Contractor.

17. **Customer Service Center (CSC):** The facility that houses the equipment, software, and personnel required to establish, manage, and maintain customer accounts; provide customer service; process UV transactions and license plate images, and prepare customer notifications for toll bills and violation enforcement in accordance with the Tolling Body's business policies and procedures. Also, the integrated system that contains infrastructure equipment, software, and services required to manage customer accounts, process toll payments, obtain correct account name and address information, and prepare billing and invoicing for payment processing. The CSC is used generically to designate full account management services provided by the RBOC for Transponder and video processing. One of the CSCs may also house the Operations Center.

18. **Developer:** WVB East End Partners, LLC, including its successors and assigns

19. **Digital Video Recorder**: DVR

20. **Division of Motor Vehicles (DMV):** The agencies in Indiana and Kentucky that provide vehicle registration information for UV toll transactions and support the implementation of penalties against toll violators. In Kentucky, the agency that functions in this manner is referred to as the Department of Vehicle Regulation and in Indiana, the agency that functions in this manner is referred to as the Bureau of Motor Vehicles.

21. **Disadvantaged Business Enterprise (DBE):** A firm certified through the federally-mandated process by the Kentucky Office of Civil Rights and Small Business Development or the INDOT Economic Opportunities Division.

22. **Deliverables**: All requirements that are described in this RFP for each of the tolling components and other work products first originated and prepared by the Contractor for delivery to the Joint Board.

23. **Development Agreement**: Agreement between INDOT, IFA, KYTC, KPTIA, and the Louisville and Southern Indiana Bridges Authority signed on October 16, 2012, which defines the roles and responsibilities for procurement, revenue sharing, financing, construction, tolling, operation, and maintenance of the Project under a single financial plan and Project Management Plan.

24. **ETC Design Documentation:** Design documentation required under this scope of work, including, but not limited to, the software development plan, system requirements document, Preliminary Detailed Design Documents, Final Design Documents, and System Detailed Design Document and other materials required to adequately document the system as designed.

25. **Detailed Design Documentation (DDD)**: Design documentation related to each tolling component.

26. **Downtown Crossing**: The construction, reconstruction, operation, and maintenance of the Kennedy Bridge and the Downtown Crossing Bridge.

27. **Downtown Crossing Bridge**: The new bridge being built by the Kentucky design-build team to carry I-65 traffic.

28. **East End Crossing**: The construction, operation, and maintenance of a new bridge to connect the Gene Snyder Freeway in Kentucky to the Lee Hamilton Highway in Indiana, completing I-265's loop around the Louisville-Southern Indiana metropolitan area.

29. **East End Bridge:** The bridge being built by the Indiana Developer to carry I-265 traffic.

30. **EEO:** Equal Employment Opportunity

31. **Electronic Toll Collection (ETC) Component:** A system of integrated devices and components that perform the automatic recording and reporting of vehicle transactions through electronic media in a Toll Collection System.

32. **ETC Contract:** The written contract or contracts between the Joint Board and the ETC Contractor which shall incorporate this RFP and any addenda and appendices; the ETC Contractor's price and technical proposals; the bid bond, performance bond, and payment bond; Kentucky and Indiana standard specifications, supplemental specifications, standard drawings, special provisions, and special notes; and the notice of award and notice to proceed. As the context requires, the term refers to multiple contracts where the work identified in this RFP is divided among multiple persons, firms, corporations, or entities.

33. **ETC Contractor:** The firm entity or entities that ultimately executes a Contract with the Joint Board to perform the work for Tolling Component Two.

34. **Evaluation Committee:** The group that will review the technical proposals and score them pursuant to the guidelines contained herein. The group will consist of representatives from INDOT, IFA, KYTC, KPTIA, and non-voting expert advisors.

35. **Factory Acceptance Test (FAT):** This test is carried out at the factory site for a full tolling component demonstration and complete tolling component testing to show that all functional and performance requirements have been met.

36. **FHWA:** The Federal Highway Administration

37. **Final Acceptance:** Final Acceptance of tolling component will be considered by the Joint Board to have occurred when the Joint Board has received and approved all Project documents, drawings, software, interface data, test data, manuals, and other Deliverables for the relevant tolling component. Final Acceptance is conditioned upon completion of all applicable inspection and testing procedures as outlined in this contract or as specified in the RFP or other Contract Documents. Final Acceptance is further conditioned on the toll lanes being open and fully functional without incident for no less than 90 days.

38. **Final Acceptance Testing:** Testing that will occur after each tolling component has been in operation continuously, without incident, for at least 90 days.

39. **Handshake:** An exchange of predetermined signals between the Transponder and the Transponder reader, made as a vehicle passes under the gantry to assure proper synchronization and accurate information collection.

40. **IAG:** Interagency Group. Also referred to as E-ZPass.

41. **IFRS:** International Financial Reporting Standards

42. **Indiana Department of Transportation (INDOT)**: An Indiana state agency responsible for planning, building, and operating Indiana's transportation system, including the development and implementation of a strategic plan to meet the needs of Indiana and its stakeholders, and to enhance economic development.

43. **Indiana Finance Authority (IFA):** A body politic and corporate with authority to assist Indiana in the financing, acquisition, building, and equipping of structures for state use, including highways, toll roads, and bridges.

44. **Initial Financial Plan:** The financial plan required pursuant to 23 USC 106(h) developed by the States and approved by FHWA on July 30, 2012. The Initial Financial Plan and any related updates can be found at: http://kyinbridges.com/project/documents.aspx

45. **Interface Control Document (ICD):** The document that defines the file formats and related Business Rules for processing data or transactions. An Interface Control Document describes the interworking of two elements of a system that share a common interface. For example, a communications interface is described in terms of data items and messages passed, protocols observed and timing and sequencing of events

46. **Interlocal Agreement:** The agreement between INDOT, IFA, KYTC, and KPTIA entered pursuant to IC 36-1-7 *et seq*. and KRS 65.210 to 65.300 to facilitate the

accomplishment of the Project by sharing the individual agencies' powers with the Joint Board, the Tolling Body, and each other as necessary to comply with the terms of the Development Agreement, the Interlocal Agreement, and for the benefit of the citizens of Indiana and Kentucky.

47. **IP:** Internet Protocol

48. **ITS:** Intelligent Transportation Systems

49. **IVR:** Interactive Voice Response

50. **Joint Board:** A board created by the Interlocal Agreement composed of the Public Finance Director of the State of Indiana, the Chairperson of KPTIA, the Secretary of KYTC, and the Commissioner of INDOT, or any of their representatives or their respective successors. The Joint Board may designate one or more individuals or groups of individuals to administer this solicitation and the Contract(s). Any reference made to the Joint Board in this document shall mean the Joint Board or its designee. Specifically, "Joint Board approval" means approval by a designee of the Joint Board unless the nature and scope of the approval contemplated would require a formal resolution in accordance with Joint Board bi-laws.

51. **Kennedy Bridge:** The bridge currently carrying I-65 traffic which is to be rehabilitated and reconstructed to carry only I-65 southbound traffic.

52. **Kentucky Public Transportation Infrastructure Authority (KPTIA):** An independent de jure municipal corporation and political subdivision of the Commonwealth of Kentucky with the authority to participate in the construction, operation, financing, and oversight of significant transportation projects connecting Kentucky and Indiana, and to review, approve, and monitor all such projects, and to assist with the operation, financing, and management thereof in accordance with KRS Chapter 175B.

53. **Kentucky Transportation Building:** 200 Mero Street, Frankfort, KY 40622

54. **Kentucky Transportation Cabinet (KYTC):** A department and agency of the Commonwealth of Kentucky responsible for, and with authority to direct and control the establishment, construction, and maintenance of Kentucky's primary road system. In terms of its role as procuring agency for the Contract(s), KYTC is acting on behalf of the Joint Board.

55. **Kentucky Transportation Cabinet's Enterprise Database (TED):** The database used by KYTC to store accounting, road and bridge conditions, and other related data for reporting purposes.

56. **LAN:** Local Area Network

57. **LPR:** License Plate Reader

58. **Louisville-Southern Indiana Ohio River Bridges Project (LSIORB Project) or (Project):** The construction, reconstruction, operations, maintenance, and tolling of the Downtown Crossing and the East End Crossing.

59. **Major Subcontractor:** A member of a proposing group that is performing any part of the Contract(s) that is either 15% or more of the total portion of the work awarded, or any Contractor that is performing any systems programming, equipment installation, or providing operations personnel.

60. **Maintenance Online Management System (MOMS):** An automated, fully integrated system that monitors the status of operational equipment in real-time, records equipment and process failures, notifies maintenance personnel, generates and tracks work orders, maintains preventative maintenance schedules, generates repair history, provides alerts for hot listed vehicles, maintains parts inventory and asset management, and allows communication between Contractors and the Joint Board.

61. **Maintenance Support Services:** The maintenance and related services required to be furnished by the Contractor, pursuant to the Contract Documents.

62. **Message:** An electronic communication between subsystems and their component parts within a single tolling component, or between tolling components, of the AET System with respect to a toll transaction. Messages are a subset of, and ultimately are appended to, a UFM.

63. **Moving Ahead for Progress in the 21st Century Act (MAP-21):** The Federal Transportation Bill which was signed on July 6, 2012, and went into effect in October of 2012 P.L. 112-141. The term also refers to any federal surface transportation legislation enacted as a successor to MAP-21.

64. **MTBF:** Mean time between failures

65. **MTTR:** Mean time to Repair

66. **National Electric Safety Code:** This Code covers the installation of electrical conductors, equipment, and raceways; signaling and communications conductors, equipment, and raceways; and optical fiber cables and raceways.

67. **National Electrical Manufacturers Association (NEMA):** NEMA defines standards for various grades of electrical enclosures typically used in industrial applications. Each is rated to protect against designated environmental conditions. A typical

NEMA enclosure might be rated to provide protection against environmental hazards such as water, dust, oil, coolants, or atmospheres containing corrosive agents. A full list of NEMA enclosure types is available at http://www.nema.org.

68. **Non-Disclosure Agreement:** Contractor's standard non-disclosure or restricted use agreement which executed agreement shall be accepted by the Contractor.

69. **Optical Character Recognition (OCR):** A software process that automatically recognizes license plate characters without requiring human intervention and which, in this application, extracts and provides the license plate numbers and jurisdiction from the image of the license plate.

70. **Optical Plate Recognition (OPR):** A software process that recognizes license plate characteristics, as well as the license plate characters which, in this application, extracts the license plate numbers from the image of the license plate as well as any "specialty plate configurations" for proper identifications with DMV or others.

71. **Open Architecture:** A type of computer architecture or software architecture that allows adding, upgrading, and swapping components. Open architecture allows potential users to see inside all or parts of the architecture without any proprietary constraints. Typically, an open architecture publishes all or parts of its architecture that the entity developing the software wants to share. The open business processes involved with an open architecture may require some license agreements between entities sharing the architecture information. The ''software architecture'' of a program or computing system is the structure or structures of the software system, which comprise software components, the externally visible properties of those components, and the relationships between them. The term also refers to documentation of a system's software architecture. Documenting software architecture facilitates communication between stakeholders, documents early decisions about high-level design, and allows reuse of design components and patterns between projects.

72. **Operations Center:** The location of the Back Office Host and all other main servers and computer components for the LSIORB Project. It is expected to be located at the Kentucky CSC.

73. **Operations Contract:** The written contract or contracts between the Joint Board and the Operations Services Contractor which shall incorporate this RFP and any addenda and appendices; the Operations Services Contractor's price and technical proposals; the bid bond, performance bond, and payment bond; Kentucky and Indiana standard specifications, supplemental specifications, standard drawings, special provisions, and special notes; and the notice of award and notice to proceed. As the context requires, the term refers to multiple contracts where the work

identified in this RFP is divided among multiple persons, firms, corporations, or entities.

74. **Operations Services Contractor:** The firm entity or entities that ultimately executes a Contract with the Joint Board to perform the work for Tolling Component Three.

75. **PA DSS:** Payment Card Industry Security Standards Council

76. **PCI Data Security Standard (PCI DSS):** Is the guideline to help organizations that process card payments prevent credit card fraud, hacking, and various other security vulnerabilities and threats. A company processing, storing, or transmitting payment card data must be PCI DSS compliant and will be audited to ensure compliance. Failure to meet PCI Data Security Standards can lead to loss of ability to process credit card payments and fines. PCI DSS can be found at: https://www.pcisecuritystandards.org

77. **Preliminary Design Documents (PDD):** Documents to be provided for Joint Board approval during the design phase of each of the tolling components. These documents shall outline the Contractors' plans for the phase of the Project for which they are responsible as well as describe the integration necessary with other Contractors. It is expected that the Contractor(s) will work with one another in the development of their PDDs.

78. **Project Management Plan (PMP):** The plan required pursuant to 23 U.S.C. 106(h) developed by the States and approved by FHWA on July 30, 2012. The PMP and related updates can be found at http://kyinbridges.com/project/documents.aspx.

79. **Proposal Record:** Records including, but not limited to, any material relating to the determination or application of equipment rates, home and field overhead rates, related time schedules, labor rates, efficiency or productivity factors, arithmetic extensions, quotations from subcontractors, or material suppliers, profit contingencies, and any manuals standard in the industry that may be used by the Contractor in determining a price.

80. **RBOC Contract:** The written Contract between the Joint Board and the RBOC Contractor which shall incorporate this RFP and any addenda and appendices; the RBOC Contractor's price and technical proposals; the bid bond, performance bond, and payment bond; Kentucky and Indiana standard specifications, supplemental specifications, standard drawings, special provisions, and special notes; and the notice of award and notice to proceed.

81. **RBOC Contractor:** The firm entity or entities that ultimately executes a Contract with the Joint Board to perform the work for Tolling Component One.

82. **Record of Decision (ROD):** The record of decision issued by FHWA in September of 2003, indicating the original preferred alternative for the Project.

83. **Revised Record of Decision (RROD):** The revised record of decision, signed by FHWA on June 19, 2012, indicating the new selected alternative for the Project.

84. **Registered Video (RV):** The image of a license plate that is associated with and processed against an RVTA.

85. **Registered Video Tolling Account (RVTA):** An account established by a LSIORB Project customer for the payment of tolls based upon the license plate of the account holder.

86. **Request for Proposal (RFP):** This request for proposals for the LSIORB Project TCS technology and all documents attached or incorporated by reference.

87. **RFID:** Radio Frequency Identification

88. **RFP:** The request for proposal and any reference documents associated with it. The RFP describes the scope of work in detail for each tolling component, outlines the procurement process, forms the basis of the final proposals, and is an element of the Contract(s).

89. **Revenue Day:** The 24-hour toll collection day expressed from 00:00:00 to 23:59:59 in military time.

90. **Requirements Trace Matrix:** Document provided by the Joint Board listing the specific requirements to perform the scope of work of this RFP. The proposals and ultimately the Contractor's work will be checked against the Requirements Trace Matrix to ensure all necessary components are included and completed prior to Final Acceptance.

91. **RBOC Component (RBOC):** The complete, functioning, state-of-the-art AET System based on Transponder and video processing for identification of vehicles for every Toll Zone on the LSIORB Project. The major function of the RBOC with respect to the roadside is to accurately detect, classify, and identify every vehicle passing through Toll Zones. The major functions of the RBOC with respect to the back office is to accept transactions from the roadside, manage accounts, collect revenue, and report on those revenues to the Joint Board.

92. **States' Parties:** Shall mean INDOT, KYTC, IFA, and KPTIA.

93. **Tolling Body:** The body established in the Development Agreement and the Interlocal Agreement, being comprised of the members of the Joint Board plus one

additional representative of IFA and one additional representative of KPTIA or any of the members' respective successors.

94. **Toll Collection System (TCS):** System which includes ETC Component, RBOC, and Operations Services.

95. **Tolling Component One:** Those duties described more fully in RFP Appendix B which relate to the RBOC**.** Those duties relate to fully automated Toll Zones, the Toll Facilities Host and database and the necessary video toll processing equipment and related OCR technology. The duties also include back office related work such as the CSC module, video and violation processing center, and interfaces with payment systems and remote customer service locations.

96. **Tolling Component Two:** Those duties described more fully in RFP Appendix C which relate to the ETC Component. Those duties relate to Transponders and Transponder readers and the related necessary communications with other Contractors.

97. **Tolling Component Three:** Those duties described more fully in RFP Appendix D which relate to Operations Services. Those duties relate to provided operations of the CSC and Video/Violations Processing Center.

98. **Toll Facility Gantry:** A gantry or series of gantries comprised of a Toll Zone upon which Toll Zone System equipment is mounted.

99. **Toll Facility Host:** Centralized computer system collecting information from video and ETC Component and transmitting that information to the Back Office Host.

100. **Toll Policy Agreement:** An agreement entered by the States Parties (or certain of them representing each state) establishing a comprehensive toll policy for the Project.

101. **Toll Zone:** The area on the roadway under the Toll Facility Gantry where the RBOC performs in-lane tolling functions such as Transponder reads, image capture, and AVC.

102. **Toll Zone System:** The Toll Zone System incorporates the functions of the traditional "Lane Controller" for an all-electronic environment, with redundant servers responsible for the entire roadway of up to four lanes and two full shoulders in one direction. The Toll Zone System runs independently of the toll facility server or Toll Facility Host and continues to build transactions if communications are lost.

103. **Transponder:** A radio frequency device mounted in or on a vehicle to provide a unique identifier to the tolling system.

104. **Uniform Financial Message (UFM):** The functional structure created when a vehicle passes through the toll payment zone at the roadside. After creation, the UFM shall be sent to the Toll Facility Host, and then transmitted via the network to the Back Office Host to be stored and acted upon by the CSC or VEC. UFMs consist of individual Messages that are aggregated by appending to the UFM without overwriting previous Messages contained therein.

105. **Uninterruptible Power Supply (UPS):** A battery power system that supplies clean power and also provides limited backup power (the extent of which is subject to Joint Board approval) in the event utility power becomes unavailable.

106. **Unregistered Video:** A video transaction that was an apparent RV transaction at the time it was created at the lane; but after image review process, the license plate was determined to belong to a user without a Transponder or a RV account and the RV was converted to an unregistered video toll transaction and billed to the user according to the Joint Board's Business Rules.

107. **USDOT:** United States Department of Transportation, including the Office of the Secretary, FHWA, the Federal Transit Administration, and the Federal Aviation Administration.

108. **U.S. GAAP:** United States Generally Accepted Accounting Principles

109. **V-Toll:** A video transaction where the license plate number matches an ETC customer with an active account and the transaction is debited against the customer's account..

110. **Video Processing System (VPS):** An imaging system located at toll lanes used to record license plate images of selected vehicles (to be defined in the Business Rules) in digital video or still image form including processing of such images. It also includes all controllers, servers, and software required to perform OCR and OPR and vehicle matching.

111. **Violation Enforcement System (VES)**

112. **Violations Processing System:** The system through which violations are handled. It is to include the process by which citations for non-payment are issued and an interface with the appropriate state law enforcement agencies and court systems.

113. **Wide Area Network (WAN)**

Appendix B: Tolling Component One

The RBOC Contractor shall provide a complete, functioning, state-of-the-art AET System based on ETC and video processing for identification of vehicles, for every Toll Zone on the LSIORB Project.

The overriding function of the RBOC with respect to the roadside is to detect vehicles on the LSIORB Project toll roadway system, build the proper transaction, and transmit that transaction and supporting data to the Toll Facility Host. Account management functions may be provided by others, depending upon the structure of proposals in response to this RFP.

The RBOC with respect to the roadside shall be a three-tiered tolling component oriented as shown below in Figure B.1.

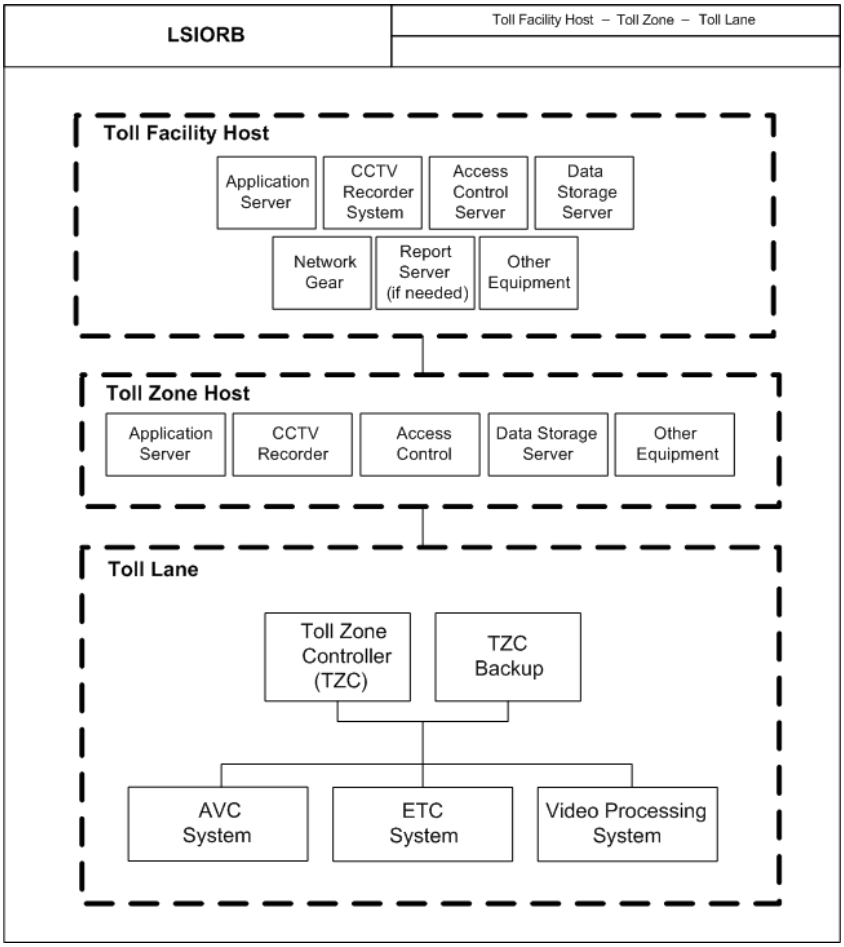

Figure B.1 - Toll Facility Host, Toll Zone and Toll Lane

There will be one Toll Facility Host located at the LSIORB Operations Center. There will be one Toll Host for each bridge located in close proximity to the mainline sets of

gantries. It is anticipated that there will be one hub building for the East End Crossing that will house the Toll Zone host and any other equipment necessary to operate the AET System. There will be one hub building located in close proximity to both the Downtown and Kennedy Bridges. This building will house both Toll Zone hosts and any other equipment necessary to operate the AET roadside system.

The RBOC contractor will be required to provide the hub building and all associated equipment and infrastructure requirements beyond those provided by the East End Crossing Bridge Developer and the Downtown Crossing Bridges design-build contractor. This will require immediate coordination with each bridge contractor due to site location and availability in addition to any impact to the surrounding landscape and roadway grade.

There will be one Toll Facility Host located at the LSIORB Operations Center. Each Toll Zone host will communicate with the Toll Facility Host and the toll lane controllers. The roadside subsystem requirements are more fully described in subsections B.1 through B.11. The hub building requirements are more fully described in subsection B.12.

The RBOC with respect to the back office shall perform customer account and video processing functions. The back office subsystem, also referred to as the Toll Operations and Customer Service Center, shall interface with all necessary entities to accomplish customer account management, banking, monitoring, interoperability and interface directly with the co-located Toll Facility Host. Figure B.2 generally depicts the logical architecture of the Back Office.

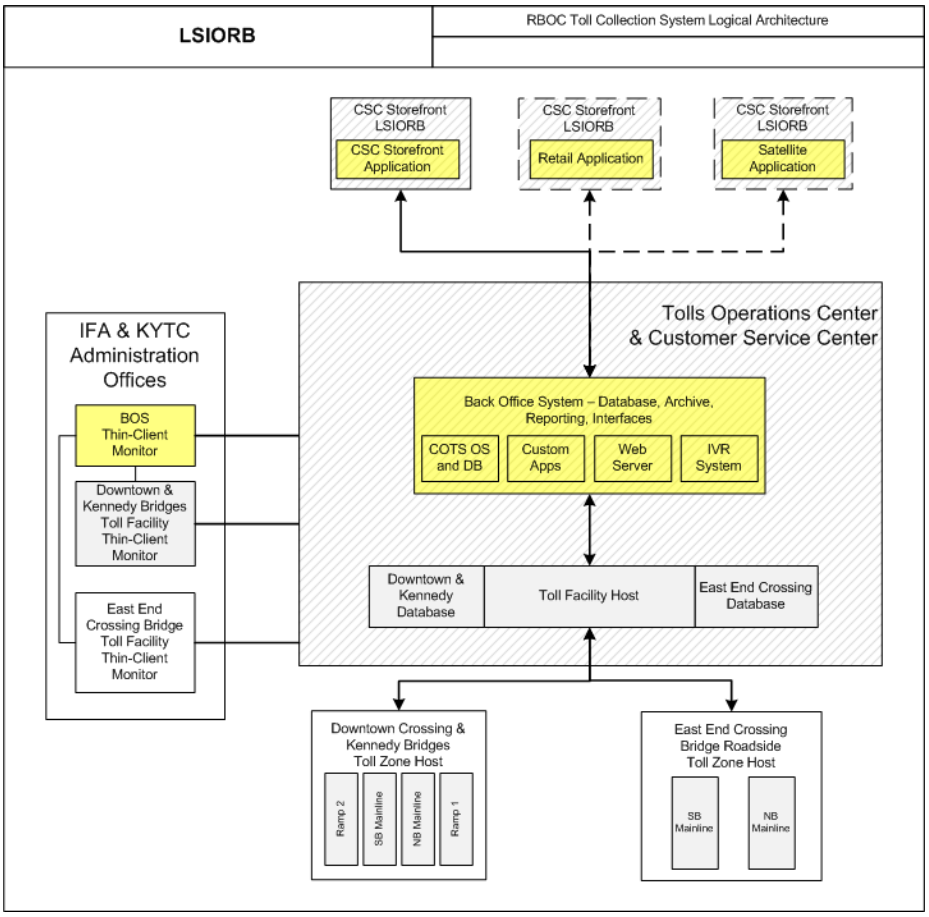

Figure B.2 - RBOC Logical Architecture

The requirements for the Back Office subsystem are more fully described in subsections B.13 through B.22. Performance, requirements and measurement for both the Roadside subsystem and the Back Office subsystem are set forth in subsection B.23.

Anticipated Activity Levels: The annual transaction estimates for the East End Bridge and Downtown Crossing are being prepared during the period of this draft RFP release. In order to assist proposers with their responses to the Final RFP release a table of anticipated traffic will be included. For the purpose of this draft consider a preliminary annual traffic activity level of 35,000,000 vehicles combining all classifications together.

The RBOC shall have capacity to recognize all registered ETC Transponders and all license plates attached to vehicles using the LSIORB Project.

B.1 Roadside General Requirements

B.1.1 Roadside Functional Requirements

The major function of the RBOC with respect to the roadside is to accurately detect, classify and identify every vehicle passing through Toll Zones. The RBOC must be highly accurate and robust, with backup and degraded modes of operation and redundancy.

The RBOC shall also be extremely transparent and auditable, from the Toll Facility Host down to the individual lane transaction records.

The roadside environment is the single source of all toll collection data. Every vehicle passing through any lane of the Toll Zone creates a toll transaction, including vehicles traveling against traffic or on the shoulders. Regardless of whether a Transponder is detected, every vehicle shall be captured by license plate number, and that license plate information shall be included in the transaction message when it is sent from the Toll Zone to the Toll Facility Host.

The Toll Zone shall be able to properly read Transponders, capture license plate images and classify vehicles anywhere in the Toll Zone between the left edge of the left shoulder and the right edge of the right shoulder, unless otherwise directed by the Joint Board.

B.1.1.1 Toll Concept

The toll concept sets discrete base toll rates for specific mainline or ramp locations. Rates shall vary. This tolling concept and all other statements about the operating parameters of the RBOC should be as flexible and configurable as possible to conform to Joint Board Business Rules. The RBOC shall support variable rates as follows, regardless of whether it is the intention of the Joint Board to use such variation capabilities at the outset of the Project. Specifically, the Joint Board reserves the right to further classify vehicles into as many as ten unique classifications without incurring additional charges from the RBOC Contractor.

1. By vehicle class, from lowest to highest:
    a. Class 1 (car),
    b. Class 2 (small truck), and
    c. Class 3 (large truck)
2. By type of transaction:
    a. Transponder with discount based upon a specified number of trips for a specified period of time,
    b. Transponder,
    c. Registered video, and
    d. Unregistered video
3. By other variables such as time of day, or for congestion-based pricing.

The RBOC shall be designed to support dynamic and congestion pricing on 15-minute intervals based on inputs from traffic management systems or from the Toll Facility Host.

B.1.1.2 No Lost Transactions

The RBOC shall ensure that no transactions are lost and will provide reports and the capability to check transaction sequence numbers for purposes of audit and review. Transaction sequence number gaps shall be flagged by the Toll Facility Host and reported by an alarm.

B.1.1.3 Toll Zone System

The RBOC Contractor shall provide a separate Toll Zone System for each direction of traffic at the mainline Toll Zones, and for each ramp.

The Toll Zone System shall run independently of Toll Facility Host and continue to build transactions if communications are disrupted.

The Toll Zone System shall immediately build the toll transaction with the information available, and shall be capable of operating in a degraded mode if some components are not functioning.

B.1.2 Roadside Physical Requirements

B.1.2.1 Lanes and Shoulders

Toll Zone locations and lane information are described in Table B.2 and shown schematically in Figures B.1 and B.2.

Effective Toll Lane Summary						
Toll Zone Number	Toll Zone Locations	Left Shoulder	Travel Lanes	Travel Lanes Width	Right Shoulder	Effective Toll Lanes
R-1	Ramp 1 - I-65 NB to Court Avenue	4 ft	3	12 ft	12 ft	4
DB-1	Downtown Bridge - I-65 Northbound	12 ft	6	12 ft	12 ft	8
KB-1	Kennedy Bridge - I-65 Southbound	12 ft	5	12 ft	12 ft	7
R-2	Ramp 2 - Court Avenue to I-65 SB	6 ft	1	16ft	12 ft	3
EEC-1	East End Crossing - Northbound	10 ft	2	12 ft	14 ft	4
EEC-2	East End Crossing Southbound	14 ft	2	12 ft	10 ft	4
	TOTALS	5	19		6	**30**
Reversible Lanes						
DB-1R	Downtown Bridge - I-65 Southbound Reversible during Phased Reconstruction on Kennedy Bridge		3	12 ft	12 ft	4
KB-1R	Kennedy Bridge - I-65 Northbound Reversible during Construction of Downtown Bridge	12 ft	3	12 ft		4
	TOTALS - Reversible	1	6		1	**8**
	3/11/2013					

Table B-1 -Toll Lane Summary

The LSIORB Project requires full instrumentation of the shoulder lanes with AVI and AVC for this project.

B.1.2.2 Connectivity

The RBOC Contractor shall provide the communication network connectivity as follows

and as shown in Figure B.3:

1. Between the Toll Facility Host and the Toll Zones, from the fiber patch panel at the Toll Facility Host to the LSIORB Project Operations Center,
2. The RBOC Contractor shall also be responsible for the network connections between Toll Zones.

Note: The network links shown in Figure B.3 are not intended to define a definitive location for the Customer Services Centers. The network links shown are intended to illustrate that networks are required.

Figure B.3 Network Diagram

B.1.2.3 Design Life

The RBOC Contractor shall provide the roadside equipment and major components with a minimum service operational lifecycle of 10 years. All equipment shall be designed, installed, and tested to operate without degradation for a minimum of 10 years.

B.1.2.4 Modular

All components for all equipment and assemblies shall be modular in nature for

maintenance, testing, and replacement purposes. All components shall be designed such that they are easily accessible with hand tools and by maintenance technicians as needed.

B.1.2.5 Stainless steel and anti-corrosive

All equipment enclosures, mounting hardware including washers, brackets, screws, bolts and nuts shall be designed with a non-corrosive material and not require painting or repairs for a minimum of 10 years. Equipment enclosures, mounting hardware, washers, brackets, screws, bolts and nuts exposed to the outdoor environment shall be constructed of American Iron and Steel Institute Type 316L grade stainless steel where possible.

B.1.2.6 Electromagnetic Interface

The roadside addition of any equipment for the new AET System shall not adversely impact the operation of any other existing legally operating equipment or devices or introduce any electromagnetic interference or harmonic distortion to the facility's electrical system.

B.1.2.7 Environmental Monitoring

The RBOC shall install critical monitor control panels, remote cabinet monitors, and critical monitor web server system (complete system), along with associated system documentation and user training. As part of the training which is included in the system, the RBOC shall test the system using vendor documentation to certify that the system is functional.

Critical Monitoring System

The monitoring system will automatically interface with the Maintenance Online Management System (MOMS) provided by the RBOC and generate alarms and service tickets based on the severity of the alarm. Refer to Tables B.3, B.4, and B.5 for point lists for the Toll Zone building, Zone and AVI cabinets, respectively. Additionally, the RBOC shall install in the data center of the customer service center an environmental monitoring unit for the HVAC unit which monitors temperature and humidity, and a power monitor of the UPS unit.

The RBOC shall test and exercise each point and verify operation per the manufacturer's recommendations. Tests may be performed by the vendor in lieu of RBOC performing the tests. A final report shall be provided that certifies that all points, alarms, interface to the MOMS and alarm alerts have been tested and are functional.

RBOC shall also test the alarm escalation to the maintenance personnel for unacknowledged alarms.

The benefit of critical system monitoring is realized the best when all the systems and response teams are tied together. Smart alarming shall perform conditional testing on points based on timing and other related conditions that may exist. An example of this would be the exercising of the generator weekly:

1. The generator is called to run 30 minutes every week:

a. If the generator doesn't not run at the specific time then an alarm is triggered
b. If the generator runs and then does not shut off after the period of test, an alarm is triggered,
c. If there is low fuel, an alarm is triggered.

2. To take this to operating sequence:
a. If there is a loss in utility power and the generator does not start, an alarm is triggered,
b. If the generator starts but the ATS does not transfer, there is an alarm
c. If the utility power is returned and the ATS does not transfer back after the specified time, an alarm is triggered,
d. If the utility power returns and the ATS returns to main power but the generator does not shut down after a specific time, then an alarm is triggered.

Communication between such systems can be implemented through open communication protocols such as BacNet, XML and the like. This will generate work orders and instantaneous communication to the technicians and management personnel with sufficient time to respond to the issues.

Table B.3-Individual Toll Zone Building Points

Component Monitored	Method	Point Type	Quantity	Trend	Alarm	State	Justification
Utility Power	Voltage Monitoring Relay	DI	1	-	Yes	Loss of Power/ Return No Voltage, Contacts Open= Loss of Power Contacts Closed-Power Detected = Normal)	120 min back up for toll equipment before loss of revenue
UPS Power	Voltage Monitoring Relay	DI	1	-	YES	Loss of Power/ Return No Voltage,	120 min back up for toll equipment before loss of revenue

Component Monitored	Method	Point Type	Quantity	Trend	Alarm	State	Justification
						Contacts Open= Loss of Power Contacts Closed-Power Detected = Normal)	
ATS Transfer Monitor	Dry Contact/ Relay	DI	1	-	Yes	Transfer/ Return (Contacts Open = Loss of Power – Transferred Contacts Closed-Power Detected - Normal)	Failure to transfer will prevent continuous power even if generator is started.
Generator Power	Voltage Monitoring Relay	DI	1	Yes	Yes	Generator Run/ Off (Dry Contacts – Open contacts = Generator OFF Closed contacts = Generator ON)	Generator fails to start on when called based on loss of Utility Power. If the generator power is on for more than 30 minutes without a power loss, then the generator may not have stopped after an exercise cycle. This will result in the loss of all fuel (5 days for propane) and not being prepared for emergencies.
Temperature	Thermistor, etc.	AI	1	Yes	Yes	High/low Temperatures – Alarm High; 76 deg, Alarm Low; 60 Deg	High Temperature indicates failure in HVAC unit while low temperature is failure in heat.
Humidity	Humidity Sensor	AI	1	Yes	Yes	High/low Humidity – High Humidity; 80%, Low Humidity; 40%	High Humidity may indicate leaking of water into the location. This is an issue for intrusion. When the humidity is too low, there is an issue with static electricity and the possible arc static to components.
Air Conditioner	Run Status	DI	1	Yes	-	Contact closed; Unit ON Contact Open – Unit OFF	Tracking Run Status indicates that if the AC is running, the temperature is high, there is a compressor failure or similar issue.
Fuel Level (If Propane is	Percent	AI	1	Yes	Yes	Fuel Level – Alarm at 60% to refill alert,	Preparation for emergencies requires that the fuel be at a given

Component Monitored	Method	Point Type	Quantity	Trend	Alarm	State	Justification
Used)	Full					20% Critical alarm	level at any time.
Smoke Detector	Stand Alone w/ Dry Contacts	DI	1	-	Yes	Alarm on Smoke (Non-UL) Contact closed = Smoke present/Loss of Power Contacts open; no smoke detected	Smoke can be caused by electrical failure or some other issue. There is no protection in the building so a standalone unit would give an indication and the contacts would give an alarm to the system.
Carbon Monoxide Detector	Stand Alone w/ Dry Contacts	DI	1	-	Yes	Alarm on Carbon Monoxide (Non-UL) Contacts closed; CO detected/loss of power Contacts open-No CO Detected	Carbon Monoxide is an effect of the local traffic fumes. Excess levels can be detrimental or fatal to maintenance personnel.

Table B.4- Individual Zone Equipment Cabinet Points List

Component Monitored	Method	Point Type	Quantity	Trend	Alarm	State	Justification
Power	Voltage Monitoring Relay	DI	1	-	Yes	Loss of Power/ Return No Voltage, Contacts Open= Loss of Power Contacts Closed- Power Detected = Normal)	UPS backup for toll equipment before loss of revenue
Temperature	Thermistor, etc	AI	1	YES	YES	High/low Temperature Alarm High; 76 deg, Alarm Low; 60 Deg	High Temperature indicates failure in HVAC unit while low temperature is failure in Heat.
Humidity	Humidity Sensor	AI	1	Yes	Yes	High/low Humidity High Humidity;	High Humidity may indicate leaking of water

						80%, Low Humidity; 40%	into the location. This is an issue for intrusion. When the humidity is too low, there is an issue with static electricity and the possible arc static to components.
Air Conditioner	Run status	DI	1	Yes	-	Contact closed; Unit ON Contact Open – Unit OFF	Tracking Run Status indicates that if the AC is running, the temperature is high; there is a compressor failure or similar issue.

Table B.5- Individual AVI Cabinet Points List

Component Monitored	Method	Point Type	Quantity	Trend	Alarm	State	Justification
Power	Voltage Monitoring Relay	DI	1	-	Yes	Loss of Power/ Return (No Voltage = Loss of Power – Contacts Closed-Power Detected)	120 min backup for toll equipment before loss of revenue.
Temperature	Thermistor, etc	AI	1	YES	YES	High/low Temperature – Alarm High; 78 deg, Alarm Low; 60 Deg	High Temperature indicates failure in HVAC unit while low temperature is failure in Heat.
Humidity	Humidity Sensor	AI	1	Yes	Yes	High/low Humidity High Humidity; 80%, Low Humidity; 40%	High Humidity may indicate leaking of water into the location. This is an issue for intrusion. When the humidity is too low, there is an issue with static electricity and the possible arc static to components.
Air Conditioner	Run status	DI	1	Yes	-	Contact closed; Unit	Tracking Run Status indicates that if the AC is running, the temperature is

Component Monitored	Method	Point Type	Quantity	Trend	Alarm	State	Justification
						ON, Contact Open – Unit OFF	high, there is a compressor failure or similar issue.

B.1.2.8 Simple Network Management Protocol Capable

All RBOC components shall support simple network management protocol.

B.1.2.9 Scalability

The RBOC shall be designed such that the current size of the LSIORB Project could be quickly and easily expanded, pursuant to a 15% per annum growth factor, measured in Toll Zones, effective lanes, and transactions without changing the basic hardware infrastructure.

B.1.2.10 Access

The RBOC shall support remote access and administrative controls through the Toll Facility Host computers. The RBOC shall be capable of reporting each time the RBOC is accessed remotely for any purpose, and identify from where and by whom the remote access was generated and make this report accessible to the Joint Board.

All equipment in the lanes shall be accessible without requiring special tools or equipment to access the equipment. The Contractor shall take reasonable measures to ensure that the equipment is secure, particularly against vandalism.

B.1.2.11 Safety

Contractor provided equipment shall be in compliance with the latest accepted version of the National Electrical Safety Code as defined in the applicable codes and standards. Electrical equipment and components must be certified by Underwriters Laboratory.

B.1.3 Toll Transaction Creation and Contents

B.1.3.1 Process to Create Toll Transaction

The following does not represent an architectural solution bias on the part of the Joint Board but simply represents the conceptual steps that the Joint Board believes should be taken in the creation of transactions. Contractors proposing on this tolling component should feel free to propose a solution that they believe delivers the functionality and performance that the Joint Board is seeking. If the Contractor cannot meet the requirement for a UFM type solution described by what follows, the Contractor is encouraged to detail how they intend to accomplish the intent of a UFM.

Upon initial detection of a vehicle by any means, the Toll Zone System shall begin to build a UFM with data from the following fundamental activities,

1. The Toll Zone System detects and classifies the vehicle,
2. The Toll Zone System attempts to read an ETC Transponder in the vehicle,
3. The Toll Zone System captures the front and rear images of the vehicle and immediately begins image processing,
4. The RBOC is anticipated generally to appear as depicted in Figure B.3 below, in the process of building transactions and reading license plates,
5. Step 1-1 represents a vehicle crossing the Toll Zone, which initiates a transaction read,
6. Step 1-2 represents the roadside sensor technology detecting the vehicle. The gantry shall utilize all components to build transaction messages, even when cameras, loops, or profilers are not functioning.
7. Step 1-3 does not represent the complete design for the transaction message, but identifies some minimum essential components
8. Step 1-4 shows the transaction and related images being sent to the Toll Zone server.
9. Step 1-5 shows that the OCR confirmation process to be employed at the Toll Zone will verify with other data or processes to help confirm the correct license plate information in the transaction. Flags are required for manual review and low confidence transactions.
10. Step 1-6 identifies the image storage for later confirmation of transaction information as well as for queries from the Toll Facility Host. Non-Transponder images shall ultimately be stored at the Back Office Host.
11. Step 1-7 shows the image storage time. All transaction images for all transactions shall be saved for the required time.
12. Step 1-8 shows that transactions are transmitted in near-real time to the Toll Facility Host. The RBOC shall send transactions as they are ready with posting latency permitted up to 60 seconds after the transaction is created (Batch processed transactions are not acceptable). Images are transmitted as communications bandwidth permits or as images are queried.

Additional transaction processing is depicted in subsection B.16.1, Figure B.4 as it pertains to video transactions.

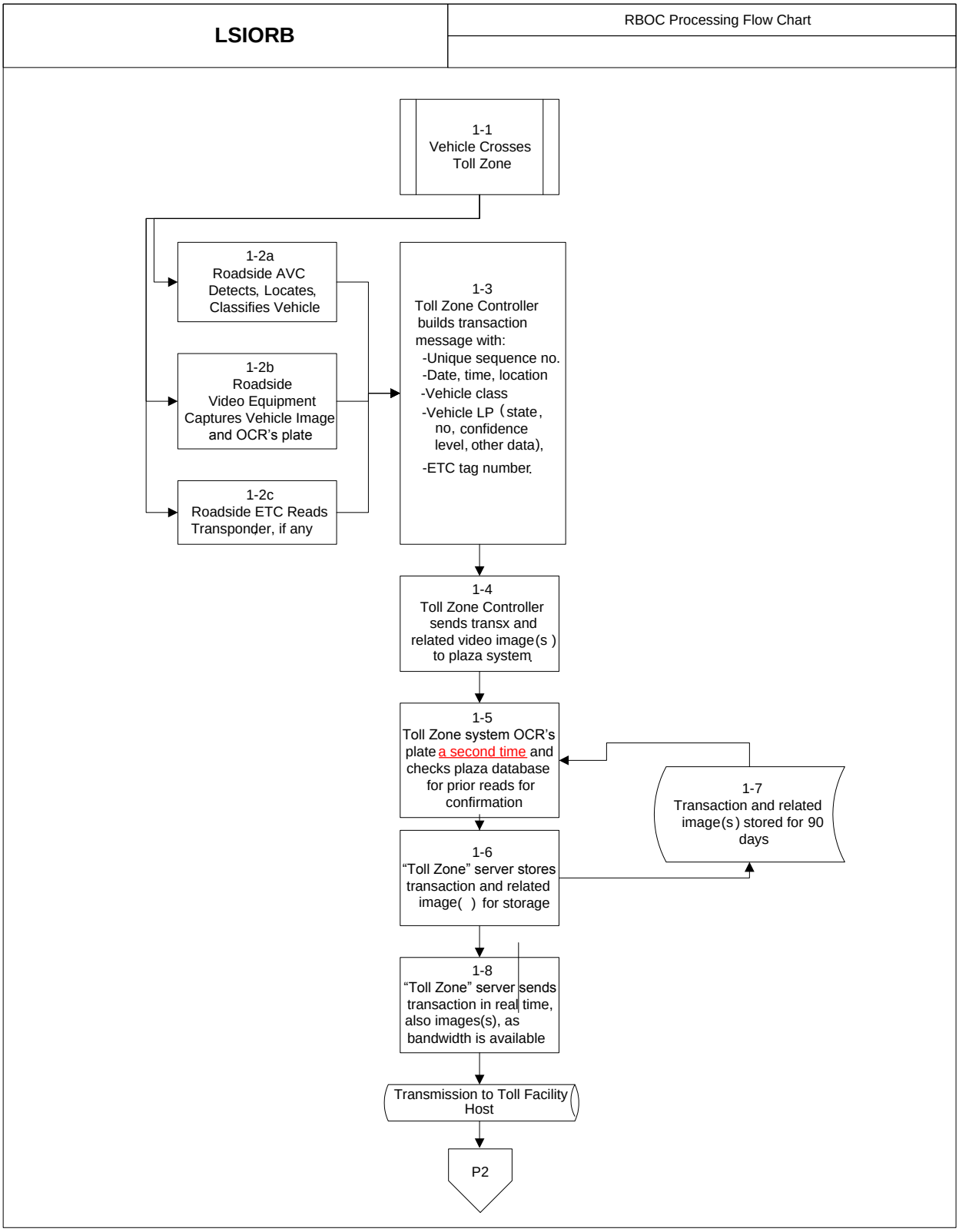

Figure B-3 - Toll Zone Transaction Processing

B.1.3.2 Content of Toll Transaction

The toll transaction shall apply a Uniform Financial Message (UFM) format for all vehicles in the full width of the roadway, whether ETC-based or video based, and for all conditions.

The toll transaction shall be composed using an open-standard format such as XML which can be audited and read on a transaction-by-transaction basis.

The toll transaction shall include, but not be limited to the following:

1. Date, time, and location stamp in Alliance for Toll Interoperability format to be determined (J-Date, Greenwich Mean Time to the nearest 1/100 of one second, latitude-longitude locations and lane number),
2. Unique transaction sequence number,
3. Vehicle classification,
4. Data required by the selected ETC technology
5. Video,
    a. State or province,
    b. Special plate identifier or vertical letter stack,
    c. Alpha-numeric string, or more commonly the license plate number,
    d. Confidence level,
    e. Identifying fingerprint or other identifier,
    f. Identifier if license plate alpha-numeric string is associated with an ETC or a RV toll account,
    g. Identifier if license plate alpha-numeric string is on a current hot list or watch list,
6. All toll rates for the applicable vehicle class,
7. Status of lane and Toll Zone equipment, and
8. Vehicle Speed.

B.2 Toll Facility Host Requirements

B.2.1 Toll Facility Host Functional Requirements

The Toll Facility Host shall serve as the destination, with respect to the roadside, for all toll transactions on the LSIORB Project, and the origin of all data required at the roadside environment.

The Toll Facility Host shall serve as the interface and resource for the Back Office Host for transaction processing.

The Toll Facility Host shall be an application server(s) environment within the LSIORB Project Operations Center overseeing all toll collection applications. The Toll Facility Host will control all roadside servers on a 24 hour per day, 7 day per week basis and provide network communications to the roadside.

The Toll Facility Host shall receive transactions in near-real time from the roadside and post them to the Toll Facility Host database without delay or batching. Although the

AET System is not trip-based, it shall have batching capabilities to create trip based tolls.

The Toll Facility Host shall be configurable to either:
1. Send the transactions to the Back Office Host immediately without batching, i.e., in near-real time, or
2. Send transactions to the Back Office Host at the close of business daily, which would allow batching.

When queried by the Back Office Host, the Toll Facility Host shall pull video transaction images from the appropriate Toll Zone. Not all images will be sent to the Toll Facility Host immediately, but all will remain available for 90 days online should they be needed. Images of apparent violations will be sent automatically to the Toll Facility Host as soon as transaction traffic allows. After 90 days the images shall be archived.

The Toll Facility Host shall have the following storage requirements and characteristics,
1. Data shall be available online for two years, and
2. Video images shall be stored on-line at the Toll Facility Host for 90 days and then archived. Once archived, the images shall be retrievable.

The Toll Facility Host shall provide a thin-client application for tolling transaction queries, traffic activity monitoring by individuals with proper identification and password authorization.

The Toll Facility Host shall disseminate configuration commands to the Toll Zone System, to include toll rate tables, Transponder files, video license plate files, and other configuration as required.

B.2.1.1 Toll Facility Host Service Restoration

For any degradation or loss event, the Toll Facility Host shall re-synchronize all data from all Toll Zones and download all transactions, images, alerts, and alarms which were generated during the service outage. Gaps in the transaction data shall be flagged as alarms on restoration. MOMS reports shall be evaluated and transmission connections shall be examined to determine the source of the gap or corruption. This analysis shall take place within 14 days.

B.2.1.2 Scalability and Performance

The Toll Facility Host shall be able to support the service level requirements for audit, reporting, and all other business functions. Uploading of transactions accumulated at the lane controller during periods when communications was compromised with the Toll Facility Host shall not reduce the ability of the Toll Facility Host to load all near-real time transactions. No transactions shall be lost during periods when communications with the Toll Facility Host is not available. The RBOC shall be easily scalable to accommodate the projected traffic volumes on the LSIORB Project at a growth rate of 15% per annum.

B.2.1.3 Toll Facility Host Disaster Recovery

The RBOC Contractor shall develop a comprehensive disaster recovery plan and disaster recovery procedures for the Toll Facility Host, database, and Toll Zones which will be

reviewed and approved by the Joint Board. After the RBOC is deployed and tested, the RBOC Contractor shall implement its disaster recovery solution and will test the ROBC accordingly. The RBOC Contractor, under the maintenance portion of this project, shall maintain and secure the disaster recovery database.

B.2.1.4 Time Synchronization

All components of the RBOC, to include all peripheral devices with time-stamp markings, shall be time-synchronized by the Toll Facility Host to within 1/100 of one second. This shall include, but not be limited to, the roadside level computers and controllers, the ETC Component, CCTV, video processing solutions and recorders, AVC, and access control system.

B.2.2 Maintenance Online Management System

The RBOC Contractor is required to provide a MOMS to monitor and analyze the entire AET System and the maintenance activities of all tolling components. The MOMS shall provide a perpetual inventory and status of equipment in operation, and provide that information in an acceptable format that can be imported to the LSIORB Accounting System. The MOMS should provide a work order processing and tracking component, spare parts inventory control, and a maintenance database. The exact format will be determined during design. Proposer should assume conventional software.

The MOMS must track alarms, assign priorities, and provide reporting and analysis. The MOMS shall initiate and provide work orders from selectable alarms, manual initiation or preventive maintenance scheduled activities. The MOMS must identify and track maintenance activities, parts usage, personnel and time. All work orders must be tracked. The MOMS must be able to provide a status report of all work orders.

The components of the MOMS shall be configurable to allow for greater flexibility and adaptability in defining reporting requirements.

For corrective maintenance the MOMS must track response times and repair times. Once notification has been made, the clock for response and repair time has officially commenced.

The MOMS must provide for tracking preventive maintenance activities and the ability to be used as a predictive maintenance analysis tool. The Joint Board must have direct access to the MOMS database, and the RBOC Contractor will be required to have all maintenance activity data entered within a reasonable time after the maintenance activities have occurred. All information contained within the MOMS must be available for daily transfer to the Joint Board's accounting system.

The RBOC Contractor will be responsible for providing fully assembled and tested spare parts and components for the RBOC. The RBOC Contractor through the MOMS, shall provide the Joint Board an inventory listing of all spare parts and components in inventory on a monthly basis, and will provide a spare parts usage report on a monthly

basis. This inventory of spare parts and components shall be comprehensive, accurate, and auditable throughout the term of the RBOC Contract. As part of the tracking process all parts shall be bar coded with a parts list number. The inventory function must keep track of warranty information for parts used and provide information to receive warranty reimbursements when appropriate.

The RBOC shall be able to generate MOMS operations, management and performance reports to include at a minimum:

1. Alarm history,
2. Work order status and tracking,
3. Equipment and spares inventory,
4. Corrective and predictive maintenance,
5. Equipment repair history,
6. MTBF for equipment, and
7. Lane or Toll Zone outage times.

The RBOC Contractor shall utilize the MOMS to monitor and analyze the AET System and track the maintenance activities of the technicians.

B.2.3 Toll Facility Host Technical Requirements – Physical

The Toll Facility Host shall have a hot spare server configuration similar to an active or passive system with a minimum of RAID 5 with hot spare on each server as redundant hot backup servers. Cluster environments may also be employed.

All Toll Facility Host components shall be rack mountable on standard computer racks inside lockable cabinets. These may include, but not be limited to, the server, the CCTV recorder system, the access control server, the data storage hardware, reports server if needed, and communications and networking gear to support internal integration, links to the Toll Zones, and access to the LSIORB Project Operations Center LAN.

The RBOC Contractor shall install the Toll Facility Host on standard computer rack cabinets with locking doors, secured in the information technology room in the LSIORB Project Operations Center.

It shall be possible to move the Toll Facility Host cabinets with simple tools and without damaging the information technology room.

All racks, cabinets, and hardware and fittings required for the Toll Facility Host array and rack shall be furnished and installed by the RBOC Contractor.

Equipment shall be modular in nature, hot swappable, and support plug and play operations with minimum field changes or tuning required.

B.2.4 Toll Facility Host Technical Requirements – Software

The RBOC Contractor shall employ a major commercial operating system such as the

current version of Sun SCO Unix, MS Server, or other major commercial operating systems.

It is preferred that the Toll Facility Host is based and operated on open source and Open Architecture, or the architecture must be open for the Joint Board to use without restriction, including the use of other contractors. The RBOC Contractor shall employ a major, scalable, COTS scalable database which is capable of being queried by standard reporting software programs.

The RBOC Contractor shall upgrade the operating system and databases to their current versions if the Joint Board requires an upgrade through the end of the RBOC Contract at no additional cost to the Joint Board. Testing and proof of compatibility shall be included as part of the upgrade.

The Toll Facility Host shall send transaction and activity report information to the Back Office Host.

The Toll Facility Host shall support thin-client access to monitors and reports via the Operations Center LAN.

The Toll Facility Host shall support scripts and interfaces to the Joint Board's general ledger accounting system via the Operations Center LAN.

The thin client monitor application shall support:
1. A real-time dashboard and display of current transactions and performance, for a particular lane or Toll Zone,
2. Access to and view of any camera selected by the user with image quality variable to meet limitations or capabilities of communications to the roadside,
3. Review of video images with image quality variable to meet limitations capabilities of communications to the roadside,
4. System MOMS and health parameters,
5. The initiation of Toll Facility Host reports.

B.2.5 Toll Facility Host Reporting Requirements

The Toll Facility Host shall include a report server and commercially available reports package to provide a complete set of activity, performance and diagnostic reports. The reports package shall include the ability to export to Adobe PDF, Microsoft Excel, or other commercial programs.

The Toll Facility Host shall provide the following types of reports and information independently of the Back Office Host:
1. Individual transaction reports for given time periods,
2. Individual and summary transaction reports for hours or days per Toll Zone and lane or site,
3. Individual and summary transactions by payment type including ETC, video-linked to ETC, RV or UV,

4. Individual and summary transactions by any categorization for daily, weekly or monthly intervals,
5. Individual and summary transactions by classifications,
6. Audit reports as designated by the Joint Board,
7. Searches for individual:
   a. ETC Transponders,
   b. License plates, and
   c. ETC Transponders or license plates for specific states or provinces.

B.2.6 Toll Facility Host Data Storage and Archival Requirements

The Toll Facilities Host database shall include the following:

1. Traffic and revenue by Tolling Zone and for the entire AET System,
2. Detailed transactions,
3. Maintenance data, including MOMS messages,
4. Administrative data, and
5. Other

The Toll Facility Host shall include an integrated backup incorporating a major off-the-shelf software package.

The Toll Facility Host shall have two years of all activity data online, and all prior data shall be available to be loaded from archive storage media. The Toll Facility Host shall retain two years of message data and six months of images online. All message activity shall be available through backup media.

B.3 Toll Zone Requirements

B.3.1 Toll Zone Functional Requirements

The Toll Zone shall manage the environment and transactions for all lanes reporting to it.

The Toll Zone shall receive transactions in near-real time from the roadside and shall:

1. Send the transactions to the Toll Facility Host immediately without batching, and
2. Store all transaction and video data, serving as backup for communications outages with the Toll Facility Host.

The Toll Zone shall provide video transaction images upon query from the Toll Facility Host, and before purging for a configurable period of time as allowed by the Business Rules.

B.3.1.1 Uniform Hardware and Software

The Toll Zone server hardware and software shall be the same for all Toll Zones, mainline and ramps.

B.3.1.2 Defined Interfaces

All interfaces shall be defined and documented in an ICD. The Joint Board shall have the right to use the ICD to add or change equipment as desired.

B.3.1.3 Transaction Processing and Storage

The Toll Zone shall ensure that all messages and transactions created by the lanes are transmitted to the Toll Zone server. The Toll Zone shall process and cache transactions if communications are lost with the Toll Facility Host.

Toll charges shall be calculated at the roadside and included in the transaction message. The requirement is for the toll charged at the tolling point, not for account balances to be recalculated.

B.3.1.4 Maintenance Monitoring

The Toll Facility Host shall support remote maintenance via the MOMS. The Toll Facility Host shall be able to monitor maintenance messages and activities.

B.3.1.5 Date and Time Synchronization

The Toll Facility Host shall automatically synchronize all Toll Zones to the primary date and time synchronization signal from the Toll Facility Host, at a minimum to the nearest 1/100 of one second.

B.3.2 Toll Zone Physical Requirements

The Toll Facility Host shall be a ruggedized application server(s) environment within the Toll Facility Host building to be provided by the RBOC contractor. Details for the Toll Facility Host building are included in this RFP under subsection B.12, Toll Zone Vaults (Buildings) and in Appendix J Standard Drawings.

B.3.2.1 Interchangeable Components

All replacement units within the Toll Facility Host shall be physically and electrically interchangeable with other units of the same function with no adjustments other than normal alignment and configuration settings.

B.3.2.2 Toll Facility Host Server Physical Installation

Toll Facility Host server equipment shall be located within a temperature controlled building.

B.3.2.3 Toll Facility Host Server Electrical Installation

The Toll Facility Host safety and communications related equipment shall be UPS-protected.

B.3.2.4 Security

RBOC Contractor shall provide security for the Toll Facility Host building including identification cards to be required for entry. When someone is accessing the Toll Facility Host building, the MOMS shall provide an alarm.

B.3.3 Toll Zone Software Requirements

The RBOC Contractor shall upgrade the operating system and databases to their current versions if the Joint Board requires an upgrade for the life of the RBOC Contract. Testing and proof of compatibility shall be included as part of the upgrade.

The RBOC Contractor shall be responsible for the seamless interface between the Toll Zones and the Toll Facilities Host. RBOC Contractor is also responsible for the interface between the Toll Facility Host and the Back Office Host. The Back Office Host shall provide account status information, rate information, and other toll operations information to the Toll Zones via the Toll Facility Host. The Toll Facility Host shall then distribute that to the Toll Zone controllers.

The monitoring application shall support,

1. A real-time dashboard and display of current transactions and system performance, for a particular lane, or for a Toll Zone,
2. Access to and view of any camera selected by the user with image quality variable to meet limitations or capabilities of communications to the roadside,
3. Review of video images with image quality variable to meet limitations or capabilities of communications to the roadside, and
4. MOMS and health parameters.

B.3.4 Toll Zone Data Storage and Archival Requirements

The following data storage requirements shall apply to the Toll Zone:

1. Transactions data shall be stored for two years on the Toll Facility Host,
2. Video images shall be stored online for 6 months, and
3. No video images for transactions without ETC payment shall be purged or over written before transmitted to the Back Office Host for processing or archival. All images shall be archived according to the Joint Board data retention policy. The Toll Facility Host shall retain all images for six months. The Back Office Host shall be required to retain all images online for two years with all images accessible via tape backup if needed.

B.4 Toll Zone Controller Requirements

B.4.1 Toll Zone Controller Functional Requirements

The Toll Zone Controller shall be the server array controlling between two and six lanes in each Toll Zone.

The Toll Zone controller configurations shall be controlled by the Toll Facility Host-level central library. This central library shall regulate and define configurations including lane number and type, software version, and other critical lane environment information is correct prior to the opening of a lane.

B.4.2 Toll Zone Controller Physical Requirements

The Toll Zone controller shall be a dual-hot-redundant computer array controlling a roadside LAN with the video processing, AVC, and ETC equipment on the LAN. The Toll Zone controller redundancy shall guarantee operations on a 24 hour per day, 7 day per week basis without interruption.

The Toll Zone controller array shall employ at least RAID 5 disk storage.

All replacement units within the Toll Zone controllers shall be physically and electrically interchangeable with other units of the same function with no adjustments other than normal alignment and configuration settings.

B.4.3 Toll Zone Controller Software Requirements

The Toll Zone controller hardware and software shall be the same for all lanes and all AET System mainline and ramp lanes.

B.4.4 Toll Zone Controller Data Storage and Archival Requirements

Each Toll Zone controller shall have data storage for at least 90 days in circular storage on a hard drive. This shall include, but is not limited to, all transactions, event messages, AET System level messages, logging, and any other messages that may be used for maintenance and troubleshooting.

B.5 Video Processing Requirements

B.5.1 Video Processing Functional Requirements

The RBOC shall capture images for both front and rear license plates for every transaction, and machine process, through OCR or automated license plate recognition, the images to collect vehicle identification information which shall be added to the transaction message. Both front and rear images shall be matched with a single vehicle transaction. An image will be captured for each front license plate area, whether or not the vehicle has a license plate. The Toll Zone shall store the video images and provide them on query to the Toll Facility Host. If the license plate images are not recognized at the lane level, they will be transmitted automatically to the Back Office Host for processing as a potential violation.

The video cameras shall be used for license plate identification by machine-read algorithms as well as human review. The Joint Board shall have access to all cameras and camera images. Performance requirements for OCR are located in subsections B.17.3 and B.17.4.

Each AET System camera's view shall be observable via the Toll Facility Host thin-client application. The Joint Board shall have access to the view from any camera in real time for multiple reasons, including determining if a camera is out of service, dirty, or misaligned.

The VPS shall capture and read, either through LPR or OCR, images at the Toll Zone level to provide for the transaction message, which shall include:

1. The state or province,
2. A vertical character stack if any,
3. The alphanumeric characters,
4. License plate type,
5. Aggregate read confidence level,
6. Plate Images, and
7. Vehicle image, which shall include enough of the vehicle to meet the requirements of this RFP.

Video license plate files shall include the following:

1. License plates related to ETC accounts, both LSIORB Project and interoperable,
2. License plates related to RV accounts, both LSIORB Project and interoperable,
3. License plates related to a hot list established by the Joint Board at the request of legal authorities for purposes of immediate law enforcement notification, to include but not limited to:
   a. Amber alert vehicles of interest,
   b. Other vehicles identified by authorities with proper jurisdiction.
4. License plates related to a watch list established by KPTIA. The watch list is separate and apart from the hot list.

B.5.1.1 Hot List Vehicles

The RBOC shall be able to support hot list detection of vehicles of interest for amber alerts, silver alerts or other police or official business. The RBOC shall be configurable such that hot list vehicles may be directly reported to law enforcement channels either with or without notification to the Operations Services Contractor.

A hot list license plate may also be an ETC-registered, RV or UV license plate. The RBOC must be capable of being queried and retrieving past data both as to Transponder transactions and video transactions.

In addition to a hot list, the Joint Board also intends to maintain a watch list. Functionally, the watch list will operate in a similar fashion to the hot list, but will be distinct in that vehicles will be placed on the watch list for reasons unrelated to law enforcement, and recognizing a vehicle on the watch list will result in different actions. Vehicles with a history of inaccurate or problematic identification will be placed on the watch list, and all watch list vehicles will be reviewed by a human before any toll collection or enforcement activity commences.

B.5.1.2 OCR Requirements

The RBOC shall verify the OCR results at the Toll Zone with alternate algorithms or processes, and amend the transaction message if necessary, either with respect to the OCR results or with respect to the category of transaction and value.

The OCR solution shall be capable of adapting and learning from manual intervention and training to meet acceptable performance levels within the first 45 days.

The RBOC shall provide multiple OCR algorithms and routines and shall assign a confidence level based on the final automated review before the message is transmitted to the Toll Facility Host.

The RBOC shall include the OCR results in all transaction messages, regardless of whether an ETC Transponder was read or not.

B.5.1.3 Camera Requirements

Rear view cameras shall provide the following functions,

1. Capture the rear license plate image clearly with the best contrast possible,
2. Capture the entire width of the vehicle,
3. Employ a color camera, which may be augmented by an infrared camera if needed to meet performance requirements,
4. Not employ continuous white light for illumination. The intent is to have rear camera illumination that does not pose a visual hindrance for drivers. Continuous lights can pose this type of problem. Continuous means visually on at all times. A 70 Hz strobe is visually on continuously. In lieu of this, a single strobe flash may be employed to capture the image of the license plate and car, and
5. The RBOC shall provide for finger printing of vehicles and license plates.

Front view cameras shall meet the following criteria,

1. Capture the front license plate image, if any, clearly with good contrast where possible,
2. Capture the entire width of the vehicle,
3. Not capture the view of the windshield or driver or passengers, they may be masked,
4. Employ a color camera, which may be augmented by an infrared camera if needed to meet performance requirements. The use of color cameras is essential for capturing the color of the vehicle and colorized characteristics. The color information will be used in the confirmation of the vehicle and the enforcement of toll payments. If utilizing a black and white camera with near infrared or ultraviolet light sources are required for the provider's technology to function, dual cameras should be provided to address the color requirement,
5. Front camera illumination shall not be blinding or distracting to drivers. Almost-invisible strobe or near-infrared or near-ultraviolet is permissible, and
6. The RBOC shall provide for the finger printing of vehicles and license plates. A histogram or finger print is intended to give a digital signature of a vehicle and allow it to be paired with a license plate or Transponder. Once the RBOC has digitally learned a vehicle, if a portion of the license plate or car is obscured, the vehicle shall be recognized by its digital signature.

B.5.2 Video Processing Technical Requirements

All video images and associated OCR results shall be associated with the correct vehicle transaction from the roadside controller.

Each video image associated file name or data file shall include at a minimum, transaction sequence number, OCR information inserted in the transaction message, and the date, time, and location. Front and rear plates for the same vehicle shall be packaged in the same transaction.

The OCR software shall process images from front and rear cameras at a minimum rate of 2,400 vehicles per hour per lane for all lane types.

Video cameras shall support a capture rate of no less than four vehicles per second per lane for both front and rear images. The RBOC Contractor shall use the same camera types in all lanes.

VPS components shall report failures to MOMS, and shall also report when minimum OCR confidence levels are not attained.

All cameras and lighting shall be installed on pre-set brackets such that replacement units do not require physical recalibration.

Images shall be stored image-by-image as separate digital files, in open-standard file architecture such as JPEG, GIF, or TIFF. The VPS shall also support transmission of uncompressed images.

The VPS shall accurately capture rear images of a field of view wide enough to capture the entire back of the vehicle. The upper and lower limit of the field of view shall be configurable to capture a license plate located at any portion on the back of the vehicle from the bottom of the vehicle up to the window level. The back of vehicle shall be clearly recognizable to the human eye in the image.

Each video image shall be associated with its transaction by the unique transaction sequence number and date, time, and location stamp recording with the image file.

The identification information shall be provided in the transaction message, and the video image shall be stored at the Toll Zone.

The VPS shall select a single best image from the image set for image review process. The number of images in a set is up to the design of the RBOC contractor subject to Joint Board's approval.

The VPS shall provide event messages through the MOMS that indicate if the image capture field of view is not within the defined parameters. The defined parameters and the confidence level thresholds must be configurable.

B.6 CCTV Requirements

B.6.1 CCTV Functional Requirements

The CCTV roadway overview cameras shall be used for review and audit of in-lane performance as traffic passes the Toll Zone.

The live feed of the CCTV roadway overview camera shall also be available to the traffic management center controlled by a separate ITS contractor and the Joint Board administration office.

The CCTV roadway overview collects and stores motion video of the traffic under a gantry. Its primary purpose is to collect a visual record of the vehicles passing under the gantry to provide an AET System verification tool to enable individuals to verify the AET System is detecting and classifying vehicles correctly.

The CCTV roadway overview cameras and recordings shall require separate identification and password authentication requirements from those of the CCTV site security cameras and recordings.

The CCTV network shall include an administrative application at the Toll Facility Host which shall enable authorized managers to determine access authorizations and CCTV settings.

The CCTV site security cameras shall be used to monitor Toll Zone sites and access points, for site surveillance. The RBOC Contractor video security does not integrate with either the design-build contractor or Developer's video security system.

The CCTV site security detects, collects and stores motion video of activity in the proximity of the Toll Facility Host buildings and the gantries, other than vehicular traffic. It shall facilitate remote site security. Activation and adoption of pre-sets shall be triggered by login through the card-access or by movement detected in specific zones near cabinets or building doors.

The CCTV site security cameras shall be able to be aimed in any of 360 degrees of direction and 180 degrees of tilt, with a zoom capability of ten times. These cameras shall have configurable pre-sets for the Toll Zone building access, major cabinet access, and the roadway in both the approach and departure directions.

All CCTV cameras for roadway overview and site security shall record to a digital video recorder for motion video storage.

It shall be possible to configure the CCTV network to send an alarm through the MOMS.

It shall be possible to configure the CCTV network recordings, based on motion detection in the field of view or other events, for a configurable number of seconds

before and after the event.

The CCTV roadway overview recordings shall include transaction information related to the vehicle in the field of view, to include the transaction sequence number, event time, and detected vehicle classification. Driver information such as credit card numbers, driver license numbers, ETC account numbers, or any other financial data used in the generation of transaction messages shall not be included in the CCTV recording. Data shall be presented either as an overlay or in a dialog box near the image. There is no need to store the additional information also on the video recording equipment.

It shall be possible to configure the CCTV to record periods of inactivity at lower frame rates or resolution than the normal full-resolution of 30 frames per second.

Personnel with CCTV administrative rights shall be able to configure playback, such that specific fields of data are only visible by specific categories of users. For example, auditors and maintenance management personnel shall be able to view all details of toll transaction composition and reporting, and lane event messages for maintenance. For other user categories, access to specific data fields shall be selectable.

CCTV network settings for event triggering, before-and-after event settings, data, and all other network settings shall be configurable by authorized users.

B.6.2 CCTV Technical Requirements

CCTV cameras shall be color digital cameras supporting a minimum resolution of 540 vertical lines.

The CCTV shall be a proven commercial product that can be expanded or updated, in a modular fashion, over time. This requirement applies to both hardware and software.

The window of the camera housing shall have an anti-reflection coating.

The RBOC Contractor shall customize the new CCTV to the minimum extent possible to meet LSIORB Project requirements. All CCTV components and recordings shall be time-synchronized to the Toll Facility Host and Back Office Host to within 1/100 of one second.

Cameras shall support normal day and night conditions.

Cameras located in areas with insufficient lighting shall be capable of adjusting for poor light conditions.

Cameras shall have a viewable image on a 24 hour per day, 7 day per week basis unless hampered by adverse weather conditions.

Cameras and all of the associated electronic equipment shall be housed in a weatherproof NEMA rated enclosure.

Cameras shall be protected against vandalism and mounted out of physical reach as much as possible.

Cameras shall require no more than 24 volts of direct current power. The RBOC Contractor should consider the use of power-over-ethernet cameras. If deployed, the RBOC Contractor is responsible for all equipment and cabling up to the primary ethernet switch. If a power injector is required, the RBOC Contractor is responsible for providing, configuring, and installing the device.

CCTV roadway overview cameras shall be fixed-position, fixed-focal length cameras, or zoom-lens cameras in a fixed configuration. These shall be located on the furthest-ahead gantry, at the top right corner where the support column meets the cross-beam, facing to the rear looking at oncoming traffic with a field of view of all lanes and shoulders.

CCTV site security cameras shall be pan-tilt-zoom cameras in dome enclosures, mounted on one of the gantries to provide a view of the building door. The cameras shall be capable of sector blanking to mask public areas not within LSIORB Project right-of-way.

The CCTV hardware configuration shall support redundant power supplies and disk storage.

B.6.3 CCTV Data Storage - Digital Video Recorder

Recording of CCTV motion video shall be provided on a DVR at the Toll Zone level. At the Toll Facilities Host, it shall be possible to control the DVR in the following ways,

1. Ability to select and configure a display of up to 16 cameras for simultaneous display on CCTV monitors,
2. The spot monitor output shall be capable of displaying, on a standard CCTV or personal computer monitor, simultaneously what the DVR is displaying, including a specified grid of images or sequential time switching, and
3. The operator shall be able to access the DVR through the network to playback previously recorded video with selected lane activity data for review, or to observe activity through the downstream CCTV camera, while allowing the other images to be shown and observed without interruption.

It shall be possible to query the DVR based on date, time, and location or by transaction sequence number.

Each CCTV camera shall provide continuous capture of its target field of view. The DVR shall support a range of recording frames per second.

Camera recordings shall be write-protected, preventing anyone from altering the recording.

Recordings shall be able to be viewed within two seconds of file access.

The CCTV application shall enable the authorized user to copy, save, and print segments

of recorded data as images or full-motion video and to crop and alter those copies if necessary without altering the original.

The DVR at the Toll Zone shall have sufficient hard disk storage for 60 days of recording.

The CCTV recordings shall all be in one open standard format, such as MPEG-4.V11 (H.264) or MJPEG format, or other commercially open standard.

The CCTV solution shall automatically purge CCTV data not marked for archive for a configurable period of time, with the default set at 60 calendar days,

It shall be possible to automatically archive alarm events and other designated critical events regardless of purge cycle.

The CCTV network shall employ industry standard applications to display live streaming video, as well as full-file downloads.

CCTV cameras and applications shall remain in operation and continue recording when the communications fail, such as an interruption in communication with the Toll Zone controller or the access control mechanism.

The CCTV network shall support recording capability from common intermediate format to 4CIF. This setting shall be configurable downward for non-normal viewing.

B.7 Vehicle Classification Requirements

B.7.1 Vehicle Classification Functional Requirements

The RBOC shall be able to detect, separate, and classify vehicles at any location across the pavement in the Toll Zone from the curb or end-of-pavement to the opposite curb or end-of-pavement, as long as the vehicle is completely on the pavement.

Vehicle classification shall be determined on the basis of three categories; passenger cars, small trucks and large trucks. The toll classification structure must be configurable based on the Business Rules adopted by the Joint Board. It is possible that the vehicle classification scheme contemplated in the Business Rules that are ultimately adopted may be more sophisticated, and include factors such as vehicle height, and axle count.

The vehicle classification solution shall support degraded modes of operation if individual components fail. For example, loops shall detect vehicles if the profiler fails, and vice-versa. If both loops and profiler fail, the video cameras detecting movement shall detect the vehicle for purposes of building a transaction. This is shown as an example, but double redundancy is not required. The overall accuracy is what is required. The Joint Board simply directs the design to take advantage of any potential redundancy provided by the equipment elements. In this example, some cameras on the market have their own laser detectors which could be used if the remainder of the vehicle classification solution fails. The Joint Board does not prefer a second profiler. Smart loops are supposed to be able to count axles and separate vehicles in cases where the

profiler fails. Information regarding how the vehicle classification was obtained shall be part of the transaction message.

The vehicle classification solution shall separate vehicles, count axles, and measure the height and length of each vehicle passing a tolling point.

The vehicle classification solution shall be able to detect and correctly associate trailers and articulated vehicles.

B.7.2 Vehicle Classification Physical Requirements

AVC hardware and configuration shall be the same for all lanes and locations.

No in-pavement devices except loops or smart loops shall be used for the vehicle classification solution. As with any other design feature, any exception or alternative can be proposed but does not necessarily mean that the Joint Board will accept the proposed exception or alternative.

The location of any vehicle classification equipment, particularly overhead profiles, shall not encroach on the allowable vehicle clearance.

Overhead profilers shall be installed with a weather shield over them to protect them from direct sun and precipitation.

In-pavement loops shall be cut and installed by the RBOC Contractor and the pavement restored to a clean and drivable condition. The RBOC Contractor shall be responsible for maintaining the seals' waterproof integrity over the loops during the life of the RBOC Contract. This applies not only to AVC performance, but also to potential pavement performance related to water or roadway grime seeping under the pavement.

B.7.3 Vehicle Classification Software Requirements

AVC shall include maintenance diagnostics which can automatically detect component failures, erroneous data, or impossible or unlikely input, and generate an error or status message.

B.8 ETC Integration Requirements

The ETC Component will be separately selected by the Joint Board utilizing criteria established in Appendix C of this RFP. The RBOC Contractor shall be able to configure the Toll Zone design to be interoperable and meet all requirements of the MAP-21 legislation, or any successor federal surface transportation legislation, including 915 MHz technology or the most current version of 5.9 GHz ETC technology and standards. The RBOC shall employ the ETC tolling component selected by the Joint Board. The RBOC shall be able to function and interoperate, with minor changes at no additional cost to the Joint Board, with any major ETC Component chosen by the Joint Board. The RBOC shall also be able to function without any ETC Component, as a video-only toll facility.

The RBOC shall be capable of supporting open protocol solutions such as,

1. The most current version of Mark IV or Kapsch IAG technology readers and lane equipment, and
2. The most current version of the open protocols such as Title 21, American Trucking Association, and Commercial Vehicle Information Systems and Networks ,

The RBOC Contractor is not to include the cost of integration with ETC Component protocols in any of the pay items listed, or to include it as a separate pay item on the RBOC price proposal sheet. There will be no separate price for ETC integration accepted at a later date.

The RBOC Contractor must structure the RBOC to be able to address a read and write technology with any of the above protocols.

B.9 Communications and Networking

The RBOC Contractor shall provide the complete LAN within the lane level to include all devices, hardware and software, conduit and mounting brackets, junction boxes and NEMA 4X cabinets as needed. The Joint Board has no responsibility for roadside communications. The RBOC contractor shall install fiber optic cable between Toll Zone buildings located at the same intersection and along the roadway corridor. The RBOC shall have a minimum of 50% spare fiber optic cables.

The RBOC shall install either LC or SC connectors with patch panels that are rack mounted interconnect centers. The RBOC Contractor shall provide the complete WAN between all the Toll Zone buildings except for the following:

1. The RBOC shall provide the physical connection in trunk-line conduit between Toll Zone buildings,
2. The RBOC shall provide dark fiber and terminate them in a fiber patch panel in each Toll Zone building, and
3. The RBOC shall provide dedicated toll dark fibers from the Toll Zone building to the LSIORB Project Operations Center IT Room fiber patch panel.

B.10 Access Control

B.10.1 Proximity Card Access Control Requirements

The RBOC Contractor shall provide a proximity card access control solution for the LSIORB Project Toll Zone buildings and the major cabinet on each gantry. The LSIORB Project will require 200 keys or cards for a variety of locations. The RBOC Contractor will coordinate with the design-build contractor and Developer for solution selection and integration. However, the Joint Board has approval rights for the solution proposed by the RBOC Contractor and the design-build team and Developer.

All proximity card readers shall be time-synchronized with the Toll Facility Host to within 1/100 of one second.

Access control shall track data and provide reports showing:

1. Entry times, exit times and duration of stay for facilities and secure areas, and
2. Access times and duration of stay for toll equipment and other devices requiring secure access.

The proximity card access control solution shall have the ability to sort based on any parameters within a report.

Access reports shall have the ability to be viewed, printed, or saved to a file, directory, logical share, or local disk.

Access control shall be able to trigger CCTV events for recording and pre-sets.

B.10.2 Key Requirements

Cabinet Keys. The RBOC Contractor shall provide the Joint Board with all master keys to all equipment cabinets.

Key Copies to the Joint Board. The RBOC Contractor shall provide the Joint Board with copies of all keys for roadside equipment, and shall also maintain a possession log for all keys.

B.11 Roadside Maintenance Support Services

The RBOC Contractor shall be responsible for providing RBOC hardware and software maintenance for the term of the RBOC Contract. The RBOC is mission critical for the LSIORB Project and it is vital that it have the highest availability possible.

The RBOC Contractor shall perform administrative activities, corrective action, preventative maintenance, and corrective maintenance. The RBOC Contractor shall provide software upgrades for both custom and COTS software as releases become available and in accordance with the approved configuration management plan. The RBOC Contractor shall also design, develop, and install new application modules and enhancements as needed by the Joint Board, and coordinate those efforts with the ETC Contractor, the Operations Services Contractor, the Joint Board and staff, and other affected parties. Software and computer hardware maintenance shall be provided through qualified personnel and contractors acceptable to the Joint Board. The RBOC Contractor shall provide coverage by personnel either on duty or on call on a 24 hour per day, 7 day per week basis.

B.11.1 Response and Services

Response Time for Hardware and Software. The RBOC Contractor is required to respond, either through remote access or on-site, and begin working on problems within two hours of notification.

Response Personnel. The person(s) responding must have the skills required to fix the problem within the specified repair time.

A problem hot line shall be available on a 24 hour per day, 7 day per week basis. To track response time, all problem reports placed outside the RBOC Contractor's normally scheduled office hours shall be made via a dedicated 24 hour per day, 7 day per week basis telephone number which shall be maintained by the RBOC Contractor for the purpose of fielding after hours calls. Activity reports from the RBOC Contractor's after hours telephone service must be provided to the Joint Board on a weekly basis. Activity reports shall be developed in conjunction with Joint Board and revised as requested.

Communications. The RBOC Contractor shall provide the Joint Board with a list of project technicians, supervisors, and managers and their associated cellular telephone numbers, and shall update that list any time there is a change. All technicians are required to carry a cellular telephone and laptop computer. Supervisory personnel and managers are required to also carry a cellular telephone to ensure immediate and good lines of communications in times of emergency or need. The Contractor should provide the Joint Board with a regular schedule of who is on duty.

B.11.2 Repair Time

Hardware Failures. Hardware failures at the Toll Facility Host and lane levels shall be repaired within four hours of the first notification. The total response and repair time shall be measured from the exact time that the problem is first reported to the RBOC Contractor until the equipment is brought back online and is functioning at full capacity. If the repair time requirement is not met, the RBOC Contractor must notify the Joint Board once the repair time reaches four hours. The RBOC Contractor is required to have repair parts available at all times. If the repair is specialized, the RBOC Contractor will be required to have a backup plan until the parts are delivered.

Software Problems. Every attempt should be made to fix all software problems within three hours of being reported. Software problem response requirements are dependent upon whether or not revenue collection is impacted.

If revenue collection is impacted but repair will take longer than three hours, the status of problems shall be reported as soon as the situation becomes evident, and status reports shall be submitted thereafter at least every four hours, until the problem is corrected. The status reports will be provided to the project managers for Kentucky and Indiana as designated by the Joint Board.

System Availability. The RBOC Contractor shall be required to maintain a RBOC availability level equal to 99.9% at the Toll Facility Host and the lane levels. These levels of availability apply on a 24 hour per day, 7 day per week basis and are measured on monthly, quarterly, and annual basis. Preventive maintenance and equipment repair shall not affect or be included in the baseline availability calculations so long as equipment is repaired within the specified guaranteed repair time. The RBOC Contractor shall submit monthly, quarterly, and annual reports showing availability

percentages and calculations by lanes, ramps, Toll Zones, Toll Facility Host and RBOC-wide.

B.11.3 Configuration Management and Documentation

The RBOC Contractor shall provide software personnel to perform corrective action, maintenance, and enhancements to the RBOC.

The RBOC Contractor shall provide the following documentation and reports concerning RBOC configuration management,

1. Configuration management plan that shows how the RBOC Contractor will provide strict control over configuration management. This plan must include provisions for tracking changes, not only to the source code, but also to all other components, which comprise the RBOC. This includes, but is not limited to,
   a. Configuration files,
   b. Digital command language scripts, and
   c. Database scripts and parameter files,
2. The RBOC Contractor shall document configuration management activities and processes and must report such activities to the Joint Board on a quarterly basis. As part of that report, the RBOC Contractor must provide an overall summary of code changes and other modifications,
3. The RBOC Contractor shall provide change reports describing modifications as changes occur,
4. The RBOC Contractor shall provide software build reports that shall include a comprehensive list of all components included in each software delivery, along with a description of what changes were made to each component, and
5. The RBOC Contractor must provide the Joint Board with a comprehensive set of documentation on a quarterly basis. The quarterly documentation delivery shall include updates to the RBOC documentation to reflect all changes which were implemented during the quarter.

B.11.4 Ongoing Software Development

Notification. The RBOC Contractor is required to provide advance notification when a build is ready for delivery and the Joint Board reserves the right to review and approve the contents of the build prior to its installation.

Test Plan. The RBOC Contractor must provide a description of the testing conducted and a summary of test results along with the written test plan executed for each build prior to its deployment into the production environment.

Testing. The RBOC Contractor shall perform testing, installation and verification of new software builds at lane, Toll Zone, Toll Facility Host, and RBOC levels. Prior to implementing any new software builds in the operational environment the RBOC Contractor must notify the project managers for Kentucky and Indiana of the impending implementation, the expected results of such implementation and the actual results of

the implementation. New software builds shall not be implemented without project manager approvals.

Development Computers. The RBOC Contractor shall perform development and testing activities primarily on development computers or servers located in its office. If these computers are owned by the Joint Board, the RBOC Contractor agrees to provide a secure, suitable environment for these computers and, since they may contain copies of confidential data from the LSOIRB Project's production environment, the RBOC Contractor agrees to provide safeguards to prohibit access by anyone other than approved personnel specified by the Joint Board. This includes restrictions on physical access as well as access via the RBOC Contractor's network. A description of the safeguards the RBOC Contractor has in place must be provided to the Joint Board.

Software Licenses. Any purchase of licenses or support renewals for these development and test machines must be pre-approved by the Joint Board. The RBOC Contractor is responsible for ensuring that licenses and support renewals are kept up-to-date on these machines and is required to maintain a schedule of all licenses and support renewal dates. Any late fees or penalties incurred due to the RBOC Contractor's lack of control over the license and support process shall be the sole responsibility of the RBOC Contractor.

Quality Control. The RBOC Contractor shall maintain a quality control and assurance plan and submit updates that reflect work accomplished during maintenance activities. The RBOC Contractor must show how the work of the personnel will be evaluated and how training will be provided both initially and as an ongoing component.

Coordination of New Software Builds. When a new software build is required, the RBOC Contractor must cooperate closely with other Contractors engaged by the Joint Board and Joint Board agents and employees, to ensure that the testing is properly performed and that implementation is coordinated to the extent that all tolling components perform normally when the software installation is completed and to assure that users are aware of any modifications that impact the user interface before the build is installed.

B.11.5 Ongoing Roadside Support

New Installation and Integration. The RBOC Contractor shall perform required installation and integration of new software, including but not limited to, application software, databases, operating systems and other supporting software.

Monitoring. The RBOC Contractor shall provide ongoing monitoring and regular timely reporting of findings to the Joint Board.

Database Care. The RBOC Contractor shall provide ongoing database performance monitoring, maintenance, upgrades, revised indexing and tuning, as needed to optimize

performance. The RBOC Contractor shall provide a database maintenance plan that describes in detail all maintenance required weekly, monthly, quarterly, and annually.

Backups. The RBOC Contractor shall be responsible for daily backup of all the entire RBOC and all data contained therein. In addition, the RBOC Contractor shall be responsible for performing restore and recovery of any component as required after failure.

Supply and Equipment Purchases and Leases. The RBOC Contractor shall submit pricing quotes and obtain Joint Board approval for all purchases or leases made on behalf of the Joint Board. This includes, but is not limited to, third party vendor services and equipment, software, support agreements, licenses and equipment repair.

Migrations and Upgrades. The RBOC Contractor shall perform migration and upgrades if required by the Joint Board.

Warranty Tracking. The RBOC shall provide a means to track warranties for all hardware associated with the RBOC Contract to avoid unnecessary equipment repair costs, either using the MOMS or another application or routine.

Resource and task order estimates shall be provided by the RBOC Contractor, as requested by the Joint Board, for any and all projects which may become necessary during the life of the RBOC Contract. At the end of each project, the RBOC Contractor shall provide a report listing the actual hours spent on each project and any related equipment costs.

Scheduling. The RBOC Contractor shall work with the Joint Board and its members to establish schedules for implementing Toll Facility Host, lane, and Toll Zone hardware changes and shall provide all logistical support and installation related labor for Toll Zone, lane and Toll Facility Host hardware upgrades. This includes Joint Board approved maintenance of traffic plan.

Training. The RBOC Contractor shall provide training of Joint Board staff, Joint Board member staff, ongoing training of Operations Services and CSC staff or other designees on any aspect of the RBOC required by the Joint Board.

Maintenance Records. The RBOC Contractor shall maintain current and accurate records for all RBOC hardware and software maintenance work. The records shall be organized and managed by a computerized data and information management solution. The Contractor must maintain records in an electronic form easily retrievable and transferable to the Joint Board. All records are the property of the Joint Board and as such the Joint Board has the right to review and retrieve data and records at any time via electronic or hard copy. The proposer must provide a full explanation of how this requirement will be fulfilled. In addition, the Joint Board must have direct access, restricted to designated Joint Board personnel, to the RBOC Contractor's maintenance records database.

B.11.6 Support from Contractor's Non-local Offices

The proposer shall provide a plan for using personnel from offices other than its local office for support and for software maintenance and enhancements, including a description of remote software support personnel and facilities. This plan must include a description of the means through which non-local staff will access the LSIORB Project's RBOC. Any access from non-local offices must be pre-approved by the Joint Board and the plan must include a description of the approval process. Staff members from the RBOC Contractor's non-local offices are subject to the staff requirements set forth in the RBOC Contract. A viable plan for non-local participation must be provided as a supplement to local work effort, not as a substitute for local participation. The Joint Board expects key personnel to be available locally to ensure adequate progress is being made at all times

B.11.7 Roadside Maintenance Staffing

B.11.7.1 Full-Time Staff

The RBOC Contractor shall maintain a full-time maintenance staff to effectively support and maintain the RBOC on a 24 hour per day, 7 day per week basis.

B.11.7.2 The Joint Board's Right to Approve and Remove Staff.

The Joint Board maintains the right to review résumés for, and to interview and approve members of, the RBOC Contractor's staff who will be working on the LSIORB Project.

B.11.7.3 Bonding and Background Checks

All maintenance personnel, as well as all management and supervisory personnel shall be bonded. In addition, the RBOC Contractor must engage the services of a third party which specializes in performing and assessing criminal background checks to perform a background check for all members of the RBOC Contractor's staff who will be working on the LSIORB Project. The RBOC Contractor must submit a report annually that shows a list of employees and a certification that they are all bonded. This report must be updated and submitted during the year any time an employee is added to the workforce. The Joint Board reserves the right to review the results of the background checks.

B.11.7.4 Drug Testing

The RBOC Contractor must provide a drug testing plan, where all RBOC Contractor employees are tested before beginning work on the LSIORB Project and are retested within a six month's time frame over the life of the RBOC Contract.

B.11.7.5 Credit Checks

The Contractor must engage the services of a third party which specializes in performing and assessing credit checks to perform a credit check for all members of the Contractor's staff who will be working on the LSIORB Project.

B.11.7.6 Contractor Staff Identification

Each member of the RBOC Contractor's staff accessing any aspect of the LSIORB Project, whether operating out of the RBOC Contractor's local office or from one of the RBOC Contractor's non-local offices, must have unique user account, username, and password, and be approved by the Joint Board.

B.11.7.7 Staffing Plan

The RBOC Contractor shall provide the Joint Board with a staffing plan indicating positions and personnel to be working on the LSIORB Project throughout the duration of the RBOC Contract. The Joint Board reserves the right to add or subtract positions as it deems necessary. If the Joint Board requests that an individual be removed from the LSIORB Project, the RBOC Contractor shall comply within 24 hours of such a request, unless safety or security concerns mandate that the removal happen immediately. In the event that the Joint Board requests removal of a member of the Contractor's staff, all necessary security measures must be taken by the RBOC Contractor to ensure that the LSIORB Project's and the Joint Board's data is protected. This includes changing passwords, retrieving access cards, and other measures deemed necessary.

B.11.7.8 Timesheets

When performing hourly work, installation support, and extra work the RBOC Contractor shall provide detailed timesheets for each employee and a monthly summary in an electronic format acceptable to the Joint Board. Timesheets will show an hourly breakdown of each staff member's activities allocated by work task, if applicable.

B.12 Toll Zone Vaults (Building) General Requirements

The Design RBOC Work includes design, engineering, fabrication, delivery and erection of Toll Zone Vaults (Building), site work for the Zone Vault, footers and pad, cabinet concrete pads not included in the Design Build or Developer contracts, electrical work, electric services to the vault, conduit duct banks for electric and fiber optic communication and associated junction boxes necessary for the infrastructure as needed for a fully functional tolling system.

The RBOC shall coordinate with the Design-Build Contractor and The Developer for all facets of the final design and construction of the AET Toll as needed for a fully functional tolling system. Some information contained within this AET Toll Zone scope of work and the AET Standard Drawings is typical and may not be applicable for the specific tolling system provided by the RBOC. The RBOC shall coordinate with the Design-Build Contractor and Developer and shall consider all local conditions and proposed tolling equipment and produce the best possible fully engineered design for conduits, boxes and pads to support the tolls integration. Accurate record drawings shall be provided to Joint Board at the completion of work indicating all infrastructure elements installed with locations indicated on the record set of drawings. Provide the Joint Board with four (4) sets of keys to each door and cabinets. Provide the Joint Board with a binder

containing equipment installation/maintenance manuals, warranty information, etc. for all installed equipment; provide electronic (soft) copies All such materials on CD or DVD with the binder.

Design, construction drawings, record drawings, details, and specifications described within this scope are the responsibility of the RBOC, unless noted otherwise. Provide all details and plans consistent with industry standards and professional requirements. Design drawings shall be provided by a Registered Professional Engineer of the state where the equipment is to be installed.

B.12.1 AET Toll Zone Vault (Building)

Location:

Do not locate the AET Toll Zone Vaults adjacent to areas that may be subject to the infiltration of water, steam, humidity, heat or other adverse atmospheric or environmental conditions. Avoid site locations that are below water level or near ponding water resulting from rainfall events. Grade the AET Toll Zone Site such that water flows away from the Vault.

Do not locate AET Toll Zone Vaults adjacent to sources of constant, excessive, low or high frequency noise, such as air-handling equipment, pumps, and the like.

Do not install equipment and utilities not specifically required for the equipment Vault, including utility pipes, wiring, cabling, ductwork or other electrical equipment within, through, or under the AET Toll Zone Vault.

Coordinate final positioning of the AET Toll Zone Vault with the Design Build Contractor and the Developer.

General Configuration:

Design AET Toll Zone Vaults to be typical in functionality and appearance throughout the project limits. Provide AET Toll Zone vaults of steel, concrete, or masonry construction that is aesthetically consistent with and does not require painting and/or routine maintenance. Provide prefabricated, pre-cast construction. Wood construction is not allowed. Provide durable, watertight, secure, vault requiring minimal maintenance. Provide a roofing system with a minimum 20-year warranty. Residential type shingles are not allowed.

The Vault shall have minimum interior dimensions of 12’ x 12’. Design finish ceiling height to be not less than 9 feet as measured from the finished floor elevation. The vault shall have a minimum R-24 insulation.

Design AET Toll Zone Vaults for a 2 hour fire rating, unless superseded by the Local and State Fire Code standards. Provide a Class C fire extinguisher rated for the size of the equipment vault mounted at the entrance wall. Coordinate the final location with the Design Build Contractor and Developer.

The vault shall be watertight and not allow water intrusion in extreme weather conditions. All conduit and utility penetrations shall be sealed watertight. The vault will be tested upon completion to verify the entire assembly is watertight.

Architectural Plans:

Prepare an architectural plans package for the AET Toll Zone Vaults, to include the Architectural, Site Preparation, Structural, Electrical, Communication, HVAC, and Mechanical Plans, finish schedule and other documents necessary for a complete turnkey construction of the AET Toll Zone Vaults. Submit design calculations including structural, foundations, HVAC and electrical calculations for all components of the AET Toll Zone Vault with plans. A professional engineer registered in the state where the equipment is installed shall seal all designs, plans and calculations. Design AET Toll Zone Vault to meet all zoning and building code requirements. Prepare the AET Toll Zone Vault plans and designs in accordance with the State Building Codes, latest edition. Provide facility plans that are accurate, legible, and complete in design, drawn to appropriate scales and furnished in reproducible form. Obtain all required permits to construct and occupy AET Toll Zone Vaults.

HVAC:

The RBOC shall furnish and install the AET Toll Zone Vaults with one Commercial Grade HVAC unit. Current heat load requirements are estimated to require a minimum of a 2-ton HVAC unit for the mainline vaults and a 1 1/2-ton HVAC unit for the ramp vaults. Heat shall be calculated based on the regional temperatures in conjunction with the actual internal heat load of the facility. These load requirements are based upon anticipated toll collection equipment. Actual heat loads shall be used in design of the HVAC system shall be confirmed by the RBOC.

Provide a dual setpoint thermostat and install heating and cooling ducts to minimize interference with wall surface area and conflicts with electrical and communication conduits, cable trays, and cabling.

Vault Doors:

Provide exterior access doors that swing outward following the AET Standard Drawings. Provide exterior doors constructed of steel with steel frames. Design and install exterior door to accommodate access-control keypads and proximity card readers. Provide keyed door locks for alternate entry method. Provide a universal key so one key can

access all vault door locks. Provide door construction to suitably protect, and seal, and prevent the ingress of water, moisture, dust, gases and wind-driven rain into facility.

Doors, frames and hardware shall be extra heavy duty, full flush as defined in SDI A250.8 and shall have a minimum 2-hour fire rating in accordance with ANSI/UL 10C, "Positive Pressure Fire Tests of Door Assemblies", unless superseded by the State and Local Fire Code Standards.

Additionally, the doors to the AET Toll Zone vault shall be unobstructed such that a vehicle or portable lift could access these locations.

Interior Finishes:

Provide interior walls and ceiling fully sealed and painted with durable high quality paint. The interior finish color should be high, bright white semi-gloss.
Provide industrial anti-static non-slip tile or an epoxy flooring material.

Lighting:

Provide interior lighting consisting of T8 industrial fluorescent lighting fixtures with wall mounted occupancy sensor and manual on/off. Provide a minimum 50 foot-candles of illumination at a 30-inch work plane. Provide battery operated backup emergency packs with integral halogen heads at entrance/exit. Provide lighting point-by-point calculations for interior lighting as part of Architectural Plan submittal.

Provide motion sensor control, exterior lighting to provide an average maintained lighting level of 1.0 foot-candle with a average uniformity ratio of 3:1 to 8:1 within 20 feet of the vault entrance and generator. Provide full cut-off exterior lighting fixtures as defined by IESNA and that are International Dark-Sky Association (IDA) compliant. Provide lighting point-by-point calculations for exterior lighting as part of Architectural Plan submittal. Exterior lighting shall not illuminate the roadway in such a way that it would distract drivers. Exposed conduit on the exterior of the vault is not allowed for the exterior lighting system

B.12.2 AET Toll Zone Gantry Design Requirements

Design and construct an equipment-mounting frame and cantilevered overhead scanner frame as required in the AET Standard Drawings to be used for the installation of the toll collection equipment.

Equipment mounting bar shall be installed 18" below the gantry. The mounting bar shall be able to support the RBOC toll equipment.

Coordinate the design the gantry structure with the Design Build Contractor and Developer to provide for the equipment mounting frame, and overhead scanner frame to support the equipment shown in the AET Standard Drawings without vibration from wind forces or drafts from vehicles passing under the gantry.

A 12" (H) X 12" (W) divided enclosed watertight wireway shall be located on the top of the truss. A 24" x 24" x 12" enclosed watertight junction box shall be installed on the end of the wireway to accommodate connection of the conduits extending up through the column. The extent of the wireway is shown in the AET Standard Drawings. The wireway shall accommodate connections where needed to facilitate the running of cables to equipment located at the lane/shoulder centers and lane/shoulder lines. Wireways and boxes shall be grounded and bonded per NEC.

All conduit, risers and cabling requirements shall be coordinated with the Design Build Contractor and the Developer.

Provide conduits terminating above the top of the gantry column and at the at-grade control/ junction boxes at the base of the gantry as shown in the AET Standard Drawings.

Design communications conduit connections between the conduit at the top of the column and the wireway junction box to accommodate a minimum 18" cable bend radius. Design power conduit connections between the conduit at the top of the column and the wireway junction box to accommodate a minimum 6" cable bend radius.

Locate hand-holes, stub-outs, junction boxes, or control boxes, for access to equipment cabling and electrical wiring out of view of approaching traffic if possible.

B.12.3 Foundation/Sidewalk/Concrete Maintenance Pad

As shown in the AET Standard Drawings, construct concrete pads that will serve as the Vault foundation (will serve as maintenance pad, sidewalk, etc.) and equipment cabinet foundations. The Vault and equipment cabinet foundations shall be 8-inches thick minimum. Design and grade site so water flows away from the Vault slab and equipment pads.

The sidewalk and pad areas shall have a brushed finish.

Locate the generator on the Vault foundation concrete pad as detailed in the AET Standard Drawings.

The AET Toll Zone Vault shall include a 6-inch curb that separates the foundation from the adjacent parking surface. Refer to the AET Standard Drawings for additional

requirements. Provide a ramp from the adjacent driveway centered on the door for loading/unloading.

B.12.4 AET Toll Zone Conduit and Junction Boxes

Design and construct required conduits and cabling infrastructure necessary to establish the communications fiber-optic trunk line path between the CSC, AET Toll Zone vaults, gantries, cabinets, and junction boxes. Install the requisite number and size of conduits, boxes and related equipment as scoped in the AET Standard Drawings to provide a fully functional AET tolling system.

Spare conduit shall be installed in all trunk runs. Trunk Runs are for connection of:

- Toll Zone Vault to Toll Zone Vault
- Toll Zone Vaults to CSC
- Gantry to Toll Zone Vault

  Minimum trunk line shall be four (4) two inch (2”) conduits.
- Two for communications
  - One (1) used plus one (1) spare
- Two for power
  - One (1) used plus one (1) spare

Ensure junction boxes are provided such that the last set of junction boxes before a conduit route enters a toll vault are not placed higher in elevation than the vault slab itself. (This will prevent water-filled boxes from draining into the vault.)

Coordinate with the Design Build Contractor and Developer throughout the conduit and junction box design and installation.

Provide separation between power and communications conduit as specified in the AET Standard Drawings.

Provide underground conduit duct bank when crossing roadways per the Standard Specifications of the state where the conduit shall be installed. For duct bank crossings of existing roads, bore or open-cut as site conditions dictate. Trenched conduit, directional bores or jack and bore shall be in accordance with the latest edition of the *Standard Specifications*.

Terminate conduit through the floor slab of AET Toll Zone vaults above finished floor elevation.
Furnish conduits stubbed out at all concrete pads with plastic bushings (or comparable material) to prevent cables from being damaged when being pulled through conduits or shifting during use. Clearly label each end of the conduits and include conduit plugs, pull line in each conduit, and tracer wire (as needed).

Provide rigid metallic conduit in above ground installations and where indicated on the AET Standard Drawings.

B.12.5 Electrical

Provide electrical service to the AET Toll Zone Vaults.

Mainline AET Toll Zones:

- Electrical service to the Mainline AET Toll Zones shall be 120/240V single-phase service.
- Provide an operating voltage of 120/240V at minimum 200 amps. Additional capacity may be necessary if other auxiliary components are powered from the Toll Zone Vault such as lighting or signage.
- Provide electrical power panel in a conventional NEMA 1 surface mount panel board enclosure, which supplies power to the AET equipment.
- Provide at a minimum a 200 amp Main Breaker with a minimum of 42 circuits. (Provide 20% spare installed breakers)
- Provide UPS Breaker, disconnect and Bypass in the size to accommodate the maximum capacity of the UPS.
- Provide a main ground bus bar connected to the Toll Zone Vault grounding system
- Provide a main Toll Zone Vault grounding system that provides no more than 20 ohms resistance at the main ground bus bar.
- If power is provided from a single point for multiple Toll Vaults or locations, a Main Distribution Panel may be used.

Ramp AET Toll Zones:

- Electrical service to the Ramp AET Toll Zones shall be 120/240V single-phase service.
- Provide an operating voltage of 120/240V at minimum 100 amps. Additional capacity may be necessary if other auxiliary components are powered from the Toll Zone Vault such as lighting or signage.
- Provide electrical power panel in a conventional NEMA 1 surface mount panel board enclosure, which supplies power to the electronic toll equipment.
- Provide at a minimum a 100 amp Main Breaker with a minimum of 24 circuits. . (Provide 20% spare installed breakers)
- Provide UPS Breaker, disconnect and Bypass in the size to accommodate the maximum capacity of the UPS.
- Provide a main ground bus bar connected to the building grounding system
- Provide a main Toll Zone Vault grounding system that provides no more than 20 ohms resistance at the main ground bus bar.
- If power is provided from a single point for multiple Toll Vaults or locations, a Main Distribution Panel may be used.

The RBOC is responsible for the design of the electrical loading, ampere capacity rating, circuit poles, etc. for the final power panel design.

The RBOC is responsible to establish electrical power and communication/data service requirements for each toll gantry.

Provide building electrical power to lights, switches, receptacles, HVAC system and other infrastructure items for operating and managing the AET Toll Zone vault.

Provide the AET Toll Zone vaults with 125 volt rated duplex receptacles at approximately 10-foot centers at 18 inches above finished floor, as shown on the AET Standard Drawings.

Coordinate with the local utility companies, make application(s) in the name of the Joint Board, and pay all deposit fees to provide necessary electrical and communication services for the AET Toll Zones. The RBOC shall be responsible for any application and connection fees. The RBOC shall be responsible for any utility service installation from the power meter to the AET Toll Zone vaults' power panels. Provide power service run and subpanels for situations where subpanels are required on toll equipment pads. The RBOC will not be responsible for paying the monthly power bills.

B.12.6 Grounding

Provide a master grounding system at all new and revised AET Toll Zone Vault electrical service points unless otherwise specified. In addition to National Electrical Code (latest edition) requirements, test grounding electrode resistance at connection point to electrical service ground bus for a maximum of 20 ohms. Furnish and install additional ground rods to grounding electrode system as necessary to meet test requirements. Submit a completed Grounding Test Results form. Provide a length of warning tape 12-inches below finished grade directly over grounding electrodes and conductors.

B.12.7 Lightning Protection

Design and install Lightning Protection System for the AET Toll Zone Vaults and Gantries in conformance with and certified by the Lightning Protection Institute (L.P.I.) Installation Code LPI-175. Products shall comply with Underwriters Laboratories, Inc. Master Label Code 96A and NFPA 780. The lightning protection system installer shall submit a UL Master Label and L.P.I. system certification upon completion of the work.

B.12.8 Standby Generator

The RBOC shall verify the size of the standby generators. Where more than one Toll Zone is served from a ramp or mainline, alternate sizing will be necessary and shall be coordinated with Joint Board project manager for the site.

Provide standby generator to power each complete AET Toll Zone to include vault, toll and communications equipment, video tolling cameras and lights, sensors, lighting, electrical system, security system, monitoring and HVAC systems. Size the natural gas or propane standby generator to provide 100 percent design load of the AET Toll Zone backup power plus 25% additional capacity. The standby generator is anticipated to be 35 kW for ramps and 45 kW for mainline applications. This anticipated sizing is based on: 2 ton AC unit; 15 KVA UPS, no street lighting or other connections to roadway systems. Provide a generator disconnect as per the AET Standard Drawings.

Fuel may be Propane or Natural Gas.

Propane tanks shall be sized based on the actual maximum load for a minimum of 5 days. Provide standby generator with an automatic transfer switch designed to run after 5 seconds of power outage. Evaluate and include a method for reducing the noise impact caused by the standby generators to residences near proposed AET Toll Zone vault locations. The initial fill of the tank is the responsibility of the RBOC. Design propane fuel tank system compliant with all local, State, and Federal requirements and comply with NFPA 54, National Fuel Gas Code.

Natural Gas piping and service shall be the responsibility of the

The standby generator shall be provided with an outdoor-rated housing and mounted on the concrete pad adjacent to the vault with clearances as shown on the Standard Drawings, unless additional clearance is required by code. Include a muffled exhaust system for the generator.

Provisions for Natural Gas to the Toll Sites are part of the RBOC contractor responsibilities. The RBOC shall pay all fees and installation costs to provision natural gas service to the Toll Zone Vault locations. The Natural Gas Service shall be in the name of the Joint Board. The RBOC is not responsible for paying the Gas Bill for the generators.

B.12.9 Sensing Devices

Provide a single propane fuel tank with a dry level sensing device (hard-wired, 4-20mA, 0-5 VCD or 0-10 VDC typical) that will interface with vault monitoring system.

Install dry contact (form C) in the automatic transfer switch to interact and directly communicate via contact closures with building automation system for critical status indications.

Provide Tolls Systems Integrator with Interface Control Documents (ICDs) as a part of construction submittals for generator, transfer switch, and propane tank to facilitate communications.

B.13 General Back Office Concept

The RBOC Contractor shall provide a complete, functioning, state-of-the-art AET System and toll account management solution based on ETC and video for identification of vehicles.

The LSIORB back office shall be configured and sized to support the functionality of the LSIORB AET System, and shall also support growth at a rate of 15% per annum.

The overriding functions of the RBOC with respect to the back office are to:

1. Accept transactions and roadside data from the roadside Toll Facility Host,
2. Manage accounts,
3. Collect revenue via those accounts,
4. Provide the final check and processing of all video,
5. Report to the Joint Board on all revenue collection activities, and
6. Interface with all external contacts to the LSIORB Project such as,
    a. Retail toll account assistance providers,
    b. Interoperable agencies and entities supporting interagency operations,
    c. Financial Institutions,
    d. Department of Motor Vehicles in Kentucky and Indiana and any other state identified by the Joint Board, and
    e. Other sources of license plate identification.

The RBOC shall provide the following general functions:

1. Transaction host database,
2. Active video images storage,
3. Archive transactions and video images pursuant to Indiana and Kentucky record retention policies,
4. Support roadside operations with Transponder and license plate lists, toll rate tables, etc.,
5. CSC account management functions,
6. IVR automated telephone service functions for customer service,
7. Web interface and web-hosting functions for customer service with secure encryption, including a mobile device website,
8. Video image review, processing and license plate lookup,
9. AET System audit and reconciliation,
10. Operations Center LAN,
11. Interface with the Toll Facility Host on the LSIORB Project LAN,
12. Provide external communications to support the web server and CSC telephone calls, and

13. Provide a full set of comprehensive reports that allow for complete transactional and financial reconciliation as well as key operational measurements.

Host System. The primary Back Office Host must be located at the Operations Center, unless other acceptable technological solutions are proposed and approved by the Joint Board.

Credit Card Processor. The RBOC Contractor shall propose and provide an independent reliable credit card processing system.

The RBOC shall support all electronic account processing only.

The RBOC shall include the entire Operations Center LAN and data infrastructure to support the Toll Facility Host, and all servers and workstations.

The RBOC shall be accessible via thin client applications with separate access authorizations for separate categories of users including:

1. CSC representatives working at the Operations Center,
2. CSC representatives working at remote storefronts provided by the Operations Services Contractor, via virtual private network over the internet,
3. Joint Board management at the Operations Center, and
4. Joint Board management at the administrative offices via virtual private network.

The Joint Board requires that the DMV in both Indiana and Kentucky have access to the RBOC thin-client application for access to information relating to funds due pursuant to vehicle registration holds for the associated payments required to release the registration hold. This process will be finalized during design. Secure encrypted connections between clients and servers are required.

The RBOC shall be ultimately responsible for correct account management.

The RBOC shall provide financial reports to audit performance of the RBOC, of customer accounts, of account funds transfers, and all other financial activities impacted by tolls.

No Loss of Transactions. The RBOC shall ensure that no transactions are lost and will provide reports and the capability to verify transaction sequence numbers for purposes of audit and review. Transaction sequence number gaps shall be flagged and reported by the Back Office Host and compared to the Toll Facility Host transactions gap alarm reports.

System Reconciliation. The RBOC shall provide a reconciliation process and reports on a daily basis of transaction and revenue data received from each Toll Facilities Host processed by the Back Office Host. The RBOC shall track and isolate differences. The process shall extract data separately from each Toll Zone controller and compare that data to the total processed by the Back Office Host, and shall provide a report showing the results of the reconciliation process and the summary and detail data.

The RBOC Contractor shall be responsible for the scheduling and monitoring of batch jobs and tasks through completion. The Operations Services Contractor shall be responsible for verification that all batch jobs and tasks are completed as required.

B.14 Interoperability

The RBOC shall support toll account interoperability with external toll operators for both Transponder and video toll accounts, and be able to exchange data with other agencies and DMVs. The Joint Board intends to cast the interoperability net as widely as possible and will be compliant with MAP-21 or its successor with respect to federal surface transportation legislation.

The RBOC Contractor shall provide the entire suite of exchange data reports, transactions, reconciliation, and settlement reports as identified in the current version of the IAG interface file specification. Either this standard or another applicable standard shall be employed. These processes and files shall include at a minimum secure communication of:

1. Transponder files, which means receiving from and sending out to IAG members. Send down to the Tolls Facility Host and the lane utilizing agreed upon file specifications,
2. License Plate files, which means receiving from and sending out to IAG members sent down to the Tolls Facility Host and the lane utilizing agreed upon file specifications. Processing transactions associated with IAG members and accumulating those transactions by agency for exchanging transaction files,
3. Receiving transaction files from interoperable agencies,
4. Posting of interoperable transactions to customer accounts for transactions occurring on interoperable facilities,
5. Reconciliation of all files sent to and received from IAG members, and
6. Settlement reports showing wire transfers out and in.

At this time, the Joint Board anticipates joining the IAG, but no agreements have been made. The Joint Board may decide, at its sole discretion, to join a separate interoperability agreement in lieu of, or in addition to, the IAG.

As specifications are developed for the Alliance for Toll Interoperability and these specifications, terms, and conditions are found to be acceptable to the Joint Board, these may be employed for video data and transaction exchange.

B.15 Customer Service Center Application Requirements

B.15.1 CSC General Requirements

The RBOC must provide the back office software, equipment, maintenance and training necessary to operate an efficient, responsive, and professional CSC that is interfaced seamlessly with the VPS. The CSC must be turnkey, user friendly, efficient, accurate,

dependable, easily expandable, and modifiable. The CSC must support the functioning of front counters, telephone centers, mail, e-mail services, interactive website to include a mobile device-centric website, and all other back office activities. The CSC must be capable of supporting other LSIORB Project retail sites, and other remote locations to include services for Transponder sales, account payment posting, violation payment processing, account closing, and account establishment and maintenance.

The CSC shall support ETC and video-based transactions, and shall support variable pricing, congestion pricing, Transponder pricing, and interoperable transactions. The CSC shall process ETC transactions sent from the lanes to the Back Office Host and post them to customer accounts, and through the interface with the VPS automatically post ETC customer transactions initially classified as video transactions. The CSC shall also process video transactions for license plate-based customer accounts, and provide for a differential in the toll rate based on Joint Board Business Rules.

The CSC must include an interactive website component that shall allow customers to initialize and maintain an account, order Transponders, make payments via PCI compliant secure transactions, access statements and historical data, resolve violations and e-mail the CSC. The website must be accessible by mobile device. The CSC must include an IVR, provide call management, and provide a comprehensive reporting. The Joint Board shall be able to monitor call management in real time for both the CSC and the VPS.

The CSC and the database shall be structured such that growth is accommodated easily and without negatively impacting response times or creating problems in its operations. Access shall be easy, and reports shall be configurable and accurate. The RBOC Contractor must define how the Back Office Host will meet these requirements.

Reconciliation. The CSC must be fully auditable and provide for a robust reconciliation processes for customer service representative transactions, ETC transactions, video transactions, account balances, front counter and call center activity, adjustments, credit card transactions, and payments.

B.15.2 CSC Functional Requirements

The CSC must be configurable and efficient, and it must include,

1. Account management, initiation, and maintenance,
2. Automatic noticing and correspondence production and tracking,
3. Transponder inventory and tracking,
4. Interactive and fully integrated customer website, including a mobile device website,
5. IVR, call management , and reporting,
6. Operational statistics for key performance indicators,
7. Audit, reconciliation, and reporting, and
8. Customer management and marketing

The CSC must be easily configurable to accommodate Joint Board Business Rules.

Efficient Operations

1. The RBOC must provide automated processes for the customer service representatives to provide efficient and friendly customer service. The RBOC must be efficiently designed to optimize and reduce the number of screens the customer service representatives use most frequently,
2. The management information solution must allow easier access for CSC management staff without involving information technology staff. This includes customer information, transaction statistics and production statistics,
3. The RBOC must be user friendly. The customer service representatives shall have all access needs on single screen. Adding more functioning customer service representative stations beyond that which have been specified in this RFP shall not negatively affect the overall performance or response times,
4. The ability to export data to other applications, such as the Joint Board general ledger, Microsoft Excel, and other applications or governmental agencies.
5. The RBOC must be able to accommodate a retail model for the Transponder distribution network, and should provide the capabilities for utilizing CSC counter space,
6. BOS must support kiosk-type machines for customers to do online transactions and retail type transactions. Kiosks are to provide public access to the full functionalities of the CSC's main website as demand requires, and
7. BOS must support mobile van services if one is used for remote customer account establishments and issuance of Transponders.

The RBOC Contractor is required to equip the mobile CSC, if one is used, with the appropriate hardware and software to securely connect to the RBOC and perform all account opening and maintenance functions. Equipment for the kiosks is not required at this time as the total numbers have not been determined. However, the RBOC must be able to support a secure web based connection for the kiosks whether wireless or over a third party network.

Account Management. The CSC shall provide all the functionalities necessary to properly manage and maintain customer accounts. Access shall be based on roles, job functionalities, and job titles.

B.15.3 Account Types and Account Management

B.15.3.1 Account Types

An ETC account with Transponder shall be designed to be the predominant and preferred means of toll collection. These account types may be either pre-paid or post-paid under limited circumstances as outlined in the Joint Board's Business Rules. Accounts will have at least one Transponder and one license plate associated with it.

UV account parameters and trigger points shall be completely configurable. These

accounts are temporary in nature and are linked to individual license plates. Account information shall be retained. As the RBOC attempts to identify, notify, and collect from the vehicle owner the tolls due, the UV account may become either:

1. An ETC account, if
   a. A Transponder is acquired,
   b. Payment is made, and
   c. A registered payment method, pre- or post-paid, is established.
2. An Registered Video Transaction Account, if
   a. Payment is made, and
   b. A registered payment method, pre- or post-paid, is established.
3. Remains an Unregistered Video account if payment is made but no other action is taken, or
4. Becomes a violation account if no action is taken.

An account becomes a violation account after non-payment of invoices or notices. These accounts will use the data provided through the Indiana and Kentucky DMVs, as well as other sources, based on the license plate data and the registration data associated with them. These accounts shall be used to track violation transactions and histories by license plate. Outbound telephone calls may be required for any customer whose low balance letter or negative balance letter is returned and the customer is not able to be contacted be e-mail or text

Non-Revenue accounts must be made available by the RBOC Contractor and supported, but will not be offered at the onset of tolling. The RBOC shall accommodate the sale and tracking of Transponders and the tracking and posting of non-revenue transactions. The RBOC shall be cable of enabling a credit card to be associated for the purpose of toll payment.

The RBOC and Operations Services Contractor(s) must be capable of handling large business and commercial accounts that allow for large numbers of Transponders and license plates to be housed under a single account. These large accounts must function and perform in the same manner as an individual account and should not cause processing delays from a customer service perspective. When servicing a commercial account through the website, IVR, or in person, the commercial customer must be able to perform all necessary account maintenance functions in an efficient manner. At all times, regardless of the method of contact, a commercial customer must be able to quickly access a customer service representative trained specifically, and dedicated exclusively, to responding to the needs of commercial customers.

B.15.3.2 Account Initiation and Maintenance

Account Initiation and Payment. Establishing an account shall be easy and intuitive. The account initiation process shall include all the information required to properly activate, use, and manage an account.

The RBOC shall be able to automatically notify customers in various scenarios when

customer information is entered, for example when a user inputs the license plate number, telephone number, address, or credit or debit card number. The RBOC shall provide screens and routines to support Transponder programming should the LSIORB Project use Transponders requiring programming for issuance. The CSC shall restrict the use of the same credit card number for automatic replenishment to one account unless supervisory approval is obtained. The RBOC shall also restrict the use of the same license plate number to one account. These controls shall be configurable to accommodate customers who wish to pay for more than one account or in the case of the discovery of duplicate license plate numbers being issued by the DMV.

The RBOC shall support various means for LSIORB Project customers to open accounts and access and modify them to include:

1. In person at the LSIORB Project Operations Center storefront,
2. In person at contracted retail outlets,
3. At the LSIORB Project toll account website,
4. Over the telephone to the CSC, first to the IVR then to customer service representatives when required,
5. By mail correspondence to the CSC, and
6. Violation payment at locations specified in the Business Rules.

The RBOC shall support various account replenishment options for ETC and Video accounts:

1. Auto-replenish against a credit and debit card,
2. One time replenishments by telephone, IVR, or website,
3. One time replenishments made in person at a CSC storefront,
4. One time replenishments made at retail outlets to be selected, such as local grocers, pharmacies, banks or other retail chains which provide local customer account services, and
5. Smart telephone and device applications.

The RBOC shall include screen-access via a web browser, over the LSIORB Project virtual private network, to facilitate remote contractors which need to access an account screen, printing statements and finding amounts owed (for all account types including unregistered and violation accounts), and crediting accounts based on the remote entity's acceptance of payment.

Account Maintenance. Customer service representatives or customers must be able to access an account with the proper controls in place to assist in managing and maintaining an account, subject to the Joint Board's Business Rules. The RBOC must provide for easy search functionality for account lookup and multiple search points including name, account number, Transponder number, and address. The RBOC must provide for an efficient process and easy to use screens to accommodate making changes to an account. Some of the areas normally affected are account information such as address, credit or debit card update, expiration date, method of payment, Transponder order, license plate update, adding or deleting vehicles and Transponders

to an account, account balance, request for statements, and communications with CSC. Customers responsible for hundreds or thousands of fleet vehicles will be able to easily perform all of the functions previously mentioned in the same manner as household or small business customers. Some additional specific areas include,

1. Security. The RBOC must provide a way to manage access and functionality restrictions for specific personnel positions and job duties,
2. VPS. The RBOC must have the ability to verify the name and address of the owner of a video imaged license plate against the ETC and video account database, and add violating vehicles to either the ETC or video account database,
3. Lost or Stolen Transponders. The RBOC shall provide web based capability for a customer to identify a Transponder as lost or stolen and request replacement, and
4. Recognition of Special Transponder Mounting Requirements. When updating an account, the RBOC shall recognize vehicles that cannot use a window mounted Transponder and require an external mounted Transponder. It is the responsibility of the RBOC Contractor to remain up to date on this information at all times. The ETC Contractor will be required to provide the initial vehicle list to the RBOC Contractor, but after that it will be up to the RBOC Contractor to ensure the list is up to date.

Transparent Interface CSC and VPS. The CSC must be able to access information on video transactions and violations for processing a potential customer or a customer whose account has been changed to a violation account. The VPS must have access to the CSC data and accounts if a video violator claims to be a customer or some other circumstance that would require access and transferring of a violation to an ETC transaction.

Video Toll Transactions. The RBOC shall be capable of identifying ETC customers and video customers, via the comparison of the image review file to the customer license plate data. If a license plate is read and determined to be that of a Transponder account holder, the transaction shall be posted to the ETC account, but identified as captured by video. This is referred to as a V-toll by some operators. The CSC application shall be able to reconcile all transactions, including V-tolls and violations, within the CSC and send them back to the Back Office Host. The CSC shall recognize when customers have multiple V-tolls and provide notification letters, text messages, or e-mails based on the Joint Board's Business Rules.

The RBOC shall accommodate the efficient conversion of a violator to either an ETC customer or a RV customer. When an account opening is initiated by using a violator's name, address, or license plate, a message shall indicate that the outstanding violations must be resolved before proceeding.

When accounts are converted from violation accounts to ETC accounts or VTC accounts, or vice-versa, no prior account history shall be lost or deleted. For

example, if a long-standing violation account is ultimately settled and converted to an ETC account, the history of violations and payments shall not be lost.

Adjustments. The RBOC shall accommodate and track adjustments to the transactions on an account, and track adjustment transactions by the individuals that make them. Proper controls must be in place to ensure that only adjustments authorized by Joint Board Business Rules occur. The adjustment function should include capabilities to reverse tolls and payment transactions from a supervisor's workstation. It should also include the ability to add toll transactions, revise toll transactions due to vehicle classification corrections, or transfer transactions from one account to another. These adjustment transactions must be easily identified in an account statement. An adjustment journal must be included which shows reasons for adjustments, the person initiating and approving the adjustments, and comments. The RBOC Contractor shall also include a configurable set of reasoning codes that can be used for showing justification for the adjustment and provide consistency for quality assurance and audit purposes. The RBOC shall provide an adjustment report on a daily, weekly, monthly and annual basis, or as otherwise requested.

Account Closing. The RBOC shall be able to place an account into pending close status to allow pending transactions to process while not allowing any new transactions to be initiated. Final closure of the account shall happen on a specified date, which shall be enforced by the RBOC, but can be adjusted manually. Closure documentation must be automatically generated by the RBOC. If the account is closed with negative balance, the RBOC shall automatically issue and send an invoice. If the invoice is not paid, the RBOC shall automatically close the account and convert it to a violation account for violation enforcement processing in accordance with the Joint Board's Business Rules. The RBOC must track the status of negative balance processing.

Account Notes and Documentation Requirements. Notes documenting account management activity shall be automatically entered into the account record when the customer calls. The RBOC shall be capable of tracking and archiving customer e-mails and responses to the account. The RBOC must record notes in the account record and in the violation notice when the customer service representative has completed the changes. The RBOC must provide standard comments for certain coded routine activities for notes documentation. The comments and notes section shall be accessible on demand within the account for efficient review and analysis.

Account Statements and History Requirements. The RBOC must provide the customer with the choice to select access to statements via the web, have statements e-mailed on a monthly basis, or have a hard copy monthly statement mailed pursuant to the Business Rules. Once a hard copy monthly statement is selected by a customer, the RBOC shall automatically generate statements to be mailed and shall charge the account a configurable statement fee as established by the Business Rules. Customers should have access to a minimum of two years of account activity through the website. The RBOC shall provide the ability to track and print an account's historical transaction

report with and without comments in chronological order through the website or by a customer service representative.

The RBOC shall not allow license plate numbers to be active in more than one account concurrently. This prohibition applies to Transponder, video, and violation accounts.

Transaction Posting Verification. Prior to posting a transaction to an account, the following verifications shall be performed and the RBOC shall record and flag the results.

No posted transaction or fee shall be for zero dollar amounts unless the account is non-revenue revenue.

If there is Transponder transaction that is posted to the account with the same Transponder identification with the lane identifier being in the same direction within a configurable period, then the second transaction shall be considered a duplicate and shall be flagged as a reject and shall be reported. This includes transactions where the Transponder was not read but converted to a Transponder transaction based upon the vehicle license plate image.

If there is a RV transaction that is posted to the account involving the same license plate as the transaction to be posted with the lane identifier being in the same direction within a configurable period, then the second transaction shall be considered a duplicate and shall be flagged as a reject and shall be reported.

The RBOC Contractor shall support further detailed policies incorporated in this specification and required by the Joint Board.

B.15.4 Payments Requirements

The RBOC must provide the following functionalities:

1. Ability to process credit cards, debit cards, cash, or automated clearing house payment transactions,
2. Real time processing of payments. There should be simultaneous processing and posting of credit card, debit card, and automated clearing house payments,
3. Ability to process a onetime payment by any method, which may not be the designated replenishment method for an account,
4. Ability to remove payment information from an account without entering replacement information,
5. Ability to list primary and secondary replenishment methods on an account such that if the primary method fails, the RBOC automatically tries the secondary method,
6. Ability to accept multiple payment options within one account,
7. Ability to transfer payments between ETC account and violation accounts,
8. Ability to accept post-payment-based accounts, such as those for public agencies which require automatic monthly billings,
9. On demand receipts,

10. Ability to change replenishment thresholds. Only co-branded debit cards will be accepted, and
11. Ability for customers to purchase and redeem gift cards in configurable amounts.

Credit Card Payment Processing Requirements include:

1. Security password and three digit code on the back of the credit card for credit card payments. Security password relates to support for "Verified by Visa" and "MasterCard Secure Code" where a password is generated for each purchase. The service helps prevent unauthorized online use before it happens by confirming your identity with an additional password. In addition, there is emerging technology where the credit card generates a security password for one time use by the owner of the card,
2. Expired credit card information, excessive V-Toll notification, outstanding violations or delinquent account balance shaded on the CSC screen for easy customer service representative notification,
3. Ability to accept and process automated credit card update services and apply them to the customer accounts, and
4. Ability to send notice to customer if card is declined on a configurable number of consecutive days based on the Business Rules.

Automatic Replenishment Requirements include:

1. Fulfillment and replenishment processes on ETC and video accounts must be fully automated and easily configurable for changes in Business Rules, usage, and customer requests,
2. Replenishment amount can be automatically adjusted based on average monthly usage, or manually adjusted based on usage and customer approval, and
3. RBOC shall automatically update expiration dates.

Refunds Requirements. The RBOC must provide for the ability to make a refund to the last credit card charged on the account, and the ability to create a batch file process on a configurable time period basis to be sent to accounts payable for processing refund checks. Operations parameters such as time intervals to make payments shall be configurable. The CSC will prepare the refunds according to the Business Rules established by the Joint Board and send a check run report to appropriate entity for approval. Once approved the Joint Board will wire the amount of the check run into a zero based account and the Operations Services Contractor will print the checks and mail the refunds.

B.15.5 Transponder Inventory Management and Distribution Requirements

The RBOC shall include a Transponder inventory application that includes Transponder purchasing, distribution, tracking, life cycle analysis, returns to manufacturer, and reporting.

The RBOC shall include bar code processing and automatic entry of Transponder

identification numbers.

The RBOC shall be able to generate labels on the packing slip for new orders.

The RBOC must track all Transponders from time of purchase to the time of removing from the Transponder population, with the ability to track the Transponder throughout its use.

The RBOC must provide Transponder related reports showing,
1. Detailed and summary inventories by location and in total,
2. Transponders issued and removed from the population,
3. Life cycle analysis,
4. Purchase order status,
5. Transponders still under manufacturer's warranty, and
6. Transponders out of customer and manufacture warranty.

B.16 Correspondence and Document Management

B.16.1 Correspondence Systems

Correspondence Management. The RBOC shall be able to store and link electronic copies of any inbound or outbound correspondence to an account. This includes e-mail and regular mail. Access to stored correspondence shall be efficient and immediate, and shall be available at the customer service representative level. The RBOC shall provide quality assurance capabilities for reviewing outgoing correspondence. Hard copy correspondence shall be scanned and converted to Adobe PDF files for storage. The issue of archiving or destroying hard copies of scanned correspondence will be finalized during the design phase, but must comply with Kentucky and Indiana retention standards. Electronic archiving is acceptable.

Automated Notices Requirements. The CSC must have the ability to generate automated notices, letters and communications by regular mail, text messages, and e-mail. This function shall be configurable and will allow management to prevent any type of notice from being processed automatically. Notices and communications would include in part, credit card and debit card expiration notification, low balance notification, account statements, multiple V-toll notifications, and low balance notices. The RBOC shall have the capability to send faxes.

Mailing Systems. The RBOC Contractor shall provide the required mailing systems as part of the RBOC that support bulk printing and mailing of correspondences, statements, bills, and notices to Transponder and video account customers and to UV customers. The RBOC shall support the interface to the mailing solution even if the services of a mailing house are required. The RBOC Contractor shall utilize cost saving techniques that optimize printing resulting in savings on postage and operations. The use of a professional printing and mailing services company will be required. The RBOC will

provide and maintain the interface to a third party vendor. The pricing for this on the RBOC pricing sheets is for the purpose stated therein.

Mail Management. The RBOC shall allow an address to be flagged so no more mail goes to a customer at that bad address. The RBOC shall track the flagged incorrect addresses and if a customer accesses the account in any way, the RBOC shall request that the customer update the address. If e-mail or text messaging information is provided on the account, the RBOC shall send a message to notify the customer that the mailing address information needs to be updated. A mail-house interface will be required for the RBOC.

E-Mail Management. If an e-mail is returned as an incorrect address, the RBOC shall send a notice by text or regular mail to the address on the account informing them that their e-mail address needs to be updated.

B.16.2 Toll Audit and Reporting

The Back Office Host shall have a COTS reports package that shall provide all the normally expected reports and provide for user defined reports. The Back Office Host shall provide for AET System wide auditing capabilities for all toll collection transactions and revenue accounting. The RBOC shall be capable of supporting a minimum of 100 concurrent users running reports, including ad hoc reports. The Back Office Host shall have the capabilities of retrieving data for,

1. Any given date and time transaction,
2. Any given lane or tolling zone,
3. Any account, Transponder or license plate, and
4. Daily, weekly, monthly, quarterly and annual detail and summary statistics for transactions, revenues, and other data.

The RBOC shall provide a complete report solution to support comprehensive activity, performance, and financial and audit reporting of all activities at the Back Office Host level as well as ad hoc reports.

Customer Service Representative Activity. The ROBS shall provide the following types of audit reports,

1. A complete audit trail for customer service representative activity, customer accounts, adjustments, and Transponders,
2. Tour and shift activity reports including open and close and all transactions, and adjustments,
3. Reconciliation process and report for closing out tours and accounting for all charges, transactions and Transponders,
4. Summary reports showing information totals for shifts, day, week, quarter, month, and year,
5. CSC key performance indicators measurements, individual and group activity, statistics, comparisons and evaluations, and
6. On demand bank deposit slips.

CSC Activity. The RBOC shall provide the following types of activity reports,

1. Reporting on various functions, activities and components such as by account status, payment options, tracking, trending, and analysis,
2. The RBOC shall provide historical reports with graphing capabilities,
3. Ability and flexibility to mine and report data, and
4. CSC key performance indicators measurements, as a whole, statistics, comparisons and goals.

Customer Account Reports. The RBOC shall generate reports for customer account reconciliation showing beginning balances, account activity, and ending balances for each account and an account reconciliation summary report showing the totals for all accounts. The RBOC shall have the ability to drill down to specific customer account transactions and shall track adjustments.

System Revenue Report. The RBOC shall provide a daily revenue report with summary data reports provided weekly, monthly and annually. The revenue report will show at a minimum,

1. Net revenue posted to customer accounts,
2. Transponder sales,
3. Tolls paid through the website, walk-in counter, and mail,
4. Processing fees,
5. Interoperable transactions, and
6. Other revenue

B.16.3 Customer Management and Marketing Support

The RBOC shall include a fully integrated customer relationship management package that integrates all collected data on a customer within the same application, so when a customer calls, it identifies their telephone number and accesses all information on the customer for the customer service representative before engaging the customer on the telephone. The customer relationship management capabilities can also be applied at the service counter. The customer relationship management tool will be used to manage relationships with customers including collecting, storing, and analyzing customer information. The RBOC shall be capable of supporting marketing or promotional campaigns without major software enhancements. Marketing promotions could include Transponder give away or discount, or free trips. The RBOC shall also be capable of including non-customers such as persons of interest. The RBOC shall be able to produce and communicate via mail, e-mail, or text, surveys, marketing notices and the like to these individuals and firms in addition to customers.

B.16.4 Toll Rates, Transponders and Other Tables

To provide the flexibility desired by the Joint Board, the tolling parameters and tables shall be updateable at any time. Examples of various tables and files include, but are not limited to, toll configuration tables, variable and congestion pricing tables, Transponder files, license plates files, special programs, hot lists, and watch lists. The RBOC Contractor will update the RBOC in near real-time for any change in status of

Transponders, including issuance of new Transponders. This data shall be transmitted from the Back Office Host and shall automatically communicate the parameters and tables to the lanes. Transmission of the configuration data shall not interfere with the collection of tolls or require any equipment to be taken off-line. The RBOC must be capable of validating the transactions in the lanes and amending the toll rate if applicable.

B.16.5 Date and Time Synchronization

The RBOC shall have the functionality for synchronizing all tolling components based upon date and time synchronization from a master clock set for local time in Louisville, KY.

The master clock shall be a part of the Back Office Host and shall utilize an industry standard network time protocol.

All network, switches, and components shall support simple network time protocol to synchronize date and time to all other parts of the RBOC.

All computers, servers, routers and switches shall be synchronized at a minimum to the nearest 1/100 of one second.

Two time reference sources shall be provided. One time reference shall be designated the primary source and the other designated as the secondary source. If access to the primary time reference is lost, the secondary source shall be used until the primary is available. One time source shall be housed at the Back Office Host location and one at the backup location.

Time references shall be network time protocol compliant and sourced through atomic clock, internet sources, cellular, or global positioning satellites.

B.16.6 CSC Transaction Processing

The Back Office Host shall verify that no information is missing and shall validate automatic operations in the application to check for duplicates and verify the toll rates on transactions. Exceptions shall be flagged and provisions to modify transactions shall be provided. A permanent log of modifications shall be maintained in the database for future queries.

B.16.7 CSC Equipment Requirements

Barcode scanners shall be procured, furnished, and installed as part of the RBOC equipment to assist CSC and video processing center staff with scanning barcodes affixed to Transponders, notices and other pertinent documents. The RBOC workstations shall support the interface to the barcode scanners. Document scanners shall be procured, furnished, and installed as part of the RBOC equipment to assist staff in scanning documents received by the CSC and video processing center. The scanned documents shall be retained in the RBOC and shall be associated with the appropriate account or violation and catalogued for easy retrieval. Users shall have the ability to

retrieve the scanned document based on date and time, account or violation number, or document number. The RBOC workstations shall support the interface to these units. The RBOC Contractor shall determine the type of equipment and quantity necessary to provide efficient operations.

All RBOC workstations shall have dual liquid crystal display 19" screens and will be provided by the RBOC Contractor. Desks will be provided by the Operations Services Contractor.

Laser printers shall be procured, furnished, and installed by the RBOC Contractor to allow users to print receipts, reports, customer correspondence, detailed statements, and violation notices. The printers provided shall meet the requirements of this RFP, provided that there shall be at least one high end color printer provided for special printing tasks.

The RBOC Contractor shall provide sufficient high quality color and black and white printing services to meet the demand of the LSIORB Project as would be expected in any professional work environment, subject to Joint Board approval.

B.17 Video Processing Application Requirements

B.17.1 Video Processing Concept

Below is the typical flow shown to clarify minimum requirements:

Step 1-1, After the RBOC captures and reads license plates and enters the license plate information in the transaction message, the RBOC shall provide an extensive video review and management process to ensure correct identification of images and provide a check of RBOC performance, and extensively track the performance and production. The RBOC Contractor shall develop and maintain a set of image review rules for various classes of transactions. Figure B.4 shows the required minimum elements of the video image management process,

Step 2-1, All transactions are posted in the RBOC database in near-real time without batching, as soon as the transactions are ready at the Toll Facility Host. Images related to transactions which appear to be violations will be transmitted in near-real time to the RBOC video image database; other images remain stored at the Toll Zone but can be queried by the video image review clerks,

Step 2-2, Check for immediate hot list vehicle processing,

2-2a: The RBOC verifies the transaction license plate information against the database to see if the given state and number are on a vehicle hot list or watch list. Immediate notification to law enforcement is required for hot list vehicles, and additional human review will be required for watch list vehicles,

2.2b: Specific rules for reported hot list video transactions are executed to

ensure the image is read properly. For initial operations, 100% of all hot list images shall be reviewed for accuracy, but as the RBOC is trained this figure may be reduced by the Joint Board,

2.2c: If the license plate information is not correct, the transaction shall be appended with correct information and shall be processed for re-evaluation,

2.2d: If the image is indeed for a hot list vehicle, the special reporting and alarm rules are invoked. These may include paging, e-mail alerts, or alarms. No intervention by RBOC or Operations Services personnel will be required. These alarms will likely be routed automatically to the traffic management center contracted separately with no human intervention, but this must be considered during the design phase,

Step 2-3, Check valid ETC transactions' video images,

2-3a: The RBOC verifies the transaction license plate information to determine if the given state and number match an interoperable license plate associated with a toll or violation account,

2.3b: This review is set up for two purposes,

i. To collect image data for later comparisons if the Transponder is not read properly in a future transaction,
ii For quality control, to allow for occasional human review of images even when a high confidence level is reported. The percentage of images to be reviewed shall be configurable, but shall initially be set at 2% of all transactions selected by a random process,

2.3c: If the license plate information is not correct, the transaction shall be appended with correct information and shall be processed for re-evaluation,

2.3d: If no change is required, the transaction is processed as an ETC transaction in accordance with the Business Rules,

Step 2-4, The RBOC checks the transaction database for other video-based transactions for a configurable period of time (typically 24 hours to 7 days, up to any time in the active database), to search for other license plate matches based on the character string or an image match. Image matches assist in determining a high confidence level and whether human review of an image is required,

Step 2-5, Check for license plate matches to a valid ETC account,

2-5a: The RBOC shall verify the account records and transaction database to determine if the given state and number match an interoperable license

associated with a toll account,

2.5b: Specific operations rules for matches to ETC accounts are executed to ensure the image is read properly. Factors to be considered shall include the image read confidence level, the image match to other verified license plate images, and the match to other video transactions in the same day,

2.5c: If the license plate information is not correct, the transaction shall be appended with correct information and shall be processed for re-evaluation,

2.5d: If no change is required, the transaction is processed as an ETC transaction in accordance with the Business Rules. It shall be possible to configure the RBOC to charge either the ETC rate or the video toll rate,

Step 2-6, Check for license plate matches to a valid video account,

2-6a: The RBOC shall verify the account records and search transaction database to determine if the given state and number match an LSIORB Project or interoperable license plate associated with a toll account,

2.6b: Specific rules for matches to video accounts are executed to ensure the image is read properly. Factors to be considered shall include the image read confidence level, the image match to other verified license plate images, and the match to other video transactions within the same day,

2.6c: If the license plate information is not correct, the transaction shall be appended with correct information and shall be processed for re-evaluation,

2.6d: If no change is required, the transaction is processed as a RV transaction in accordance with the Business Rules. The RBOC shall charge the video toll rate,

Step 2-7, Check for matches to a previously seen license plate,

2-7a: The RBOC shall search the transaction database to determine if the given state and number match a license plate from another transaction or unregistered or violation account,

2.7b: Specific rules for matches to past transactions are executed to ensure the image is read properly. Factors to be considered shall include the image read confidence level, the image match to other verified license images, and the match to other video transactions within the same day,

2.7c: If the license plate information is not correct, the transaction shall be appended with correct information and shall be processed for re-evaluation,

2.7d: If no change is required, the transaction is processed as an unregistered or potential violation transaction. The RBOC shall charge the video toll rate.

Step 2-8, The process for images which have not been processed before,

2-8a: If the image has previously gone through human review, the transaction is forwarded to the license plate lookup process,

2.8b: If the license plate image is human-legible, the transaction shall be appended with correct information as needed and shall be processed for re-evaluation,

2.8c: If the license plate image is not human-legible, no further image processing is required. The transaction shall not be deleted, but no further collection efforts shall be made for this transaction unless later image matches enable identification, and

Step 2-9 – The license plate lookup process, first with the Indiana and Kentucky DMVs, and then to other sources.

The RBOC shall provide on-going and daily activity reports of video transaction counts in every category described in this section.

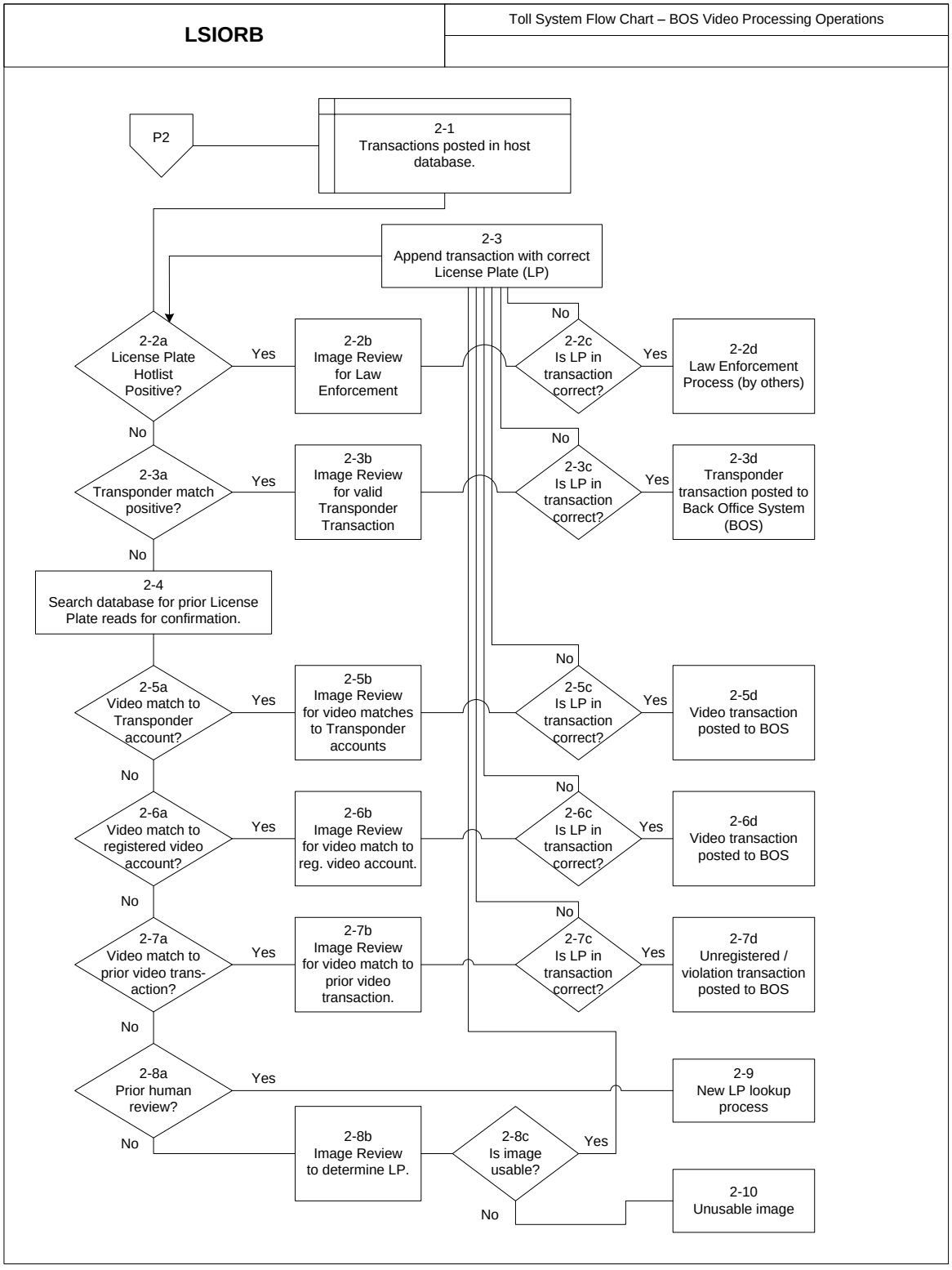

Figure B.4 - Video Transaction Processing

B.17.2 General Video Requirements

The RBOC Contractor shall provide extensive and sophisticated video processing for transactions, to include,

1. Automated verification of transaction content provided by the RBOC, human review of video images according to the Business Rules for each category of video transactions as shown in Figure B.4.

Video related activities including image review. A verifiable OCR function with an acceptable accuracy level as presented in subsection B.23, RBOC Performance, Specifications and Measurement, interfacing with and accessing state license plate registration files, posting transactions to ETC or video accounts, accepting and managing interoperable ETC or video accounts, and processing UV transactions and printing and issuing the appropriate invoices and notices.

The VPS must include capabilities for tracking violators, violations, invoices, and the disposition of each. The VPS shall track toll enforcement activities, administrative hearing cases, civil court cases, and any other collection processes indicated in the Business Rules.

The image review processes must be efficient and verifiable. The VPS shall monitor performance and provide a quality assurance function, which shall include performance measurement, VPS clerk and customer service representative performance scoring, and detail reporting. The VPS module must compile operational statistics for key performance indicators, which will be defined in detail during design process. The RBOC shall produce image quality reports showing acceptance levels and rejects by reason. The VPS module must be easily configurable to accommodate changes in Business Rules or legislation. The VPS must include the ability to establish and access a database hub on rental vehicles and out of state Transponders.

B.17.3 Optical Character Recognition

The RBOC shall provide independent OCR and image matching for license plate image processing, prior to sorting and evaluating for potential human review.

The OCR shall be configurable for the acceptable confidence levels and accuracy rates for automatic processing of images and for quality assurance purposes.

The RBOC shall successfully perform OCR on 90% of the images received from the RBOC that are human readable to obtain the license plate and jurisdictions with an accuracy of 99% of the 90% that were automatically identified for the states of OH, TN, IL, MO, VA, and WV. In case of IN and KY plates, the RBOC shall automatically determine the plate type with an accuracy of 99%.

B.17.4 OCR Performance Levels

OCR capture rate: defined as the portion of human-readable license plate image sets read by software at a specified confidence level threshold without human review. The

confidence level threshold is set according to a target maximum error rate. The license plates not captured by software would be sent to manual review.

The OCR error rate is defined as follows: out of a set of human-readable license plate images, the number of incorrect reads divided by the total number of reads.

License Plate Extraction Accuracy. The RBOC shall perform OCR on 90% of OH, TN, IL, MO, VA, and WV human readable to obtain the license plate images received by the RBOC. Of these OCR processed images, the accuracy rate of identifying the correct character string and state identification must be 99%

Overall License Plate Extraction Accuracy. The RBOC shall have an overall license plate read accuracy of 99% on plates that are visible and human readable in the image. Image enhancement tools provided as part of the RBOC can be used to enhance the image quality to allow for manual review.

B.17.5 VPS Clerk and Customer Service Representative Review

Screens must be user friendly and provide an efficient process for reviewing images and confirming license plate reads. The image review process shall provide images on a first in, first out basis. Images shall be sent to processors in a manner that allows for a constant feed of images for review. Images must be high resolution color or infrared images. Images must be clear and easily enhanced.

B.17.6 Quality Assurance and Performance

The RBOC shall provide an image review quality assurance process that includes both human reviewers and the OCR process. The RBOC shall track all activities of the reviewers and the OCR, and provide the statistics and reports in both summary and detail.

B.17.7 VPS and CSC Interface

The VPS module must be properly and completely interfaced with the CSC to provide for the following functionality,

1. Image review files for comparison to CSC license plate database to identify customers,
2. Posting video transactions to existing ETC customer accounts and RV customer accounts as a V-Toll,
3. VPS clerk ability access to customer accounts for research and adjustments when dealing with an individual claiming to be a customer,
4. Easy conversion of UV tolls to customers, and
5. Customer service representative shall be able to view images by clicking a link on the violation screen.

B.17.8 Violation Account - Management

The RBOC shall establish and manage violation accounts to track all violators and accumulate their violations based on data from the image review and DMV look up.

The RBOC shall include an adjustment function that can be used with proper authorization to adjust transactions, to include a drop-down list of adjustment reasons.

The RBOC shall include an account management function that allows updates to the account information and manual input of license plates for processing.

The RBOC shall track all account activities and adjustments, and include a record of the individuals associated with those activities.

The RBOC shall provide the ability to click on multiple violation occurrences and regenerate notices with new owner information

The RBOC shall include a reasoning code functionality to allow customer service representatives to select from a list to mandate justifications for changes on accounts for consistency, quality assurance, and auditing purposes.

Codes shall be changeable but only at the proper authority level, and the RBOC shall track any changes, and include a record of the individual associated with the change.

Images shall be available for viewing by the customer service representatives when discussing the video transaction with an individual or processing payment to violation accounts. Images shall be available for a period of one year prior to archiving.

The RBOC shall facilitate on-demand comments and notes. The RBOC shall allow a customer service representative to record notes in the account record and in the violation notice record when changes are made. The RBOC shall provide the ability to track e-mails and link e-mails and responses to accounts or violation numbers.

B.17.9 Interface to the Kentucky and Indiana Department Of Transportation – Division Of Motor Vehicles

It is a requirement that the RBOC distinguish between different license plate types for any state selected for DMV look-up.

The RBOC shall provide an interface with the Indiana and Kentucky DMVs to access necessary data related to motor vehicle registration, suspension and reinstatement.

The RBOC shall provide an automated license plate file transfer interface to Indiana and Kentucky DMV look-up and return for registered owner information. The DMV in both Kentucky and Indiana support automated look-ups for outside organizations that successfully apply. It is up to the RBOC Contractor to determine the process to obtain this information.

The RBOC shall have the ability to provide an automated interface link with other states or companies for registered owner information look-ups.

The RBOC shall track the files sent to the Indiana and Kentucky DMVs, or other states, for comparison to files received back from the Indiana and Kentucky DMV and other

states or rental companies. In conjunction with this, the RBOC shall be able to provide statistics and reports on the files and plates processed, including what license plates resulted in ownership data and what license plates did not.

The RBOC shall track registration holds and releases. If the holds can be automated, the RBOC shall flag holds and releases.

The RBOC shall cleanse data received from the Indiana and Kentucky DMV for better matching purposes.

The RBOC shall retrieve the names of all registered owners of a vehicle, and shall post the names in the records. Both Indiana and Kentucky allow multiple owners to be associated with a single vehicle. Choosing which registered owner's name and address to use for the bill is at the discretion of the Joint Board.

B.17.10 Invoices – Video Customers

The RBOC shall generate automatic invoices for unpaid video tolls after the configurable waiting period has been met. The current minimum waiting period is 15 days. The invoice period shall be configurable to accommodate the Joint Board's Business Rules. The customer shall have a configurable period of time which shall be initially set to 30 days to respond to the invoice for unpaid tolls either by paying the amount due or disputing the invoice.

When a video toll invoice is outstanding for more than the configurable period initially set at 30 days, the RBOC will issue a second invoice automatically and will add a configurable processing fee which will initially be set at six dollars. The customer will have a configurable period initially set at 30 days to pay this second invoice. If the second invoice is not paid within the second configurable time period configurable additional fee may be added in accordance with Joint Board's Business Rules.

Registration Hold. If the processing fee and invoice is not paid within the second 30 day period, the Joint Board or the appropriate Kentucky or Indiana agencies may issue a registration renewal hold against the motor vehicle in the name of the registered owner(s).

The invoice content and the criteria, including data elements and format, shall be easily configurable.

Invoices shall include an image of the transaction(s) and the associated data. The image used to identify the license plate shall be the one included on the invoices whether it is front or rear. The image shall be printed in black and white. The image shall include a readable license plate.

Invoices shall be able to include multiple transactions and images. The RBOC shall be able to regenerate invoices with images on request. The RBOC shall allow for selection of multiple invoices for changes. The RBOC shall track invoices and their disposition,

and provide reports with detail and summary.

Invoices for video toll transactions shall be issued within a configurable time period which will ultimately be determined by Business Rules, but will initially be set at 90 days from the transaction. The RBOC shall flag all video toll transactions not invoiced and provide reports on the loss of revenue.

B.17.11 Tracking Reviews, Hearings, Determinations and Collection Agencies

Contesting Unpaid Toll Invoices - Customers shall have three opportunities for disputing a toll invoice. The RBOC shall track all disputes and results. This entire process is subject to change in accordance with the development of Business Rules, but can initially be assumed to flow as described below.

Informal Review – A person must submit a request for review of a disputed toll and include all pertinent information. The RBOC shall have the ability to incorporate the request for review and any associated attachments in the notes section of the account. Informal reviews will be conducted at the CSC. Administrative hearings and the judicial reviews will be conducted at the applicable office.

Administrative Hearing – A person may contest the findings of the informal review by filing a petition for a contested case hearing at a place to be determined. The RBOC shall have the ability of tracking these hearings and the results and providing for adjustments if required.

Judicial Review – A person may contest the tolls and the results of the administrative review through a judicial review. The RBOC shall track the hearing and the results and shall provide for adjustments if required.

The RBOC shall track and report the collection status of all notices and judgments by toll amounts, fees and any outstanding balances for a selected time period.

After certain configurable criteria are met, and upon proper authorization, the RBOC shall send files to a collection agency as designated by the Joint Board. The RBOC shall have the capability to send collections files to multiple collection agencies. The RBOC shall ensure that multiple notices for the same individual customer shall go to the same collection agency, and are not distributed to multiple collection agencies. The RBOC shall generate reporting for comparison, analysis, and a scorecard on the collection performance of the collection agencies.

The RBOC shall suspend any escalation of fees when a violation is flagged for dispute. The RBOC shall handle all subsequent violations accordingly based on dispute ruling.

B.17.12 Invoice Payments

The RBOC shall be able to accept and process various types of payments including credit

card, debit card, automated clearing house, , money order, cashier's check, traveler's checks, cash and other cash equivalents and shall track those payments and methods of payment by notice and posting to the unregistered video or violation account.

The RBOC shall accept payments for multiple invoices by selecting a group of notices instead of each individual notice, and shall be able to apply partial payments either to the oldest invoices or by selected invoices (for example, if some are in dispute). The order in which credit is applied amongst multiple tolls fines and fees must be fully configurable to conform to Business Rules.

The RBOC shall accept multiple payment options within one transaction

The RBOC shall allow transfer payments between a Transponder account, a video account and a violation account to pay for invoices.

The RBOC shall allow viewing and processing and paying of invoices either at the CSC, by the customer via the website or telephone to the IVR upon presentation of the invoice number or license plate.

The RBOC shall generate a receipt for a customer transaction or an invoice payment.

The RBOC shall allow for partial payments. The receipt for any partial payment shall clearly state that a partial payment in no way relieves the customer from paying their remaining balance.

B.17.13 Violation Correspondence Management and Tracking

The RBOC shall provide an image documenting software for all correspondence which is linked to violation accounts, invoices and reviews. The RBOC shall provide the ability to tie all correspondence including regular mail, e-mail and notes to a violation account, correspondence received from the customer and shall provide fax capabilities from the application software.

B.17.14 Violation Disputes

The RBOC shall provide proper security and authorization levels to process and settle disputes. This shall include the ability for a customer to register the dispute of an invoice for unpaid tolls via the website. The RBOC shall also include the capability to automatically send a response once the dispute is reviewed by the Joint Board or other designated authority and disposition is determined. Disputes can be handled through the request for review process at the CSC level for the invoice for unpaid tolls during the initial 30 day period.

B.17.15 Website Video Invoice Requirements

The website shall be fully integrated with the VPS module for access to video invoicing processes and information. The website shall provide the ability to,

1. Pay video invoices,

2. Accept payments via credit card or debit card, and
3. Access information regarding video invoices and request for reviews.

B.18 Back Office Host

B.18.1 General Requirements

The Back Office Host shall have dashboard functionality to allow the Joint Board to monitor the status of any major component of the RBOC. The dashboard functionality shall provide real time monitoring capabilities with an interface featuring easy to read graphic and text based data presentation. This will provide innovative tools for managing the RBOC.

The Back Office Host shall interface with the Toll Facility Host in a seamless manner to allow for the transfer of transaction files from the lane to the Back Office Host. The Back Office Host shall accommodate the distribution of files down to the lanes, such as configuration files, Transponder files, license plate files, toll schedules, variable and congestion pricing programs, and other files as required. The Back Office Host shall be able to accommodate and process all required files for distribution to the lanes for processing interoperable transactions.

The Back Office Host design shall support distributed middleware application services, and shall foster a loosely coupled approach that supports modular application code sets in distributed middleware application services.

The Back Office Host shall interface with the Joint Board general ledger system and shall have the ability to interface with major accounting packages and shall be in a data format as may be used by the States' Parties and the Joint Board as required to process proper postings and a journal entries.

B.18.2 Security

The Back Office Host shall provide a high level of security to ensure the integrity of all information and data contained therein including but not limited to customer accounts, and shall also ensure the safety of the RBOC and proper management control. The Back Office Host must,

1. Comply with all applicable standards issued by the PCI Security Standards Council, including the PCI Data Security Standard (PCI DSS) and the Payment Application Data Security Standard (PA_DSS) at the start of FAT, and remain compliant throughout the term of the RBOC Contract,
2. The Back Office Host shall employ a single sign on enabling users to perform tasks and access resources consistent with their specified user permissions upon logging into the middleware application services that access the Back Office Host,
3. The Back Office Host shall incorporate a configurable intrusion detection application,
4. The Back Office Host must prevent the use of the same credit or debit card on multiple accounts, unless approval documentation has been received from the customer via written authorization. The RBOC must include an automatic inquiry

and report on the multiple use of the same credit card or debit card being used for multiple refunds of balances.

B.18.3 Back Office Host Backup and Archive

The Back Office Host shall include standard backup systems solutions. The backup shall include all modules and databases associated with the Back Office Host.

The Back Office Host shall provide an automatic archive capability with a separate archive server.

B.18.4 Disaster Recovery

The RBOC Contractor shall develop a comprehensive disaster recovery plan and subsequent disaster recovery procedures for the Back Office Host, database, CSC, and VPS, which will be reviewed and approved by the Joint Board. After the RBOC project is deployed and tested, the RBOC Contractor shall implement its disaster recovery solution and shall test the solution accordingly. The RBOC Contractor shall maintain the disaster recovery database. Recovery point objective and recovery time objective shall be determined based on business process critical indicators and the final Joint Board Business Rules and procedures. The Joint Board requests that the proposer provide a disaster recovery plan for 1) a fully redundant site and 2) a guaranteed replacement of equipment within 24 hours supported by a warm back-up service either at one of their locations or contracted with a third party vendor. The redundant site is up to the proposer to select. There are no requirements as to the location of the redundant site. However, should the redundant site be utilized it must meet performance requirements.

B.18.5 Communications

The Back Office Host interchange protocol shall ensure that all records are transferred from the Toll Facilities Host Server to the Back Office Host by analyzing the sequence numbers for all message types including checking for gaps. The identification of gaps shall prompt a request from the Back Office Host to the Toll Facility Host server for the missing information. The Back Office Host shall provide reports addressing the gaps if they are not satisfactorily addressed after the query.

The Toll Facilities Host and the Tolling Zone controller interchange protocol shall ensure that all records are transferred from the lanes to the Tolling Zone controller by analyzing the sequence numbers for all message types checking for gaps which will prompt a request from the Toll Facility Host or the Tolling Zone server to the lanes for the missing information.

The Back Office Host shall provide AET System wide e-mail capabilities.

The Back Office Host architecture shall support geographically distributed CSC services throughout the Project area.

B.18.6 IVR and Call Management Functional Requirements

IVR Functional Requirements include:

1. The IVR and call management solution shall be fully integrated with the CSC,
2. Customers shall be able to use the IVR to obtain information on the toll program, and CSC locations and hours of operations,
3. Customers shall be able to use the IVR to obtain applications,
4. Customers shall be able to use the IVR to obtain information on existing account status and violations,
5. Customers shall be able to use the IVR to update account information,
6. Customers shall be able to use the IVR to make replenishments and violation payments, and
7. Customers shall be able to use the IVR to speak with a customer service representative within 60 seconds of the IVR receiving the telephone call by pressing no more than two keys on a touchtone telephone if they so desire.

The IVR and call management solution shall track and compile performance metrics statistics for telephone center calls and activities. The RBOC shall be capable of reporting the following call volume related statistics. These statistics shall be accumulated on a daily basis and broken down by hour:

1. Total number of calls received,
2. Total number of calls accepted by customer service representatives,
3. Average time to answer,
4. Maximum time to answer,
5. Total number of calls that exceed configurable, specified hold time(s), and
6. Total number of abandoned calls.

The IVR shall be scalable and expandable.

The IVR must have an English and Spanish option, as well as other languages as determined by the Joint Board. The IVR is required to utilize touchtone keypads.

The RBOC Contractor shall provide the office switchboard and telephone solution for the Operations Center.

The IVR shall provide an efficient option selection process which allows customers to access account data to query for account balance, make payments, account maintenance, to receive and change a personal identification number, and other similar activities.

When a caller transfers from the IVR to a customer service representative, any information given by the customer shall be displayed for the representative on the screen and shall automatically access the customer account.

The IVR shall be designed to allow monitoring and recording of individual calls by supervisors.

The RBOC shall provide a screen visible to all customer service representatives and

supervisors for viewing the current status of calls, wait times, and number of customers on hold.

The IVR shall support violators with similar functional capabilities as the website to the greatest extent possible. The IVR must provide the following capabilities:

1. Allow violators to access their violation account in accordance with data access restrictions established for Transponder and video accounts,
2. Determine status of notices,
3. Make payments, and
4. Request to be converted to an ETC or video account.

B.18.7 Web Hosting Technical Requirements

The web based application shall be fully integrated with the CSC and shall allow customers to access information on the facilities and programs of the LSIORB Project, to gain assistance with signing up and opening and account, to download and print information and application forms, fill out an application online, online enrolment, to receive e-mail confirmation of successful online enrollment, to review account status and history, to update personal information, to update credit or debit card information, record of recent tolls, allow customers to make one-time replenishments, view an on-line statement, to view and update statement delivery method, to change payment method, request account closure, to request reset of forgotten passwords, the ability to view violation information and current status of the violation, the ability to make violation payments via credit card or debit card, to print confirmation or receipt following account establishment, account changes or on-line payments, provide CSC and storefront locations and hours of operation, list of toll facilities, links to road, travel and weather conditions, download terms and conditions, web links to related transportation sites, and to access to the answers for frequently asked questions.

The website shall be easy to use and intuitive. This must also be true for fleet customers who are managing hundreds or thousands of vehicles.

The website shall provide a customer agreement and a process for acceptance of the terms prior to initiation.

Customers must be able to complete all transaction activities online via the website, saving customer service representative intervention for unique problems. The external website will only be integrated with the RBOC.

Website should be near real time with transactions, statements, account maintenance, payments, etc.

The website shall include access to statements and historical data, which shall be available for two years and then archived.

Website shall have English and Spanish options, or other languages as specified by the Joint Board.

All external internet protocol addresses must undergo a vulnerability scan at least quarterly by a qualified vendor, pursuant to the PCI Data Security Standard.

Website shall employ transport layer security or similar secure endpoint authentication with a trusted digital certificate to protect communication streams for public web connections.

B.19 Database

B.19.1 General Database Requirements

The Back Office Host database management solution shall be the latest full stable release of the proposed database software in revenue collection mode for at least six months in at least one major tolling operation in the United States. The RBOC Contractor shall be responsible for maintenance of the database management solution and for providing all software upgrades, security patches and updates to the. The database management solution shall not be more than one level behind the stable publicized version.

The database management solution shall accommodate all applications including the Back Office Host, CSC, VPS, website and IVR. Data access components such as storing, modifying, or retrieving data within the Back Office Host database management solution shall be designed as reusable application services that facilitate implementing additional future changes in Joint Board's Business Rules and procedures.

Documentation. The RBOC Contractor shall provide thorough detailed documentation of the database structure and training for database administration.

Interface. The database management solution shall interface with the RBOC including the Back Office Host, CSC, VPS, the Customer website, and Joint Board general accounting applications.

Growth. The database shall allow for expansion to accommodate the LSIORB Project's growth at a rate of 15% per annum and to accommodate changes in technologies and Joint Board Business Rules and procedures.

Release. The database management solution shall be the latest full stable release available at the acceptance of RBOC detailed design, including all security and release patches.

Independence. The database shall be operating system and hardware independent. Platform dependent database management systems shall support database portability between versions.

B.19.2 Database Security

The database application shall include current required credit card industry security measures for protecting customer and Joint Board information.

There shall be no direct user access to the Back Office Host database management solution. All access to the Back Office Host database management solution shall be through Back Office Host middleware. User authentication and access to the Back Office Host database management solution shall be managed by the middleware application services using generic or function-related database connections.

All Back Office Host database management solution scheduled jobs shall be executed under a non-interactive account. The Back Office Host database management solution shall not permit any modifications or deletions of the original transaction records stored in the Back Office Host database exclusive of archive functionality.

All Host database management solution records shall support version control and record traceability at the lane level. The Back Office Host database management solution audit trail information for each correction entry shall include, at a minimum, the date and time of the change, identification of the person or automated transaction function initiating the change, and reason code or descriptor justifying the change.

The RBOC Contractor's database management solution shall be secure and provide automatic credit card industry standard encryption of all credit and debit card data transmitted to the database via customer service representatives or received via the internet. The RBOC Contractor shall provide the technical backup to support its encryption. The RBOC database shall comply with all applicable standards issued by the PCI Security Standards Council, including the PCI DSS and the Payment Application Data Security Standard at the start of RBOC FAT with respect to the back office, and remain compliant throughout the term of the RBOC Contract.

B.19.3 Usability and Maintenance

The Back Office Host database management solution shall be capable of the following:

1. Automate setup, job scheduling, and execution of backup and recovery scripts,
2. Simplify near real-time diagnostic testing and problem resolution scripts,
3. Simplify analysis of historical performance data and assist in database server capacity planning,
4. Aid in automating 24 hours per day, 7 day per week basis monitoring of priority events based on critical thresholds,
5. Facilitate managing database schema modifications, and
6. Provide performance tuning capabilities to include, but not be limited to server, database, table, index and query levels.

B.20 Enterprise Reporting Requirements

Comprehensive, flexible and unrestricted reporting is a key LSIORB Project requirement. The Joint Board shall have the complete authority to access any data in the Back Office Host. The RBOC Contractor shall supply all necessary technical material and training to ensure this mandatory requirement for unrestricted access is achieved.

The RBOC Contractor shall provide an enterprise-level, unrestricted reporting solution that shall allow the Joint Board to use any and all system-captured events and derived data available throughout the deployed systems. The RBOC Contractor shall also provide the necessary training and report writing tools so the Joint Board can prepare its own user-designed, ad-hoc custom queries in addition to predetermined reports. Reports shall be defined during design. All reports shall be developed by the RBOC Contractor with the Joint Board's collaboration and approval.

The RBOC Contractor's delivered solution shall provide for:

1. An integrated solution covering all report requirements for both pre-determined and ad-hoc reporting. It shall be sufficiently integrated into the RBOC to enable future upgrades of the report writer without replacing the entire delivered system,
2. Central administrative control for the enterprise report system,
3. Near-real time reporting access and capabilities,
4. Consistent reporting labels and calculations across all sub-systems and data,
5. Electronic report and screen formats shall include Adobe PDF, HTML, XML, RTF, Microsoft Office 2007 products, and other formats that may be determined during the design phase,
6. Database support for SQL type queries locally and remotely across the Joint Board's network,
7. Support batch report processing that can run in the background concurrent with other applications,
8. Report formats and data pulls capable of being saved for reuse,
9. A reports user interface which shall be browser-based and compatible with the user interfaces used throughout the RBOC,
10. Powerful data search and report construction capabilities,
11. Report selection screens shall provide standard user tools, such as drop down and sideways menus, check boxes, radio buttons or text boxes, which shall display all reports accessible based upon the user's access rights,
12. Capability to sort data by report columns,
13. Extensive support for dashboard reporting,
14. A LSIORB-customizable reporting calendar for scheduling pre-determined report,
15. Graphical representation capabilities,
16. Drill down and sideways capabilities,
17. Reporting of data source capture points and the data relationship(s),
18. Capability to sort data by report columns,
19. Provisions for filter tools for search and for reporting purposes,
20. Support for segmentation reporting based on exclude criteria,

21. Recordkeeping for each report created, which shall include, at a minimum,
    a. Report owner,
    b. Date created,
    c. Date last edited,
22. Brief description of the report's purpose,
23. Description of the database tables used to compile the report,
24. Capability for authorized users to receive regular reports automatically. A user interface shall be provided for the user registration and registration edit functions, together with details of current registrations and report links currently available to the user, and
25. Statistical and probability analysis capabilities.

B.20.1 Reporting Performance

The RBOC Contractor shall provide a reporting architecture that shall allow reporting without impacting response time, operations or effectiveness of the RBOC. Reports shall meet the performance criteria defined in subsection B.23.

B. 20.2 General Report Requirements

The RBOC Contractor shall use logical report, row, and column names throughout the reporting solution as defined during the design.

The RBOC Contractor shall not duplicate standard reports with minor differences between one report and another when such information can be displayed on one report or be able to be filtered by drop down selectors.

All reports shall be listed in a manner that provides enough information to be able to accurately ascertain the report category and report type as well as providing a link to online help features that describe the report and the data to be contained in the report.

The report solution shall have the capability to schedule report generation without additional administrator action based on configurable settings.

Whenever applicable, report data shall be displayed in text, chart, or graphical formats as may be configured by the user.

Color text or graphics shall be used to denote anomalies. When printing data represented by color, the pattern of the text or graphic shall indicate a difference such that it can be also be distinguished when viewing in black-and-white print.

Standardized control data shall be shown on all reports.

All reports and report formats shall be subject to Joint Board approval.

Entity relationship diagrams and other data documentation pertaining to the reporting solution shall be provided to the Joint Board.

B. 20.3 Standard Reports

The RBOC Contractor shall include standard reports covering the entire LSIORB Project.

The RBOC Contractor shall include a matrix of all available reports providing:

1. User type,
2. Report name,
3. Report description,
4. Data elements,
5. Intended frequencies,
6. User-selectable criteria,
7. Available output formats,
8. Drill down or sideways capabilities,
9. Comments regarding graphics, tables or color use, and
10. An appendix containing a sample of all reports provided in the summary matrix above.

The Joint Board shall require additional reports to those provided as standard by the RBOC Contractor and may also require changes to existing standard reports. The RBOC Contractor shall reference the pricing sheets for details on how to price reports.

B. 20.4 Report Quality

The RBOC Contractor shall demonstrate,

1. Consistent results with the same data selection criteria each time a report is executed,
2. Report accuracy through detailed analysis and testing,
3. Audit ability of reporting accuracy,
4. Performance criteria adherence as detailed in subsection B.22, and
5. A lack of Cartesian errors or other logic related reporting problems.

B.21 System Serviceability and Reliability Requirements

B.21.1 BOS Host Availability and Reliability

The Back Office Host shall provide all functional service at a 99.99% availability level with a MTTR of two hours. Functional service is defined as all hardware and software necessary to provide full functionality within the Back Office Host, not including routine or scheduled maintenance times. Distributed Back Office Host services shall be available to all gantry servers, Toll Zone controllers, and all other authorized clients on the RBOC via middleware application services.

The RBOC key process support equipment shall be powered through a UPS. Room requirements will be determined during the development of the floor plan.

B.21.2 BOS Host Performance

The RBOC shall be scalable. The RBOC at the start shall be structured to accommodate and process 150 million transactions, $150 million in revenue, 2 million accounts and 4 million Transponders and shall have the capacity to accommodate 500 million transactions and $500 million in revenues, 10 million accounts and 20 million Transponders within five years. The RBOC must also be sized to immediately accommodate interoperable transactions and processing files. The interoperable files shall be structured to process up to 30 million Transponder files and 30 million license plate files.

B.21.3 Back Office Host Performance Tracking and Reporting

Associated applications shall be fully integrated with the CSC to provide data and reports for associated production, work activities, postings, and other statistics. This shall include the website and IVR and call management metrics and the VPS activities such as DMV license plate look-up, video transaction postings, violation letters mailings, image reviews, and web activity.

The RBOC shall provide full VPS reporting package with capabilities typically expected by toll industry agencies and operators to adequately support effective toll business operations. Reports shall be for activities such as images reviewed, notices processed, citations issued, VTC transactions processed, collection status, payment options, tracking, trending, and analysis. The performance tracking solution shall also provide performance reports and historical reports with graph capabilities.

The RBOC shall provide the ability to track and report changes and errors from a VPS clerk or customer service representative for quality assurance purposes, training, or coaching which shall include a VPS clerk or customer service representative performance report. Performance metrics shall include, but not limited to, the following:

1. Images processed per hour, day, and month by individual,
2. Images processed per hour, day, and month by location,
3. Accuracy levels for various components such as individuals, groups, and OCR,
4. Disposition of invoices,
5. Disposition of registration holds,
6. Administrative hearing findings,
7. Fees collected,
8. Converts,
9. Statistical analysis of violations,
10. Quality assurance results, and
11. Notices waived and reason.

Monitoring Dashboard. The RBOC shall provide an operations monitor dashboard overlooking production and performance on a near real time basis, and the capability to

see current and historical data and statistics by frequency, including hourly, daily, monthly, quarterly and annual reporting.

B.22 Software and intellectual property protections

B.22.1 Source Code

All software provided by the RBOC Contractor shall be non-proprietary to LSIORB. LSIORB will have full read access to all database structures and source code. All source code, database entities and structures shall be electronically documented "as-built" in a generally accepted format and made available to LSIORB. The RBOC Contractor shall provide all entity relationship diagrams and data structures necessary for creation of ad-hoc reports. LSIORB shall be given rights to access all source code (except third party source code licensed to the RBOC Contractor) to use for any projects operated or managed by LSIORB and its authorized agents will not sell, modify for use, or distribute the source code to any other agency or authority

B.22.2 Escrow Agreement.

The terms of the escrow account shall be set up such that LSIORB shall have rights over the software held in the escrow account should the RBOC Contractor default, fail to support the software, or use the firm's position to obtain unreasonable remuneration. The terms of the escrow account shall be subject to Joint Board approval.

LSIORB and the RBOC Contractor acknowledge that certain technical data, including source code and software system documentation, constituting information which, if subject to public disclosure, would deprive the RBOC Contractor of commercial value, but to which LSIORB must be ensured access to fulfill the terms of the Business Continuity Plan. Accordingly, all escrow material shall be provided to the escrow repository pursuant to the terms of the escrow agreement, approved by the Joint Board, except where the Contract grants rights to the source code to the Joint Board.

B.23 RBOC Performance, Requirements and Measurement

B.23.1 ROADSIDE TOLL COLLECTION SYSTEM

B.23.1.1 Toll Facility Host

Scheduled system maintenance is excluded from the downtime calculations.

TOLL FACILITY HOST		
Performance	Requirement	Measurement
1. Toll Facility Host Availability	99.99% availability provided that once down time exceeds 50 minutes within one year period Liquidated Damages may be assessed. If Contractor provides cure the 99.99% shall recommence.	**Daily Process** **Monthly Summary Report** Toll Facility Host system availability will be the aggregate average of all components. Availability will be measured by subtracting all unscheduled downtime from 100% available time and divide by 100% available time. Unit of measure shall be in minutes. Monthly availability reports shall include cumulative totals for all Toll Facility Host scheduled and unscheduled down time.
2. Real-time Processing and Communication	Transactions sent from the plaza will be received and processed to the Toll Facility Host in near real-time.	**Daily Process** **Monthly Summary Report** Measurement – system integrity reports shall be reconciled daily to assure all transactions are received and processed near real-time. (Contractor to provide time parameters)
3. No Loss of Transactions	The System shall ensure that no transactions will be lost even when associated with periods when communications with the Plaza are not available.	**Daily Process** **Monthly Summary Report** Measurement – system integrity reports shall be reconciled daily to assure that no transactions are lost. (Contractor to provide report mechanism)

TOLL FACILITY HOST		
4. Transaction Processing	Process transactions for posting to the BOS Host in near real-time for both ETC and video transactions.	**Daily Process** **Monthly Summary Report** Measurement – system integrity reports shall be reconciled daily to assure all transactions are received and processed near real-time.
5. Storage	The System shall retain all messages for a minimum of 2 years on-line, and all prior data shall be available to be loaded on the system from archive storage media	**Monthly Process** **Monthly Summary Report** Measurement - system reports should be run on monthly basis to confirm all messages are being retained for a minimum of 2 years. System report to commence with start of live operations.
6. Date/Time Synchronization	All components of RTCS shall be time-synchronized by the Toll Facility Host to within 1/100 of a second.	**Daily Process** **Monthly Submittal – System Log** A system log showing each instance when a time synchronization to NIST has occurred shall be generated monthly. Provide copy of the NTTP Process log.

B.23.1.2 Toll Zone

Scheduled system maintenance is excluded from the downtime calculations.

TOLL ZONE		
Performance	**Requirement**	**Measurement**
7. Availability	99.99% availability provided that once down time exceeds 50 minutes within one year period Liquidated Damages may be assessed. If Contractor provides cure the 99.99% shall recommence. This performance specification shall be applied to each plaza separately.	**Daily Process** **Monthly Summary Report** Plaza Server availability will be the aggregate average of all components. Availability will be measured by subtracting all unscheduled downtime from 100% available time and divide by 100% available time. Unit of measure shall be in minutes. Monthly availability reports shall include cumulative totals for all system scheduled and unscheduled down time.
8. No Loss of Transactions	The system shall ensure that no transactions will be lost even when associated with periods when communications with the Toll Zone are not available.	**Daily Process** **Monthly Summary Report** Measurement – system integrity reports shall be reconciled daily to assure that no transactions are lost. (Contractor to provide report mechanism) In cases where there is communication interruption with the host all transactions shall be reconciled immediately upon restoration of connectivity.
9. Transaction Processing	Process transactions for posting to the Toll Facility Host in near real-time for both ETC and video	**Daily Process** **Monthly Summary Report** Measurement – System integrity reports shall be reconciled daily to assure all transactions are received and processed near real-time.

TOLL ZONE		
10. Date/Time Synchronization	All plaza level servers shall synchronize all plaza level systems and subsystems to the nearest 1/100 of a second.	**Daily Process** **Monthly Submittal – System Log** A system log showing each instance when a time synchronization to NIST has occurred shall be generated monthly. Provide copy of the NTTP Process log.

B.23.1.3 Toll Zone Controller

Scheduled system maintenance is excluded from the downtime calculations.

TOLL ZONE CONTROLLER		
Performance	**Requirement**	**Measurement**
11. Toll Zone Controller Availability	99.99% availability provided that once down time exceeds 50 minutes within one year period Liquidated Damages may be assessed. If Contractor provides cure the 99.99% shall recommence. The availability requirement is applied to the required redundant system and not each individual controller. The system would be considered unavailable for processing a toll transaction when the degradation prohibits revenue from being collected.	**Daily Process** **Monthly Summary Report** Measurement - Total system availability will be the aggregate average of all components. Availability will be measured by subtracting all unscheduled downtime from 100% available time and divide by 100% available time. Unit of measure shall be in minutes. Monthly availability reports shall include cumulative totals for all system scheduled and unscheduled down time.

TOLL ZONE CONTROLLER		
12. No Loss of Transactions	The System shall ensure that no transactions will be lost even when associated with periods when communications with the Plaza are not available.	**Daily Process** **Monthly Summary Report** Measurement – system integrity reports shall be reconciled daily to assure that no transactions are lost. (Contractor to provide report mechanism) In cases where there is communication interruption with the host all transactions shall be reconciled immediately upon restoration of connectivity.
13. Transaction Processing	Process transactions for posting to the Plaza Host in real-time for both ETC and video	**Daily Process** **Monthly Summary Report** Measurement – System integrity reports shall be reconciled daily to assure all ETC and video transactions are processed in real-time.
14. Toll Zone Controller Storage	The System shall have data storage for at least 90 days in circular storage (FIFO) on a hard drive.	**Daily Process** **Monthly Summary Report** System monitor reports that verify the lane controller has at least 90 days in circular storage based upon average daily requirement.
15. Accuracy	Correctly detect vehicles, assigning ETC reads / AVC information / video image, and processing transactions at an overall accuracy rate of 99.9%	**Periodic Monitoring by the Joint Board** **Results Reporting by the Joint Board** Daily measurement to be audited via DVAS or other means.

B.23.1.4 Electronic Toll Collection

ELECTRONIC TOLL COLLECTION		
Performance	Requirement	Measurement
16. ETC Association Accuracy	Assigning the correct ETC read at an accuracy rate of 99.95% (1 incorrect association out of 2,000 vehicles) at 0 to 100 mph.	**Daily Process** **Monthly Summary Report** System report indicating improper associations. Periodic Monitoring by the Joint Board. Results Reporting by the Joint Board. Daily measurement to be audited via DVAS or other means.

B.23.1.5 Automatic Vehicle Classification

AUTOMATIC VEHICLE CLASSIFICATION		
Performance	Requirement	Measurement
17. Vehicle Presence Detection	99.9%	**Daily Process** **Monthly Summary Report** System shall flag transactions that do not carry AVC detection. Periodic Monitoring by the Joint Board Results Reporting by the Joint Board Daily measurement to be audited via DVAS or other means.
18. Properly Separate Vehicles	Equal or greater than 99.9%	**Periodic Monitoring by the Joint Board** **Results Reporting by the Joint Board** Daily measurement to be audited via DVAS or other means. Periodic system audit by the Joint Board reporting errors in classifications that indicate more than one vehicle formed classification in transaction. Transactions where AVC loops classifications do not agree with

AUTOMATIC VEHICLE CLASSIFICATION		
		AVC overhead scanner classifications shall be reported.
19. AVC Accuracy	Equal or greater than 99.8%	**Periodic Monitoring by the Joint Board** **Results Reporting by the Joint Board** Daily measurement to be audited via DVAS or other means. Periodic system audit reporting errors in classifications as a percentage of total classifications.
20. Vehicle Speed Detection From AVC and Reported In Miles Per Hour	+/- 4% of the actual speed. For example, at 60 mph, the allowable variance would be +/- 2.4 mph.	**Periodic Monitoring by the Joint Board** **Results Reporting by the Joint Board** Periodic check by the Joint Board. Speed to be reported in transaction message and will be subject to periodic verification by Joint Board vehicles.

B.23.1.6 Video Toll System

VIDEO TOLL SYSTEM		
Performance	**Requirement**	**Measurement**
21. Image Correlation Success	Equal to or greater than 99% – defined as the success rate of capturing image(s) (front and rear) of the correct vehicle and its associated region of interest and correlating it to the correct lane transaction.	**Daily Process** **Monthly Summary Report** The system shall report the number of mismatched images (front and rear) plus number of validated customer complaints of mismatched images divided by the total number of transactions.
22. Legible Image Capture Success	Equal to or greater than 99% – defined as the success rate of capturing human legible image (front and rear), where both the plate number and the state of registration are discernable.	**Daily Process** **Monthly Summary Report** The system shall report the failure rate of capturing human legible images (front and rear) of the correct vehicle where both plate number and state are discernible. This shall be the number of successful OCR'd images plus successful manual reviewed images divided by the total number of transactions minus the non-maintenance rejected images.
23. Capture Rate	No less than 4 images per vehicle per second per lane for both front and rear images. The required capture rate is intended to set a minimum threshold for capturing multiple images of a vehicle in order to increase the rate of success of obtaining a legible image.	**Daily Process** **Monthly Summary Report** The system shall report on the number of images captured for each transaction divided by the number of transactions.

B.23.1.7 OCR

OCR		
Performance	Requirement	Measurement
24. OCR Processing Rate	Minimum of 14,400 images per hour per lane. The minimum of 14,400 images is intended to establish the processing speed. Performance requirements must be met.	**Daily Process** **Monthly Summary Report** The system shall provide a monthly report showing the average image processing speed.
25. OCR Rate	Equal to or greater than 85% – defined as correctly automatically identifying all human readable characters on the license plate for processing without human intervention.	**Daily Process** **Monthly Summary Report** The measurement shall be the number of successful OCR'd images divided by the number of successful OCR'd plus the number of successful manually reviewed images.

B.23.1.8 Video Processing

VIDEO PROCESSING		
Performance	Requirement	Measurement
26. When the transaction is posted to the Toll Facility Host before any human review the system shall detect the license plate number, and license plate type and/or stacked characters known at the time of contract.	80% for Kentucky and Indiana license plates 50% for other United States license plates	**Daily Process** **Monthly Summary Report** Monthly – Report showing the number of OCR'd images that detect the license plate number, the license plate type and /or stacked characters for Kentucky and Indiana plates divided by the number of Kentucky and Indiana plates successfully OCR'd and successfully manually reviewed at the BOS level. A report showing the number of OCR'd images that detect the license plate number, the license plate type and /or stacked characters for non-Kentucky and non-Indiana plates divided by the number of non-Kentucky and non-Indiana plates

VIDEO PROCESSING		
		successfully OCR'd and successfully manually reviewed at the BOS level.
27. Discrimination between Kentucky and Indiana license plates and out-of-state license plates shall be:	90% of all reads	**Daily Process** **Monthly Summary Report** Monthly – Report showing the number of OCR'd images that detect Kentucky and Indiana plates divided by the number of Kentucky and Indiana plates successfully OCR'd and successfully manually reviewed at the BOS level.
28. For "Registered-Seen" license plates, at the time the transaction is posted to the Toll Facility Host and before any human review, the license plate number shall be correct to include detection of stacked characters known at the time of contract execution of all reads within:	95% for Kentucky and Indiana license plates 80% for other United States license plates	**Daily Process** **Monthly Summary Report** Monthly – Report showing the number of OCR'd images that qualify as "Registered-Seen" that detect the license plate number, the license plate type and /or stacked characters for Kentucky and Indiana plates divided by the number of Kentucky and Indiana plates successfully OCR'd and successfully manually reviewed at the BOS level. A report showing the number of OCR'd images that qualify as "Registered-Seen" that detect the license plate number, the license plate type and /or stacked characters for non-Kentucky and non-Indiana plates divided by the number of non-Kentucky and non-Indianaplates successfully OCR'd and successfully manually reviewed at the BOS level.

B.23.1.9 CCTV

CCTV		
Performance	Requirement	Measurement
29. Log of all administrator actions related to the CCTV system	Administrator actions are defined as actions of persons who have authorization to access the CCTV system.	**Daily Process** **Monthly Summary Report** Provide a report that indicates all actions taken to use the CCTV system.
30. Recording Storage	Images not marked for archive shall be automatically purged after 60 calendar days. The intent of the storage is to retain the video for a maximum of 60 days. The CCTV system shall be capable of recording from cameras for a minimum of 35 days and shall be purged at 60 days.	**Daily Process** **Monthly Summary Report** System monitor reports that verify the CCTV recordings are being stored and those recordings over 60 days old not marked for archive are being purged.

B.23.1.10 Maintenance Requirements

MAINTENANCE REQUIREMENTS		
Performance	Requirement	Measurement
31. Toll Facility Host	Maximum time to respond – 2 hours Mean time to repair – 2 hours Mean time between failures – 10,000 hours Coverage – 24 hours a day, 7 days a week	**Daily Process** **Monthly MOMS Activity Report** Daily Measurement - MOMS and system reports to verify maintenance work response and MTBF.
32. Plaza	Maximum time to respond – 2 hours Mean time to repair – 2 hours Mean time between failures – 10,000 hours Coverage – 24 hours a day, 7 days a week	**Daily Process** **Monthly MOMS Activity Report** Daily Measurement - MOMS and system reports to verify maintenance work response and MTBF.
33. Toll Zone Equipment	Maximum time to respond – 2 hours Rush hour required response – 1 hour Mean time to repair – 2 hours	**Daily Process** **Monthly MOMS Activity Report** Daily Measurement - MOMS and

MAINTENANCE REQUIREMENTS		
	Rush hour required repair – 1 hour Mean time between failures – 10,000 hours Coverage – 24 hours a day, 7 days a week	system reports to verify maintenance work response and MTBF.
34. Toll Zone Controller	Maximum time to respond – 2 hours Mean time to repair – 2 hours Mean time between failures – 10,000 hours Coverage – 24 hours a day, 7 days a week	**Daily Process** **Monthly MOMS Activity Report** Daily Measurement - MOMS and system reports to verify maintenance work response and MTBF.
35. CCTV	Maximum time to respond – 2 hours Mean time to repair – 2 hours Mean time between failures – 10,000 hours Coverage – 24 hours a day, 7 days a week	**Daily Process** **Monthly MOMS Activity Report** Daily Measurement - MOMS and system reports to verify maintenance work response and MTBF.

B.23.2 BACK OFFICE SYSTEM

B.23.2.1 BOS Host

Scheduled system maintenance is excluded from the downtime calculations.

BOS HOST		
Performance	Requirement	Measurement
1. BOS Host Availability	99.99% availability.	**Daily Process** **Monthly Summary Report** This 99.99% availability applies to the Host Server. However, in addition to Host availability, the System will report monthly on availability per system component: Account/Transponder Management; IVR; Web; Video Processing including OCR; Report Management; Ad Hoc/Query Database

BOS HOST		
2. No Loss of Transactions	Loading of transactions accumulated at the Toll Facility Host or plaza during the periods when communications with the Host were unavailable shall not reduce the ability of the BOS Host to load all near real-time transactions. No transactions shall be lost during periods when communications with the BOS Host is not available.	**Daily Process** **Monthly Summary Report** System Integrity reports will be reconciled on a daily basis. In cases where there is communication interruption with the host all transactions shall be reconciled immediately upon restoration of connectivity.
3. Transaction Processing	Process transactions for posting in near real-time for both ETC and video	**Daily Process** **Monthly Summary Report** System integrity reports shall be reconciled daily to assure all transactions are posting near real-time.
4. Monitoring and Reporting	The System shall provide a Dashboard functionality for monitoring performance on a near real time basis and the capability to see current and historical data and statistics – hourly, by shift, daily, monthly, quarterly and annual reporting.	**Daily Process** **Exception Report** Required when exceptions happen. Dashboard functionality shall be monitored daily to assure all data and statistics are available.
5. Date/Time Synchronization	All computers and servers of the BOS shall be synchronized at a minimum to the nearest 1/100 of a second.	**Monthly Submittal – System Log** A system log showing each instance when a time synchronization to NIST has occurred shall be generated monthly.

B.23.2.2 Host Database Management System (DBMS)

Transactions refer to "database transactions which will include toll transactions and other message transactions generated by the system or sent to the BOS host.

HOST DATABASE MANAGEMENT SYSTEM (DBMS)		
Performance	Requirement	Measurement
6. DBMS Loading Speed	At least 100 transactions plus all associated ancillary messages per second	**Monthly Monitoring** - Item shall be monitored monthly utilizing Oracle Tools. **Reports** provided when issues are detected. Proof of peak loading speed shall be demonstrated through the use of test scripts and utilizing the database metric tools to verify and demonstrate the test loading speed.
7. DBMS Processing Speed	At least 1 million transactions plus all associated ancillary messages per day	**Monthly Monitoring** - Item shall be monitored monthly utilizing Oracle Tools. **Reports** provided when issues are detected. Prove that at least one million message can be demonstrated through the use of test scripts and utilizing the database metric tools to verify and demonstrate of the processing speed.

HOST DATABASE MANAGEMENT SYSTEM (DBMS)		
8. DBMS Storage	A minimum of online data volume equivalent to at least 2 years of transactions plus all associated ancillary messages at the specified daily processing rate of at least 1 million transactions plus all associated ancillary messages per day	**Monthly Process** **Monthly Report** Data base report shall be provided showing the percentage of free space for each table in the data base. Since the size of the transaction is known, the amount for the storage provided must be able to handle the 1 million to 5 million transactions per day escalated over the period of the contract. This should be demonstrated through a calculation and the demonstration of the capacity set aside for the transactions.
9. DBMS Processing Speed Scalability	Be able to accommodate processing of at least 5 million toll transactions plus all associated ancillary messages per day without major changes to the DBMS	**Monthly Monitoring** - Item shall be monitored monthly utilizing Oracle Tools. **Reports** provided when issues are detected At least 100 transactions per second loading speed, and the minimum of 1 million transactions per day of processing speed, the processing minimum would be 8.6 million minimum per day which should exceed the 5 million specified here. Demonstrating this capacity would be through the use of scripts and test data and utilizing the database metrics form Oracle to show performance.

HOST DATABASE MANAGEMENT SYSTEM (DBMS)		
10. DBMS Storage Scalability	Be able to support to store a minimum of online data volume equivalent to at least 2 years of transactions plus all associated ancillary messages at the specified daily processing rate of at least 5 million transactions plus all associated ancillary messages per day. It is up to the Contractor to provide the adequate storage. The BOS must retain images online for 2 years with all images accessible via tape back-up if needed.	**Monthly Process** **Monthly Report** Data base report shall be provided showing the amount of cumulative data and the number of months of data accumulated to date. Continuous monitoring and real time alarms should provide statistics to verify the initial sizing that was performed by the Contractor. Initial sizing must be verified on periodic milestones to be sure that the initial calculation was correct.

B.23.2.3 Optical Character Recognition (OCR)

OPTICAL CHARACTER RECOGNITION (OCR)		
Performance	**Requirement**	**Measurement**
11. OCR Processing Rate	Minimum of 14,400 images per hour	**Daily Process** **Monthly Summary Report** The system shall provide a monthly report showing the average image processing speed.
12. OCR Rate	Equal to or greater than 90% – defined as correctly automatically identifying all human readable characters on the license plate for processing without human intervention.	**Daily Process** **Monthly Summary Report** The measurement shall be the number of successful OCR'd images divided by the number of successful OCR'd plus the number of successful manually reviewed images. The Operations Contractor shall provide a monthly Image Review QC Report that includes 1. the total number of OCR and manual images tested, 2. jurisdiction accuracy 3. OCR Plate type accuracy

OPTICAL CHARACTER RECOGNITION (OCR)		
		4. Overall license plate extraction accuracy, and 5. OCR error rate. The ORC Error Rate shall be calculated as the number of plates with character errors divided by the total sample size.
13. OCR Jurisdiction Accuracy	The System shall successfully perform OCR on 90% of the images received from the RCTS Toll System that are human readable to obtain the license plate and jurisdictions with an accuracy of 99% of the 90% that were automatically identified for the states of Kentucky, Indiana, Ohio, Illinois, Michigan, Tennessee and West Virginia.	**Daily Process** **Monthly Summary Report** The Operations Contractor shall provide a monthly Image Review QC Report that includes: 1. The total number of OCR and manual images tested, 2. Jurisdiction accuracy, 3. OCR plate type accuracy, 4. Overall license plate extraction accuracy and 5. OCR error rates. The Jurisdiction accuracy rate shall be calculated as the total number of jurisdiction plates QC'd less the total number of images with a jurisdiction error divided by the total sample size. This calculation shall be for the states of Kentucky, Indiana, Ohio, Illinois, Michigan, Tennessee and West Virginia.
14. OCR Plate Type Accuracy	In the case of Kentucky and Indiana plates, the System shall automatically determine the plate type with an accuracy of 99%. Plate type pertains to the specialty plates that a state issues. Jurisdictions refer to the state or country of issue.	**Daily Process** **Monthly Summary Report** The Operations Contractor shall provide a monthly Image Review QC Report that includes: 1. The total number of OCR and manual images tested, 2. Jurisdiction accuracy, 3. OCR plate type accuracy, 4. overall license plate extraction accuracy and

OPTICAL CHARACTER RECOGNITION (OCR)		
		5. OCR error rates. The plate type accuracy rate shall be calculated as the total number of plates types QC'd less the total number of images with a plate type error divided by the total sample size. This calculation shall be for the states of Kentucky and Indiana only.

B.23.2.4 Maintenance Requirements

MAINTENANCE REQUIREMENTS		
Performance	**Requirement**	**Measurement**
15. Response	Maximum time to response – 2 hours	**Daily Process** **Monthly MOMS Activity Report** The MOMS reports shall include an incident report that includes response times for each outage with an average response time for each day.
16. Coverage	24 hours a day, 7 days a week	**Exception Report** To be provided only when an incident of non-compliance occurs.
17. Repair HW	Mean time to repair (hardware) – 2 hours, in no case exceeding 4 hours	**Daily Process** **Monthly Summary Report** The MOMS reports shall include a Mean Time to Repair for each hardware failure with an average repair time for each day.
18. Repair SW	Mean time to repair (software) – 3 hours	**Daily Process** **Monthly Summary Report** The MOMS reports shall include a Mean Time to Repair for each software incident with an average repair time for each day.

B.23.2.5 Video Bill and Violation Requirements

VIDEO BILL AND VIOLATION REQUIREMENTS		
Performance	Requirement	Measurement
19. Mailing Times	All video bills and subsequent notices must meet the timelines as set forth within this document.	**Daily Process** **Monthly Summary Report** The BOS system shall send all notice and correspondence files to the mail-house within 2 business days from the appropriate cycle end date. The mail-house shall provide the QC documents within one business day from the date the file is received from the BOS. The mail-house shall mail and send the return file to the BOS within three business days from the date the QC approval is granted.
20. Accuracy	Video bills and subsequent notices sent to the wrong recipient, or to a recipient who already has paid the toll, shall not occur more than once per 10,000 bills/notices sent.	**Daily Process** **Monthly Summary Report** The operations contractor will conduct QC tests on each batch of correspondence from the mail house prior to mailing. They will provide a daily log of all issues of non-compliance for timeliness and accuracy.

B.24 Liquidated Damages

B.24.1 Specific Standards

There are specific standards for Tolling Component One set forth in this RFP. Actual damages to the Joint Board as a result of Contractor's failure to provide the promised services would be difficult or impossible to determine with accuracy. Liquidated damages as set out herein shall be a reasonable approximation of the damages that shall be suffered by the Board as a result of the Contractor's failure to provide the promised services. Accordingly, in the event of such damages, at the written direction of the Joint Board, the Contractor shall pay indicated amounts as liquidated damages, and not as a penalty. Amounts due the Joint Board as liquidated damages, if not paid by the Contractor within fifteen days of notification of assessment, may be deducted by the Joint Board from any money payable to the Contractor pursuant to the Agreement between the Board and the Contractor. The Board will notify the Contractor in writing of any claim for liquidated damages pursuant to this paragraph on or before the date

the Board deducts such sums from money payable to the Contractor. No delay by the Joint Board in assessing or collecting liquidated damages shall be construed a waiver of such rights.

The Contractor shall not be liable for liquidated damages when, in the opinion of the Joint Board, incidents or delays result directly from causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, acts of God, fires, floods, epidemics, and labor unrest; but in every case the delays must be beyond the control and without the fault or negligence of the Contractor.

If the Joint Board elects not to impose liquated damages in a particular instance, said decision shall not be construed as a waiver of the Board's right to pursue future assessments for liquidated damages for failure to meet project milestones or performance standards and associated liquidated damages; nor construed to limit any additional remedies available to the Board as provided in subsection B.23 RBOC Performance, Specifications and Measurement.

B.24.2 Project Schedule

If the failure to meet project schedule is attributable to the contractor's failure to provide the ETC subsystem interface, documentation or other required support then the Joint Board will have the right to assess liquidated damages for failure to meet project progress milestones according to the Table B.5 Liquidated Damages for Missed Project Milestones.

Liquidated Damages for Missed Project Milestones		
Milestone	**RBOC with respect to RTCS**	**RBOC with respect to BOS**
Phase II Downtown Crossing Site Acceptance (Begin Operations)	$1,000 / day	
Phase II East End Crossing Site Acceptance (Begin Operations)	$1,000 / day	
Phase II Kennedy Bridge Site Acceptance (Begin Operations)		
Phase II KPTIA Operations Center Site Acceptance (Begin Operations)	$1,000 / day	$1,000 / day

Table B.3 - Liquidated Damages for Missed Project Milestones

B.24.3 Roadside Performance Liquidated Damages

Roadside Performance Liquidated Damages – Liquidated damages may be assessed on a per item basis. Per item is defined as each individual performance requirement as defined in subsection B.23.1 Performance, Requirements and Measurement. Each item will be evaluated on a monthly basis, or as stated per item in subsection B.23.1 unless Liquidated Damages have been assessed under which case they will be evaluated every day until cured. The RTCS has 35 performance requirements in subsection B.23.1. Each of these requirements is considered a separate item, and therefore the cap on RTCS Performance Liquidated Damages is $3,500 per day. These items shall be measured and tracked as indicated in subsection B.23.1 and a report shall be issued on overall performance on a monthly basis or as provided in subsection B.23.1 showing daily detailed and summary data. The overall performance for each month for each item will be the measure for determining whether each item requirement is being met, provided however, if during spot performance checks by the Joint Board it is discovered that an item is failing to meet the performance requirement as a matter of course the Board reserves the right to notify the Contractor of such failure and assess Liquidated Damages for the item until the failing performance is cured by the Contractor. The Joint Board also has the option of assessing Liquidated Damages based on each item once they have been shown to be below the performance level based on the monthly reports and the $100 per day per ITEM would be eligible for assessment until the performance level has been corrected. The Performance Liquidated Damages can only be applied on a going forward basis following notification by the Joint Board.

B.24.4 Back Office Performance Liquidated Damages

Back Office Performance Liquidated Damages – Liquidated damages may be assessed on a per item basis. Per item is defined as each individual performance requirement as defined in subsection B.23.2 Performance, Requirements and Measurement**.** Each item will be evaluated on a monthly basis, or as stated per item in subsection B.23.2, unless Liquidated Damages have been assessed under which case they will be evaluated every day until cured. The BOS has 20 performance requirements. Each of these requirements is considered a separate item, and therefore the cap on BOS Performance Liquidated Damages is $2,000 per day. These items shall be measured and tracked as indicated in subsection B.23.2 and a report shall be issued on overall performance on a monthly basis or as provided showing daily detailed and summary data. The overall performance for each month for each item will be the measure for determining whether each item requirement is being met, provided however, if during spot performance checks by the Joint Board it is discovered that an item is failing to meet the performance requirement as a matter of course the Board reserves the right to notify the Contractor of such failure and assess Liquidated Damages for the item until the failing performance is cured by the Contractor. The Joint Board has the option of assessing Liquidated Damages based on each item once they have been shown to be below the performance

level based on the monthly reports and the $100 per day per ITEM would be eligible for assessment until the performance level has been corrected. The Performance Liquidated Damages can only be applied on a going forward basis following notification by the Joint Board.

B.24.5 Liquidated Damages Deducted from Amounts Due

The Joint Board may recover any and all liquidated damages by deducting the amount thereof from any monies due or that may become due the Contractor, notwithstanding any liens, notices of liens or actions of subcontractors, and if said monies are insufficient to cover said damages, then the Contractor or the Surety shall promptly pay any remaining amounts due on demand.

B.24.6 Liquidated Damages Disallowed

In the event that liquidated damages are disallowed by court order for any reason whatsoever, the Joint Board shall be entitled its actual damages.

B.24.7 Delay in Revenue Collection

In cases of delay in the initiation of revenue collection, damages assessed may include monies sufficient to completely compensate the Joint Board for lost revenue based on the Official Traffic and Revenue estimates. The Joint Board shall provide notification to the RBOC contractor of dates that revenue collections are to commence.

B.24.8 Limitation of Liability

Except to the extent of the limitations identified in Sections 6.5.15 Limitation of Contractor's Liability, Nothing herein contained shall be construed as limiting the Joint Board's rights to recover from the Contractor any and all other amounts due or that may become due to the Board, or any and all costs and expenses sustained by the Board for improper performance hereunder, or for breach or breaches in any other respect including, but not limited to, defective workmanship or materials.

B.24.9 Written Notice

The Joint Board shall provide prior written notice to Contractor before assessing any liquidated damages.

B.24.10 Nonperformance Beyond Reasonable Control

Notwithstanding anything to the contrary, in no event shall Contractor be liable for nonperformance and related liquidated damages where the cause of the nonperformance is beyond the reasonable control of the Contractor.

B.25 Actual Damages

The Joint Board has the right to recourse and compensation in cases where the Board suffers actual damages in terms of:

B.25.1 Non-Performance or Negligent Performance

a. Repairs or other corrections due to the non-performance or negligent performance of Contractor which are made at the Joint Board's expense due to Contractor's refusal or abandonment of making such repairs or other corrections after ten (10) days following Contractor's receipt of written notice from the Board as to the existence and extent of such required repairs or other corrections, and

b. Any other cases where the Joint Board is able to demonstrate its loss under this Contract that is indirectly or directly caused by the non-performance or negligent performance of services by Contractor.

B.25.2 Failure to Comply with Contract Obligations

a. The Contractor shall reimburse the Joint Board for any revenue lost which has been due to the Contractor's failure to comply with its obligations under this Agreement. Revenue lost shall be based upon the Official Traffic and Revenue Report or if toll collections have commenced then lost revenue shall be determined by the difference between revenue collected and potential revenue based upon actual traffic.

b. When revenue is lost due to ETC equipment failure and the toll revenue loses cannot be recovered from the customers, the Contractor will be held responsible for these loses when:

1) The Contractor has been informed of the problem;
2) The Contractor does not respond within the required time period;
3) It is determined that the equipment failed as a result of Contractor negligence.

B.25.3 Actual Damages Calculation

The Actual Damages may be calculated in terms of:

a. Lost Revenue from toll collections demonstrated by
   i. ETC system observation,
   ii. Traffic data from the ITS system, or
   iii. Observation made by any other means showing that traffic passing the Toll Zones was unaccounted for due to failure of the ETC subsystem,

b. Repairs or other corrections which are made at the Joint Board's expense, and

c. Any other case where the Joint Board is able to demonstrate its loss due to Contractor failure.

B.25.4 Reimbursement of Costs

The Joint Board has the right to be reimbursed for the differences in costs and/or additional costs associated with procuring alternative equipment and services if the Contractor's system fails to meet specifications, performance requirements or installation requirements.

B.25.5 Contractor Not Liable

The Contractor shall not be liable for actual damages when, in the opinion of the Authority, incidents or delays result directly from causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, acts of God, fires, floods, epidemics, and labor unrest; but in every case the delays must be beyond the control and without fault or negligence of the Contractor.

B.25.6 Reasonable Diligence

The Joint Board shall use reasonable diligence and care in an effort to minimize or avoid Lost Revenues or any other Actual Damages. The Board shall take all available proactive steps and reasonable actions to avoid additional injury or damages. The Board's efforts to mitigate Lost Revenue of IAG transactions due to a Court ordered injunction as a result of the Contractor shall include the use of video tolling and invoicing for toll transactions not collectable through IAG pay-by-plate transactions. In such an event, the first invoice submitted to an IAG customer for unpaid toll transactions, if not paid by the IAG customer, will be reimbursed by the Contractor. The Joint Board will not take any additional steps to pursue payment from IAG customer. The contractor will only be responsible for unpaid toll transactions.

Appendix C: Tolling Component Two

C.1 Additional Special Requirements

C.1.1 Equipment on Loan and License

The Contractor will provide at no cost, to the LSIORB Project Tolling Component 1 contractor all necessary hardware (two multi-protocol readers and fifty (50) of its multi-protocol Transponders and its sticker tags) and Interface Control Documents within 14 calendar days of contract execution with which the Tolling Component 1 contractor may conduct integration design and development work for the Joint Board. The Contractor shall agree to loan this equipment contingent upon execution of NDA with the Tolling Component 1 contractor and return of equipment contingent upon termination of either the Tolling Component 1 or Tolling Component 2.

Contractor will provide the Joint Board a standard perpetual, irrevocable license for the multi-protocol reader technology within 14 calendar days of contract execution.

C.1.2 Contractor's Interaction with Other Manufacturer's Products

The Contractor shall also allow their readers to read Transponders manufactured by other vendors and will allow other vendors to read their Transponders without additional agreement or compensation by the Joint Board, so long as the reads are restricted to protocols listed in Contractor's ETC Subsystem proposal Section C.4.1.2. Number of Protocols. Readers will be configured to operate in the lane to read up to two or more of the protocols listed in Section C.4.1.2.

Contractor shall place no restrictions on the Joint Board from pursuing, acquiring and deploying non-Contractor's manufactured Transponders and readers in either a test or revenue collection mode at any Joint Board toll facilities or facilities where Joint Board Transponders are or may be read (e.g. parking, airports, quick serve restaurant etc.).

Contractor shall not drop or restrict existing warranties on the Transponders or Transponder Reading equipment it sells to the Joint Board due to interaction with any other manufacturer's equipment (such as Transponders or readers produced by a different manufacturer) as long as Transponder reads are restricted to protocols listed in Contractor's ETC Subsystem proposal Section C.4.1.2. Number of Protocols.

C.1.3 IAG Acceptance of Contractor's Technology

As stated in Contractor's Proposal, their proposed system for the LSIORB Project shall be able to transact with Transponders from the IAG. Contractor further understands that if their multi-protocol reader and multi-protocol Transponder is not accepted and/or certified for use by the IAG the Joint Board may terminate the contract.

C.1.4 Uncollectable IAG Revenue Reimbursement

In the event the Joint Board is limited or prevented from collecting tolls from IAG member issued Transponders due to an injunction issued by a court against the Joint Board or the Contractor that blocks the Board's ability to collect these tolls due to patent, copyright or other intellectual property infringement by the Joint Board related to its use of Contractor products supplied in accordance with this contract (e.g. if the Board is forced to disable the reader from collecting tolls from IAG issued Transponders) Contractor will jointly and collectively reimburse and make the Board whole for all Lost Revenues from these IAG member issued Transponder toll transactions.

C.1.5 Second Source Licensing

Contractor agrees to make available a second source license for the Transponders and readers. This second source license requirement will be implemented by the Contractor within 12 months of the Joint Board issuing or selling 400,000 Contractor manufactured Transponders.

If Contractor does not make second source licensing available within the time frame stipulated, the Board will have first priority with respect to Transponder and reader production.

The Joint Board reserves the right to exercise its rights under the contract with respect to termination if the second source licensing provision is not met.

C.2 Warranties

The ETC Contractor must provide a minimum of a one year all inclusive warranty on the ETC Component. This includes all software, parts and operations including availability and accuracy. The warranty will commence once the ETC Component as a whole has passed Final Acceptance.

C.2.1 Transponders Life – 6 years

Notwithstanding subsection C.5, the ETC Contractor shall provide, without additional charges to the Joint Board, replacement Transponders for any Transponder not functioning for any reason, excluding reasons not related to manufacturing defects, for six years beginning:

1. The date any such Transponder is installed on the exterior or in the interior of any vehicle, or,
2. One year from the date such Transponder is delivered to the LSIORB Project's designated delivery location, whichever is earlier.

The warranty period for the replacement Transponder shall be for the time remaining in the original six year warranty period for the replaced defective Transponder. At a minimum, Transponders which have failed according to the Transponder tester shall be deemed defective and subject to replacement. The Joint Board's determination of the date of installation of any Transponder shall be accepted by the ETC Contractor. If applicable, the warranty shall include the battery.

C.3 Marketing and Distribution

Proposer must discuss how it will be able to assist the Joint Board in the marketing and the issuance and distribution of Transponders. The proposer should discuss possible packaging and items recommended including instructions, decals, templates, and Transponders, for shipment to customers. The proposer shall indicate the ease of installation and use of these items and the ability to incorporate the issuance of the Transponders into the business development process. Proposer should discuss marketing capabilities or suggestions for the customization of Transponders, with images. Proposers must indicate whether they can provide this service and whether they have provided this type of service on other projects.

C.4 Performance, Requirements and Measurement

C.4.1 Electronic Toll Collection

ETC Accuracy	Read / write accuracy rate of 99.95% (1 incorrect association out of 2,000 vehicles) at 0 to 100 mph. (assuming the Transponder is mounted in accordance with the manufacturer mounting instructions)

C.5 Liquidated Damages

C.5.1 Specific Standards

There are specific standards for Tolling Component 2 set forth in this RFP. Actual damages to the Joint Board as a result of Contractor's failure to provide the promised services would be difficult or impossible to determine with accuracy. Liquidated damages as set out herein shall be a reasonable approximation of the damages that shall be suffered by the Board as a result of the Contractor's failure to provide the promised services. Accordingly, in the event of such damages, at the written direction of the Joint Board, the Contractor shall pay indicated amounts as liquidated damages, and not as a penalty. Amounts due the Joint Board as liquidated damages, if not paid by the Contractor within fifteen (15) days of notification of assessment, may be deducted by the Joint Board from any money payable to the Contractor pursuant to the Agreement between the Board and the Contractor. The Board will notify the Contractor in writing of any claim for liquidated damages pursuant to this paragraph on or before the date the Board deducts such sums from money payable to the Contractor. No delay

by the Joint Board in assessing or collecting liquidated damages shall be construed a waiver of such rights.

The Contractor shall not be liable for liquidated damages when, in the opinion of the Joint Board, incidents or delays result directly from causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, acts of God, fires, floods, epidemics, and labor unrest; but in every case the delays must be beyond the control and without the fault or negligence of the Contractor.

If the Joint Board elects not to impose liquated damages in a particular instance, said decision shall not be construed as a waiver of the Board's right to pursue future assessments for liquidated damages for failure to meet project milestones or performance standards and associated liquidated damages; nor construed to limit any additional remedies available to the Board as provided in subsection C.9.

C.5.2 Project Schedule

If the failure to meet project schedule is attributable to the contractor's failure to provide the ETC subsystem interface, documentation or other required support then the Joint Board will have the right to assess liquidated damages for failure to meet project progress milestones according to the Table C-1 Liquidated Damage Summary.

Liquidated Damage Summary	
Milestone/Requirements	**LDs**
Phase II Downtown Bridge Site Acceptance (Begin Tolling Operations)	For every day beyond the date Listed in the Milestone Table 3.3. $1,000 / day
Phase II East End Crossing Bridge Site Acceptance (Begin Tolling Operations)	For every day beyond the date Listed in the Milestone Table 3.3. $1,000 / day
Phase II Kennedy Bridge Site Acceptance (Begin Operations)	For every day beyond the date Listed in the Milestone Table 3.3. $1,000 / day
Off-Site Telephone Support – 24/7 **Requirement** – response within a 15 minute period after initial notification	For every 15 minute period beyond required response time, $50 / period
Spare Part Guaranteed Delivery **Requirement** – Provided by Contractor in the Spare Parts Pricing sheet.	For every day beyond indicated Guaranteed Delivery Time, $500 / day
On-Site Support – Mission Critical **Requirement** – For those mission critical situations where the Contractor's presence on-site for support has been requested – The response time is - 1 day	For every day beyond required 1-day response time, $500 / day

Liquidated Damage Summary	
Milestone/Requirements	**LDs**
On-Site Support – Other Request **Requirement** – For those other situations where the Contractor's presence has been requested, the response time is - 1 week	For every day beyond required 1-week response time, $500 / day
Read/Write Accuracy **Requirement** – 99.95%	$100 per hour
Lane Identification Accuracy **Requirement** – 99.95%	$100 per hour
Read, Write and Lane identification accuracy for Vehicle Speeds **Requirement** – 0 to 100 mph	$100 per hour
Read, Write and Lane identification accuracy under weather conditions **Requirement** – All weather conditions	$100 per hour
Data Transmission Speed **Requirement** – 50 to 70 milliseconds	$100 per hour

Table C-1 - Liquidated Damages Summary

C.5.3 Liquidated Damages Deducted from Amounts Due

The Joint Board may recover any and all liquidated damages by deducting the amount thereof from any monies due or that may become due the Contractor, notwithstanding any liens, notices of liens or actions of subcontractors, and if said monies are insufficient to cover said damages, then the Contractor or the Surety shall promptly pay any remaining amounts due on demand.

C.5.4 Liquidated Damages Disallowed

In the event that liquidated damages are disallowed by court order for any reason whatsoever, the Joint Board shall be entitled its actual damages.

C.5.5 Delay in Revenue Collection

In cases of delay in the initiation of revenue collection, damages assessed may include monies sufficient to completely compensate the Joint Board for lost revenue based on the Official Traffic and Revenue estimates.

C.5.6 Limitation of Liability

Except to the extent of the limitations identified in Sections C.5.15 Limitation of Contractor's Liability, Nothing herein contained shall be construed as limiting the Joint

Board's rights to recover from the Contractor any and all other amounts due or that may become due to the Board, or any and all costs and expenses sustained by the Board for improper performance hereunder, or for breach or breaches in any other respect including, but not limited to, defective workmanship or materials.

C.5.7 Written Notice

The Joint Board shall provide prior written notice to Contractor before assessing any liquidated damages.

C.5.8 Nonperformance Beyond Reasonable Control

Notwithstanding anything to the contrary, in no event shall Contractor be liable for nonperformance and related liquidated damages where the cause of the nonperformance is beyond the reasonable control of the Contractor.

C.6 Actual Damages

The Joint Board has the right to recourse and compensation in cases where the Board suffers actual damages in terms of:

C.6.1 Non-Performance/Negligent Performance

a. Repairs or other corrections due to the non-performance or negligent performance of Contractor which are made at the Joint Board's expense due to Contractor's refusal or abandonment of making such repairs or other corrections after ten (10) days following Contractor's receipt of written notice from the Board as to the existence and extent of such required repairs or other corrections, and

b. Any other cases where the Joint Board is able to demonstrate its loss under this Contract that is indirectly or directly caused by the non-performance or negligent performance of services by Contractor.

C.6.2 Failure to Comply with Contract Obligations

a. The Contractor shall reimburse the Joint Board for any revenue lost which has been due to the Contractor's failure to comply with its obligations under this Agreement.

b. When revenue is lost due to ETC equipment failure and the toll revenue loses cannot be recovered from the customers, the Contractor will be held responsible for these loses when:

   1) The Contractor has been informed of the problem;
   2) The Contractor does not respond within the required time period;

3) It is determined that the equipment failed as a result of Contractor negligence.

C.6.3 Actual Damages Calculation

The Actual Damages may be calculated in terms of:

a. Lost Revenue from toll collections demonstrated by
   i. ETC system observation,
   ii. Traffic data from the ITS system, or
   iii. Observation made by any other means showing that traffic passing the Toll Zones was unaccounted for due to failure of the ETC subsystem,

b. Repairs or other corrections which are made at the Joint Board's expense, and

c. Any other case where the Joint Board is able to demonstrate its loss due to Contractor failure.

C.6.4 Reimbursement of Costs

The Joint Board has the right to be reimbursed for the differences in costs and/or additional costs associated with procuring alternative equipment and services if the Contractor's system fails to meet specifications, performance requirements or installation requirements.

C.6.5 Contractor Not Liable

The Contractor shall not be liable for actual damages when, in the opinion of the Authority, incidents or delays result directly from causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, acts of God, fires, floods, epidemics, and labor unrest; but in every case the delays must be beyond the control and without the fault or negligence of the Contractor.

C.6.6 Reasonable Diligence

The Joint Board shall use reasonable diligence and care in an effort to minimize or avoid lost revenues or any other actual damages. The Board shall take all available proactive steps and reasonable actions to avoid additional injury or damages. The Board's efforts to mitigate lost revenue of IAG transactions due to a Court ordered injunction as a result of the Contractor shall include the use of video tolling and invoicing for toll transactions not collectable through IAG pay-by-plate transactions. In such an event, the first invoice submitted to an IAG customer for unpaid toll transactions, if not paid by the IAG customer, will be reimbursed by the Contractor. The Joint Board will not take any additional steps to pursue payment from IAG customer. The contractor will only be responsible for unpaid toll transactions.

Appendix D: Tolling Component Three

The Operations Services Contractor will be responsible for communicating with and taking responsible actions with the traffic management contractors on the Project for both the East End and Downtown Crossings through any means necessary to ensure the safe and efficient communication of incident data related to both toll collection and traffic. This communication shall include but shall not be limited to the MOMS messaging and alert capabilities provided through the RBOC Contractor.

Operations Services include all non-Information technology facets of the CSC and video and VPS. The Operations Services Contractor shall supply appropriate staffing for account establishment and management services, telephone banks, mailroom operations, customer communications, interoperability and reciprocity, and toll revenue collection for toll customers. The VPS will be responsible for violations processing including image review, Indiana and Kentucky DMV data transfer, billing, noticing, administrative hearings, civil penalty pursuits, and revenue collection as specified in the Business Rules. Text messaging is to be utilized as a third optional delivery method, in addition to mail and e-mail, for routine customer correspondence. Text messages will only be sent automatically to those customers selecting this option. The Joint Board does not anticipate employing live chat via the website.

Coordination with the RBOC Contractor will be critical to establishing sufficient lease space for the Operations Center within the CSC located in Louisville, Kentucky. Toll operations will be conducted within the CSC and VPS and will include telephone bank, mail room, Transponder inventory, CSC workstations and staff, Joint Board office space, and a computer room for the various hosts supplied by the RBOC and RBOC Contractors.

The anticipated activity levels are based on traffic projections and the number of accounts to be managed. The current anticipated operational workload for the FY 2017 to FY 2021 timeframe is shown below; however the Joint Board and its members carry no liability for increases or decreases in actual levels. To mitigate the risk to the Operations Services Contractor, the Joint Board will pay for some limited services and facilities on a pass-through basis as defined in the price sheet, and changes will be made as needed during the life of the Contract. All pass through costs will be quoted in the price proposal on a per unit basis with an estimate for the number of units necessary to adequately provide the level of service contemplated in the RFP. The Joint Board has not finalized its marketing strategy for the LSIORB Project; however, the marketing strategy will be consistent with other start-up- tolling programs. The marketing strategy will incorporate public hearings, focus groups, surveys, websites and a media plan to educate the public on program information such as types of accounts, how to open accounts, and locations available to open accounts. Staffing size in Table D.1 is provided for price proposal purposes only and may not accurately reflect the true staffing needs based on LSIORB Project needs.

Estimated Operations Activity and Staff Levels					
Operating Year*	1st Year	2nd Year	3rd Year	4th Year	5th Year
Transponder Accounts	62,500	64,000	66,000	68,000	70,000
Registered Video Accounts	41,000	48,000	54,000	58,000	63,000
Unregistered Video Accounts	67,000	62,000	59,000	58,000	56,000
Total Transponders in Use	125,000	128,000	131,000	135,000	138,000
Average Daily ETC Transactions	48,000	55,000	67,000	76,000	81,000
Average Daily Video Transactions	21,000	24,000	29,000	30,000	30,000
KPTIA Operations Center floor space (in sf)	5,000	5,000	5,000	5,000	5,000
Number phone / web CSC stations	12	15	15	15	15
CSC Facility One Storefront floor space (in sf)	1,000	1,000	1,000	1,000	1,000
No. Program Managers	1	1	1	1	1
No. Tolls Managers (Account & Video)	2	2	2	2	2
No. CSR Supervisors	1	2	2	2	3
No. Senior CSR	1	2	2	3	3
No. Full Time CSRs (phone, store-front, web)	6	7	8	9	10
No. Mailroom Clerks	1	1	2	2	2
No. Image Review Clerks (includes Supervisor & Senior Clerks also)	3	4	4	4	4
No. Office Admin Assistants	2	2	2	3	3
No. Video Collections Specialists	1	2	3	3	3
No. Adjudication Law Officers	0	0	0	0	0
*** Totals are NOT accumulative but reflect activity that must be managed**					
March 10, 2013					

Table D.1 - Estimated Operations Activity and Staff Levels

The Operations Services Center shall support the LSIORB Project and shall coordinate the LSIORB Project with other toll facilities with which it may be networked. As required by expanded capacity at a rate of 15% per annum, the Operations Services Contractor shall expand their staffing and space levels appropriately.

The Operations Services Contract will vary from traditional toll operations in most

locations in that toll accounts will operate similarly for vehicles identified by both Transponder and video. Fees and fines will vary, and aged invoices will ultimately become violations subject to Joint Board Business Rules.

The RBOC and Operations Services Contractor(s) must be capable of handling large business and commercial accounts that allow for large numbers of Transponders and license plates to be housed under a single account. These large accounts must function and perform in the same manner as an individual account and should not cause processing delays from a customer service perspective. When servicing a commercial account through the website, IVR, or in person, the commercial customer must be able to perform all necessary account maintenance functions in an efficient manner. At all times, regardless of the method of contact, a commercial customer must be able to quickly access a customer service representative trained specifically and dedicated exclusively to responding to the needs of commercial customers.

D.2 LSIORB Project Operations Center, CSC, and VPS

D.2.1 Customer Account Services

As noted in subsection D.1 the Operations Services Contractor shall be experienced and knowledgeable in toll industry practices, and shall provide trained, competent and courteous customer service staff to assist individuals and businesses in managing their toll accounts. Unless otherwise specified, services shall include all activities required to enable customers to pay tolls via an account, whether by use of a Transponder or video capture of their license plate; including accounts from interoperable toll agencies. Customer service activities also include the resolution and payment of toll bills, notices and civil penalties for unpaid tolls.

The Operations Services Contractor shall ensure that LSIORB Project customers are served in an efficient, courteous manner in uniform compliance with approved procedures and practices. Customer service representatives shall provide all services related to toll accounts for LSIORB Project customers, to include account opening, replenishments, closing, inquiries, and violations or billing issues. For purposes of proposal preparation, the proposer may assume hours of operations will be Monday through Saturday, 7 a.m. through 7 p.m. Holidays on which the CSC will be closed include but are not limited to New Year's Day, Memorial Day, the 4th of July, Labor Day, Thanksgiving Day, and Christmas Day. On an annual basis, the Joint Board will publish normal operating hours required of the Contractor and will include the scheduled holidays which the CSC will be closed.

All customer service representatives shall be able to provide basic customer service functions over the telephone, in person, or via mail or the web, for accounts based on ETC or those based on video. Supplemental training and requirements will be specific to each workstation, and for tasks such as video image review and violation actions and collections.

Customer service tasks include:

1. Opening accounts,
2. Retrieving account information (identification numbers, passwords, balances, recent histories,
   statements, etc.),
3. Updating account information, vehicle information, replenishing accounts, and changing credit card or replenishment sources,
4. Issuance of new or replacement Transponders,
5. Accepting returns of Transponders,
6. Closing accounts,
7. Establishing and billing post paid accounts in accordance with Business Rules,
8. Sell and redeem gift cards,
9. Refunds of errant charges or remaining balances on closed accounts, and
10. Assisting customers with troubleshooting, for example with interoperable account charges.

In addition to specific customer service tasks, customer service representatives will have other specific requirements including but not limited to:

1. Begin of shift log-in, Transponder pickups, change fund pickups, and others,
2. End of shift log-out, Transponder lockups or returns, cash-out tasks and return of change funds,
3. Completion and submission of shift logs,
4. Appropriate dress as required by the standard operating procedures, and
5. Rules of appropriate behavior including telephone and in-person etiquette. The Operations Services Contractor and every employee thereof shall maintain a professional and pleasant demeanor at all times.

Reports on all customer service representative account related activities shall include, but not be limited to the following by date, time, location, service method, and payment method:

1. Number of accounts opened,
2. Accounts serviced or modified,
3. Post paid account summary,
4. Accounts closed,
5. Number and value of payments received by customer service representative,
6. Number of transaction types including low, high and average value Elapsed time from action trigger,
7. Total customers serviced including the number of customers requiring escalation or other intervention by customer service representative,
8. Number of complaints by customer service representative, and
9. Daily reconciliation of financial transactions between customer service representative deposit and audit amounts.

The Joint Board expects and encourages the Operations Service contractor to make operational and/or business Policy/Business Rules change recommendations to the Joint Board whenever there may be an opportunity to increase efficiency and effectiveness of the operation relative to lowering costs and or improving customer service. The Joint Board shall evaluate recommendations as to costs and customer impacts and will communicate with the contractor relative to its decisions to execute any recommendations. It will be the responsibility of the contractor to fully document any and all approved recommendations by the Joint Board.

D.2.2 CSC Telephone Bank Operational Services

The Operations Services Contractor shall ensure that LSIORB Project customers are served in a friendly and welcoming manner, and not frustrated, by the use of the telephone for account services. In addition to the customer service representative accepting and responding to calls by telephone, IVR services will also be provided. The IVR will address requests which can be easily automated, but the Operations Services Contractor should expect a large percentage of telephone calls will require personal attention.

All universal customer service representative tasks shall be able to be fulfilled over the telephone except for the distribution of Transponders and printed products which shall be mailed. Specific customer service tasks related to telephone operations include:

1. All general customer service representative tasks,
2. Monitor the IVR and switchboard to ensure performance requirement attainment and proper operations, and
3. Assist the Joint Board in identifying problems in customer service outside of the Operations Service Contractor's scope and developing solutions.

Reports on all customer service representative account-related activities shall include at a minimum:

1. Calls received per day,
2. Calls by IVR per day,
3. Calls by IVR and directed to CSR per day,
4. Calls directly to CSR per day,
5. Customer service representative availability,
6. Customer service representative utilization,
7. Telephone center activity logs,
8. Average wait time,
9. Average talk time,
10. Average after call work time,
11. First call resolution percentage,
12. Abandoned calls.

D.2.3 CSC Mail Room Operational Services

The Contractor shall ensure that the LSIORB Project customers' inbound and outbound mail is handled accurately, expeditiously and confidentially while at the same time operating in a cost-efficient manner. The Operations Services Contractor shall log any and all mail room activity which is not automatically tracked by the RBOC.

The mailroom shall be kept clean and orderly with a minimum of materials out of storage at all times. Valuable items, particularly inventoried items such as Transponders, shall be stored under lock and key when not in use.

Mail room services shall be completed daily with no backlog before close of the mail room, and in compliance with performance requirements.

The Operations Services Contractor shall be responsible for printing using services provided by the RBOC, acceptance of printed material from customer service representatives, and the preparation and mailing of all outbound mail or shipments including but not limited to,

1. Account notices of expiring credit cards, account balances dropping below a configurable balance ,
2. Billing and violation- elevated mailings,
3. Transponder kits to customers,
4. Transponder retail packages to retail outlets, and
5. Transponders being returned to the manufacturer for any reason.

The Operations Services Contractor shall time and date stamp and log all incoming mail and shipments.

The RBOC Contractor is responsible for the selection of the professional printing and mailing solution which will provide a method for the Operations Services Contractor to provide quality control and approval of all outgoing correspondence before release from the mail house. The Operations Services contractor may make recommendations to the Joint Board to modify the printing and mailing arrangements as may have been initially developed by the RBOC contractor. The recommendations to the Joint Board on changing the printing and mailing operation shall minimally include a complete transition plan as well as cost estimates for any recommended change-out together with a schedule for a successful transition. The transition must be seamless and invisible to the customers of LSIORB Project.

Categories of inbound mail and inbound faxes shall include but are not limited to,

1. LSIORB Project account applications,
2. LSIORB Project account change information,
3. Returned LSIORB Project Transponders,

4. LSIORB Project account payments by credit card form, to include violations payments,
5. Returned mail, and
6. Individual written correspondence for purposes of complaints, praise or information.

Reports on all mail room activities shall include,

1. Inbound mail by source, category, type and origin,
2. Outbound mail printed, prepared, properly sealed and mailed out,
3. Daily cost of postage which shall be paid by the Operations Services Contractor and reimbursed by the Joint Board, and
4. Levels of backlog.

D.2.4 Web Hosting Operational Services

Web hosting refers to the monitoring, operation, and management of the web hosting functions. Web hosting function include fulfillment of account orders through the website, online payment reconciliations, customer correspondence through the website, account closure requests, and reporting of lost or stolen Transponders.

Website Maintenance and Upgrades. The operation and maintenance of the web software is the responsibility of the RBOC Contractor. Ensuring proper use and safeguarding of the information is the responsibility of the Operations Services Contractor. The Operations Services Contractor shall also be responsible for monitoring the website, providing notices and daily information updates to the website, and recommending changes and improvements to the LSIORB Project over the life of the Operations Services Contract.

When customers are unsuccessful using automated services on the website or the IVR, they may turn to e-mail for personal attention.

Incoming e-mail will be tracked in the same manner, with the same performance requirements, as physical mail for response and reporting purposes.

The Operations Services Contractor shall provide activity reports on all website and e-mail activity.

D.2.5 ETC and Video Interoperability Services

Given the anticipated interoperable agreements between the LSIORB Project and other toll authorities, the Operations Services Contractor shall ensure that all users of the LSIORB Project facilities will be able to pay tolls automatically with their toll account from any accepted interoperable and reciprocal tolling entity. This would include CSC-type services to interoperable agency customers. This shall include, at a minimum, regular transaction and financial reconciliation with each affected tolling agency, the monitoring of all required file exchanges, dispute processing and resolution and the sending of final reciprocity amounts through the established Joint Board channels for fund exchanges. The Operations Services contractor is responsible for participating in

and developing test scripts as prescribed by the Joint Board for any and all interoperability and reciprocity processes and agreements that the Joint Board may choose to enter into. Similarly, the Operations Services Contractor shall fully support LSIORB Project customers in their use of other toll authorities' facilities to the greatest extent possible as well as fully support "away" customers using the LSIORB Project bridges.

The Operations Services Contractor shall conduct and support:

1. Interagency transmittal and receipt of acceptable Transponders and license plates transactions for toll payments,
2. Interagency transmittal and receipt of toll transactions,
3. Interagency transmittal and receipt of periodic reconciliation files, and
4. Submittal of reconciliation files to the Joint Board for approval for payment.

The Operations Services Contractor shall provide daily financial and activity reports on all financial services activities, and periodic reports for pending approvals of settlement payments. All account closure settlement payments or adjustment payments must be processed by the Joint Board or its designated representative for these payments.

D.2.6 Financial and Banking Services

LSIORB Project customers will make their payments for tolls and fees via credit card, debit card, money order, or cash. In most cases, payments will be automatic replenishments and the Operations Services Contractor's goal shall be to ensure this works as designed for as many transactions as possible.

The Operations Services Contractor shall be responsible for the safeguarding of cash deposits and thus shall be responsible for armored car services.

All money paid to the CSC shall be credited into the designated Joint Board bank account. The Joint Board will be the legal holder of the account and will cover banking fees and retain any interest on deposits available. All customer payments shall be deposited within one business day of when they are received.

The CSC shall process refund requests from customers in accordance to the approved Business Rules and procedures for closing accounts. The refund packets shall be submitted to the Joint Board for approval and processing. Credit card or debit card based toll accounts shall be refunded to the same card. Cash toll accounts shall be refunded with a check mailed to the address of record on the account.

Refunds provided by check will be processed by CSC after approval by the Joint Board. Business Rules will outline timing of refunds. Business Rules will also address the plan for funding a zero-balance checking account on which the CSC Manager and the Joint Board would have signature privileges. This account will be reconciled monthly by the Joint Board.

Upon completion and acceptance of reconciliation files by the Joint Board, the Operations Services Contractor shall assemble the document package required for the Joint Board to execute payments and receipts of interagency settlements.

The Operations Services Contractor shall provide daily financial activity reports on all financial services activities.

D.2.7 CSC Accounting and Reconciliation Services

The Operations Services Contractor shall ensure that all money is handled and accounted for in a proper, timely and fiduciary manner, and that the Joint Board will have the necessary tool to be able to track all activities and verify reconciliation processes easily and quickly.

Accounting and reconciliation reports shall include at a minimum:

1. Cash and all other payments collected at the CSC storefronts and other retail outlets under contract,
2. Account deposits, shortages and overages,
3. Adjustments,
4. Daily reconciliations, customer accounts balances, CSC and VPS activities, tolls collected and tolls posted, video images received versus video images processed,
5. Recommended fund transfers, deposits and withdrawals,
6. By CSC for each shift, number of transaction types, deposits by payment type, cash deposits, low, high and average value,
7. Aggregate account balance activity including beginning-of-day and end-of-day balances, all tolls and fees, and replenishments, and
8. Interoperable account activities for home and away transactions for both ETC and video transactions, reconciliations and settlements.

D.2.8 Customer Information Control

The Operations Services Contractor shall ensure that LSIORB Project customers' information and any relevant documentation is handled and accounted for in a proper and secured manner, and that only the Joint Board and those properly authorized will have access to it.

The Joint Board is the sole owner of all customer information and documentation and shall be able to take physical or electronic possession at any time.

All customer documentation shall be scanned to Adobe PDF file format daily with no backlog at the end of the day and stored and backed up electronically. Paper documents shall be annually archived for three years and then destroyed. Documents include, but are not limited to,

1. Closed account correspondence,
2. Account adjustments,

3. Corporate applications,
4. Standard returned Transponder and closed account form,
5. Correspondence on returned defective Transponder,
6. Correspondence for the issuance of a non-revenue Transponder for various categories, and
7. Customer complaints and responses answered by the Operations Services Contractor or the Joint Board.

The Operations Services Contractor shall report on the volume and the categories of documents of material scanned monthly.

All data, records, and operations history information shall remain property of the Joint Board at all times.

The Operations Services Contractor shall ensure that no unauthorized personnel will have access to individual records, payment histories, any personal information of existing or potential LSIORB Project or interoperable toll customers. Paper records shall be locked when not in use, and password and identification controls will be employed for data access.

The Operations Services Contractor will develop a security plan for the Joint Board's approval. Personnel will undergo security screenings that will be documented and available for the Joint Board's review based on the level of security.

In accordance with KRS 61.878(1) and IC 5-14-3-4 the private customer data is exempt from public open records law.

D.2.9 Transponder Operations Services

The Operations Services Contractor shall ensure that Transponders owned or in the care of the Joint Board and the LSIORB Project customers' information and any relevant documentation is handled and accounted for in a proper and secured manner.

The Operations Contractor is responsible for all Transponder inventory under its control. This includes financial responsibility for damaged or stolen Transponders in the Contractor's care.

The Operations Services Contractor shall accurately track and be able to report on the location and distribution of all LSIORB Project Transponders. The Operations Services Contractor shall use bar coding provided by the ETC and RBOC Contractors. Control, warranty and location of each Transponder shall be tracked upon initial receipt into inventory, whether in:

1. Operations Center controlled inventory storage,
2. With a CSR in the Operations Center or storefront or in the mail room,
3. At a retail outlet prior to sale and registration,
4. Assigned to a customer account,
5. Reported lost, damaged or stolen,

6. Returned to the Operations Services Contractor and to be sent back to the manufacturer, which will be made cost effective through the use of batching.
7. Returned to the Operations Center or storefronts to be discarded.

The Joint Board will purchase Transponders and transfer them to Operations Services Contractor for inventory management.

The Operations Services Contractor shall take a weekly physical count of Transponder inventory, and shall be responsible for inventory reconciliation every week and when inventory is received, or transferred to and from locations. Inventory reports will include minimal order levels and the Operations Services Contractor shall notify the Joint Board when new Transponders need to be ordered. These order levels must incorporate purchasing lead times to ensure there is never a shortage of Transponders on hand.

After the Joint Board develops and approves the kits to be used, the Operations Services Contractor shall keep these kits in inventory and include them with Transponders distributed over-the-counter, via mail, or through retail outlets. The kits may include such items as complimentary bags, LSIORB Project maps, and a user manual. The Operations Services Contractor shall be responsible for maintaining an adequate, but not excessive, inventory of mailer kits. If the Joint Board elects to have the ETC Contractor package Transponders for retail distribution, the Operations Services Contractor shall be responsible for periodic shipment of sales kits to the Transponder vendor to include in the packaging.

After the Joint Board develops and approves of retail packaging to be used, the Operations Contractor shall either keep pre-packaged Transponders in inventory until distributed to retail partners or acquire the retail packaging materials and package the Transponders and sales kits. The Operations Contractor shall provide daily, weekly and monthly inventory reports.

The Operations contractor shall maintain these pre-packaged kits in their own secured inventory location and include these kits with the normal over the counter Transponder distributions, those shipped by mail, etc. The kits themselves must minimally include such items as a Radio Frequency read prevention bag, a welcome letter, Transponder mounting instructions as well as Transponder activation procedures for both existing customers who simply want to add Transponder(s) to their existing account and to new account creators. If LSIORB elects to have the Tolling Component 2 contractor initially package the Transponders for retail distribution, the Operations Service Contractor shall be responsible for timely and sufficient shipment of sales kit materials to the Tolling Component 2 contractor to include in the packaging. All Transponders and the kit materials shall be either mailed in an envelope suitable for ensuring there will be no damage to the Transponders and in the case of retail distribution that the Transponders and kits are robust enough to be handled by store clerks and the public in a retail environment.

D.2.10 Video Tolling Services

The Operations Service Contractor shall ensure that video transactions are tolled correctly with correct identification of the license plate, correct identification of the owner or toll account holder, and correct charges posted to the proper account. The Operations Services Contractor shall also ensure that as unpaid video tolls age, they are processed and charged correctly and that thorough recording of the disposition of all transactions is maintained.

Video Tolling Principle. The Operations Contractor shall treat all video transaction events as,

1. First, an ETC customer (if V-toll) or a video toll transaction by a customer,
2. Second a toll transaction by a new unidentified customer,
3. Third a toll transaction by a delinquent customer, and
4. Finally, as a toll violation.

Video-Based Accounts. The Operations Contractor shall process video transactions in valid accounts, for LSIORB Project and interoperable customers, in the same manner as ETC transactions, but at the RV rate, with the exception of the additional quality control checks to ensure correct license plate reading.

Video Unregistered Account Creation. The Operations Contractor shall open new accounts for previously unseen license plates after identification of the owner of record of the vehicle. These accounts shall be billed in accordance with the approved Business Rules.

Subsequent mailings for aged accounts and violations. The Operations Services Contractor shall pursue unpaid invoices in accordance with the Business Rules.

Evidence Packages and Hearing Support. The Operations Services Contractor shall prepare evidence packages and provide services as requested to support hearing officers or Joint Board negotiations with violators.

Hot list Notification to the Joint Board and Law Enforcement Officials. The Operations Services Contractor shall support immediate notification of hot list vehicles to the Joint Board and or law enforcement officials in accordance with the Business Rules, particularly with as they apply to data security and privacy.

Reports. The Operations Contractor shall provide daily, weekly, and monthly production reports on all aspects of VTS, to include daily production activities, daily status of video transactions as they age and the amount of outstanding fines and fees.

D.2.11 Video Image Review Operational Services

The Operations Services Contractor shall ensure that license plate image interpretation results are accurately entered into transaction records, through implementation of the

LSIORB Project video image review Business Rules and provide spot checks and internal quality control checks of automated image processing.

Images Requiring Second Review. Image review clerks shall be providing quality control and may require some entering of original data for those images not recognized automatically. While final rules regarding second review will be outlined in the Business Rule, for proposal purposes the proposer should assume that in the following cases a second image review clerk or supervisor shall verify the initial image review clerk's result,

1. A license plate was read and assigned a high confidence level, but the information appears to be incorrect, or
2. The license plate has not been seen before or cannot be recognized or read.

Reports. The Operations Services Contractor shall provide daily, weekly and monthly production and productivity reports, and also accuracy reports related to the number of machine-read images which required changes. These reports shall be sortable by location and by image review clerk.

D.2.12 License Plate Identification Operational Services

The Operations Services Contractor shall endeavor to accurately identify new and un-matched license plates to the correct owner of record.

The AET System shall automatically review all in-state and accepted out-of-state ETC accounts, review other recent video-based transactions, and if necessary execute the look up with DMV records. The Operations Services Contractor shall execute other lookups using access to out-of-state DMV or private look-up sources for otherwise unmatched license plates, for rejected or returned addresses, and for other cases as determined by the Business Rules.

The Operations Services Contractor shall provide daily, weekly and monthly production reports on all aspects of license plate identification activities to include the number and successes of lookups, returns and secondary searches.

D.3 CSC, Storefronts, Satellite Centers, and Operations Locations

The Operations Services Contractor shall be responsible for leasing business locations for CSC activities. The Operations Services contractor shall work closely with the Joint Board in selecting the Operations Center location or any storefront CSC and will be responsible for negotiating and executing the lease. All leases shall be assignable to the Joint Board or to a third party as may be authorized by the Board. The Operations Services contractor is required to seek competitive prices for any and all prospective leases and services. Payments for such space expenses shall be invoiced as "direct costs" only. The Operations Center itself is expected to be expanded via scalability defined in Tolling Component One - RBOC to support the Joint Board facilities and to support

multiple storefronts in appropriate retail locations. Janitorial services and all other utility services must be included as part of any lease agreement.

If any build-out is required under this Tolling Component Three - OPS initiative, the contractor shall be responsible for the design and the build-out of any CSC expansion or new storefront locations but only after Board approval. This shall include but may not be limited to modifications to workstations, furniture and office equipment and cubicles, filing cabinets, office supplies above and beyond the normal day to day materials, as well as other furnishings and fixtures related to office space and workstations required to provide support to the CSC/VPS. Again, all costs shall be "direct Pass-through" costs to the Joint Board and must be approved by LSIORB before any costs are actually incurred.

D.3.1 Operations Center

All leases entered into by the Operations contractor shall be assignable to the Joint Board if the Operations Services Contractor's Contract is terminated before lease expiration. Selection of space and design shall be performed during the design stage of the project with Joint Board review and approval. The Operations Center is anticipated to grow to support all LSIORB Project facilities, and therefore must support multiple storefronts in appropriate retail areas as selected by the Joint Board, with at least one in the proximity of each toll facility, providing the space to house:

1. The CSC telephone banks and other operational areas,
2. VPS and related services
3. Violations processing and related services
4. LSIORB operations management,
5. The Back Office Host systems provided by RBOC Contractor, and
6. The Toll Facility Host provided by the RBOC Contractor.

The Operations Services Contractor shall provide leased office space to support the LSIORB Project toll operations and the RBOC, to include space for use by the Joint Board. This lease space will allow the Joint Board to quickly move into space which can be expanded or changed as the LSIORB Project ramps up and matures. The lease shall be structured such that the Joint Board will assume the lease if the Operations Contractor leaves the project before the lease expires.

The LSIORB Project Operations Center shall be in,

1. Class B or better office space in a reasonable, safe, commercial office or retail area, and
2. The CSC located in Louisville, Kentucky

The LSIORB Project Operations Center shall provide work space for,

1. Customer service representative and telephone bank,
2. Image review clerks,

3. Printing and production room,
4. Mail room and fulfillment activities,
5. Inventory and storage management,
6. Information technology space in the computer room for the RBOC,
7. Employee restrooms and lockers,
8. A break room with small kitchen facilities,
9. Contractor management and administration support.
10. Conference room space and adjacent library and reading room space,
11. Training center,
12. Office for the Joint Board staff as assigned. Joint Board staff should be conveniently located with call center operations within the same building and must have unrestricted access to any of the operational areas. The Joint Board Operations center must be physically segregated from the public areas,
13. Separate external access for employees, armored car and for mail and shipping, and
14. Secured storage areas for Transponders and printed records.

The Joint Board will work with the Operations Services Contractor during the site selection and design phase to determine the space necessary for the Joint Board staff. The lease and build out costs of the Operations Center will be a direct pass-through. All pass through costs require detailed estimates and explanations.

Office build out shall be the responsibility of the Operations Services Contractor after review and approval by the Joint Board.

Furnishings and fixtures suitable for a comfortable, modern, productive work environment with good lighting shall be the responsibility of the Operations Services Contractor.

Utilities and janitorial services to maintain the work environment in a clean, professional appearance shall be the responsibility of the Operations Services Contractor.

The LSIORB Project Operations Center shall be a highly-secured work area, with separate secured zones for inventory, a safe, and cash handling area. Security is to the responsibility of the Operations Services Contractor, although it would be appropriate to have security cameras and audio recording at the site for the needed security for both contents and personnel.

The Joint Board Director of Operations and his or her immediate direct reports must be conveniently co-located with call center operations within the building and shall have unrestricted access to the LSIORB Project Operations Center at any time, with proper keys or key card.

D.3.2 Customer Service Centers

There shall be two Customer Service Center locations which shall be located near the Project, one in Kentucky and one in Indiana. Operations for all Joint Board facilities shall be located in the CSCs. The Operations Center shall be located within the CSC located in

Louisville, Kentucky. The Operations Services Contractor will be responsible for leasing space for the CSCs sufficient in size to accommodate the operations and have expansion capabilities to accommodate a growth rate of 15% per annum.

D.3.3 Storefronts

The Operations Services Contractor is responsible for providing customer service store fronts. The CSC may also serve as the storefront counter for the LSIORB Project. Other storefronts throughout the Kentucky and Indiana may be established as capacity expands and will be priced and negotiated with the Operations Services Contractor as they become necessary. The Joint Board will work with the Operations Services Contractor to determine the initial number of storefront locations during the design phase. The lease and build out costs for these locations will be a direct pass-through. Any additional staffing necessary will be approved by the Joint Board at the hourly rates provided in the price proposal.

The Contractor shall provide at least one CSC storefront in the proximity of the facility, to include the following,

1. The provision, build out, management, maintenance and operations of individual CSC storefronts,
2. For each CSC storefront,
    a. Provide face-to-face service for customers in account establishment and maintenance,
    b. Provide data such as evidence packages and logistics for violation hearings and account dispute meetings,
    c. Provide local support for inventory management as needed,
    d. Support revenue collection and oversight by the Joint Board.
3. The CSC storefronts will accept cash along with credit cards, debit cards, and money orders, which shall require,
    a. Management of a cash bank,
    b. Armored car pickups, and
    c. Secured locks.

D.3.3.1 Storefront Operational Services

Goals. The Operations Services Contractor shall ensure that LSIORB Project customers who come for face-to-face service are served in an efficient, courteous manner in uniform compliance with approved procedures and practices. Storefront customer service representatives will provide all services related to toll accounts for LSIORB Project customers. In addition, receipts and printed information, such as account statements or LSIORB Project information shall be provided and Transponders and mounting supplies shall be available.

Hours of Operation. Operating hours will be mutually determined during the design phase of the project, but shall be compliant with the Business Rules.

Reports. For each storefront, reports on all customer service representative account-

related activities shall include by date, location, service method, and payment method:

1. Number of accounts opened, ,
2. Accounts serviced and modified,
3. Accounts closed,
4. Number and value of payments received by customer service representative,
5. Number of transaction types,
6. Elapsed time from action trigger to completion of action item,
7. Total customers serviced per day including the number of customers requiring escalation or other intervention by customer service representative, and
8. Number of complaints per month by customer service representative.

D.3.3.2 Storefront Retail Lease Space

The Operations Services Contractor shall provide leased office space to support the LSIORB Project CSC storefront operations, as directed by the Joint Board. The requirements for the CSC storefront are broken out separately to ensure locations of storefronts are close to the LSIORB Project. At the storefront level, the Joint Board shall have access to the CSC storefront at any time, with proper keys or key card.

Location Requirements. CSC storefronts shall be located in:

1. Class B or better office space in a readily-accessible, safe, convenient retail services area and
2. In the service area for the LSIORB Project.

Space Requirements. CSC Storefronts shall meet these requirements,

1. Waiting room with chairs and writing surfaces,
2. Customer service representative counters,
3. Small mail room and space for backup fulfillment activities,
4. Small printing and production area,
5. Small secured inventory and storage management,
6. Information technology closet for LAN and control of customer service representative workstations,
7. A small break room with sink, drinking water, lockers and microwave,
8. Supervisor office,
9. Separate accessible waiting room and hearing room for violators or individuals with distressed accounts,
10. Office for an administrative hearing officer,
11. One small office for a Joint Board or Joint Board member employee on assignment or inspection,
12. The storefront shall meet American with Disabilities Act requirements for employees and customers.

Storefront build out shall be responsibility of the Operations Services Contractor after review and approval by the Joint Board.

Furnishings and fixtures suitable for a comfortable, modern, productive work

environment with good lighting shall be the responsibility of the Operations Services Contractor. The waiting area shall also have attractive displays for informational and promotional literature to include a display indicating how to properly mount Transponders.

Utilities and janitorial services to maintain the work environment in a clean, professional appearance shall be the responsibility of the Operations Services Contractor.

Security. The CSC Storefront shall be a highly secured retail outlet, with separate secured rooms for inventory, a safe, and cash handling area.

D.3.4 Satellite Centers

The Operations Services Contractor is responsible for entering into agreements with local business to act as satellite centers for Transponder distribution and account replenishment. The Joint Board reserves the right to review, modify, and approve all such agreements. All such agreements shall be transferable and assignable to the Joint Board, its designee, or other Contractors as needed.

D.3.5 Mobile CSC

The mobile CSC purchase or lease and maintenance expenses will be provided by the Operations Services Contractor as a pass through to the Joint board if a mobile CSC is bid and accepted. The Joint Board shall have approval for the type of vehicle. Operations Services Contractor will provide the staffing of the mobile CSC, if a mobile CSC is used.

D.4 Human Resources

D.4.1 Operations Personnel

Paying tolls on a new toll facility can be confusing. This confusion may be exacerbated on an AET System. The overarching goal of the Operations Services Contractor personnel shall be to courteously and efficiently assist drivers in understanding and complying with Joint Board Business Rules. To achieve these goals, the appropriate staff shall be trained as necessary.

During the course of daily work with LSIORB Project customers, Operations Services Contractor employees shall present themselves as representatives of the LSIORB Project rather than their company. For this reason, these employees' appearance, demeanor, and behavior shall be critically important.

The Operations Services Contractor shall provide full-time and part-time employees with competitive salaries and all normal privileges, benefits and guarantees of employment that are afforded to the firm's existing regular and part-time employees. This includes providing benefits such as medical coverage, retirement plans, sick leave, vacation pay and holiday pay. It is expected that the Contractor would include a benefit package that would keep employee turnover to a relatively low rate. Benefits should be identified in the proposal for evaluation.

Fidelity Bonds requirements for Tolls Operations Personnel shall include:

1. All Operations Services Contractor personnel shall be bonded.
2. The Operations Services Contractor shall provide a commercial fidelity bond in the minimum amount of $100,000 to protect the Joint Board from property losses, including money, occasioned by theft, when such losses are identifiable to specific Operations Services Contractor employees. Contractor may maintain a crime insurance policy in lieu of a fidelity bond; however, it must meet Indiana and Kentucky minimum requirements that cover both theft and burglary.
3. The fidelity bond shall be completed and furnished to the Joint Board along with the executed Contract.
4. The Operations Contractor shall be responsible to file promptly any claims and upon recovery of funds shall reimburse the Joint Board to the full extent of the loss. No deductible amount of the bond shall apply to reimbursement to the Joint Board.
5. The Operations Services Contractor shall submit a report annually that shows a list of employees and a certification that they are all bonded.

General Qualifications. The Operations Services Contractor shall provide qualified personnel to perform the duties and responsibilities assigned under the terms of the Operation Services Contract.

Employees shall have the following general skills and traits:

1. A genuine desire to help customers,
2. Understanding of customers' need,
3. Taking responsibility for assisting customers,
4. Understanding the Business Rules and standard operating procedures,
5. Teamwork,
6. Putting forth extra effort on the job,
7. Avoiding the mistakes that cause most customer conflicts, and
8. Providing customer satisfaction with a reasonable balance between customer requests and Joint Board interests.

Toll Operations Employee Background Checks. All Operations Services Contractor personnel assigned to the LSIORB Project in any manner shall undergo a national background check. This screening process shall ensure that the Operations Services Contractor does not assign to the LSIORB Project any individual whose prior conduct and activities could jeopardize the Operations Services Contractor's ability to properly provide the specified services. The safe and proper handling of LSIORB Project revenues and the personal information of LSIORB Project's customers by the Operations Services Contractor's personnel shall be the focus of the screening process. Any personnel required to drive for official business shall possess a valid driver's license and a copy of the driver's license shall be maintained in the personnel file.

Employee Drug Testing. The Operations Services Contractor shall certify that the personnel it provides are drug free upon initial assignment to the Project. The Operations Services Contractor shall recertify, on an on-going basis, a minimum of 25%

of its personnel every six months, based on random employee testing. This testing process will ensure that all employees are retested within a two-year time frame. The Operations Services Contractor will provide a semiannual report to the Joint Board showing employees tested, test results and the status of the employee population as it relates to re-certification. The Joint Board reserves the right to request that an employee be tested regardless of certification status.

Employee Personnel File. The Operations Services Contractor shall establish and maintain a personnel file on each employee assigned to the Project with a recent photograph, to include a complete set of employee fingerprints for employees assigned where cash may be handled. It is required that fingerprints be taken by a local law enforcement agency. Any local law enforcement agency will suffice provided that the agency's name is on the personnel file for verification by the Joint Board. The Joint Board reserves the right to review personnel files from time to time at its discretion. The costs are not a pass through item and should be included in the hourly rates for each position.

D.4.2 Job Performance and Requirements

Employee Experience Preferences and Requirements. All Operations personnel shall possess:

1. A valid picture identification card issued by a state government or agency,
2. Educational credentials with a minimum of a high school diploma or equivalent,
3. The ability to speak English clearly, to understand and write the English language. This requirement applies to all CSC personnel,
4. The ability to speak, understand and write in Spanish. This requirement applies to at least one customer service representatives on duty at any time within the Operations Center or storefront,
5. Legal right to reside and work in the U.S., either through U.S. citizenship or an alien Registration Card, Form I-151,
6. Passage of a standardized test, indicating rudimentary skills in data entry, writing, math skills, and language skills,
7. A minimum of one year of cash handling experience with computerized cashiering for toll operations only,
8. Inbound call service center experience is preferred but not essential for every toll operations employee, and
9. Ability to learn and operate computer software programs for accessing and controlling CSC and VPS.

Operations Services Contractor employees shall generally be responsible for:

1. Account management services on the telephone, in person or via fax, mail or e-mail,
2. Transponder distribution,
3. Exception items and activities, credit card denials,
4. Violation and interoperability processing,
5. Beginning of shift and end of shift preparations and tasks, and

6. Completing all tasks with the proper demeanor and attitude.

Employee Appearance. The Operations Services Contractor's employees shall meet the dress and appearance requirements as established for employees of the State of Indiana or the Commonwealth of Kentucky. Contractors shall be responsible for any uniform costs.

Employee Behavior. Operations Services Contractor's employees shall meet all Joint Board personnel policy and legal requirements for good employee conduct and behavior. Failure to meet this standard shall require quick remediation or employee removal from the Project. Rudeness, sexual harassment, discrimination, vulgar language or gestures shall not be tolerated.

D.4.3 Human Resources Management

Management. The Operations Services Contractor shall provide a full time project manager with credentials to oversee the Operations Services Contract to ensure that procedures and internal controls within the CSC adhere to Joint Board requirements. Operations Services Contractor assignment of management and supervisory personnel to the Operations Center shall be approved in advance by the Joint Board.

Task Flexibility. The Joint Board, at its option, may elect to expand, reduce, or delete the extent of each work element described in this RFP, provided such action does not alter the intent of the RFP.

Staffing Backup. The Operations Services Contractor shall locate and identify a secondary agency or backup to its primary source of personnel. This secondary agency shall be available to provide personnel for the Operations Services Contractor when necessary.

The weekly staffing report shall include:
1. Workforce status,
2. Percentage of required positions filled,
3. Progress and efforts being made in filling the vacant positions, and
4. Turnover rates.

Customer Data Security. All customer information and files must be treated as confidential with access limited to those who work with them. The Joint Board will maintain many data files that could contain highly confidential data, from which negative consequences would ensue should the information be published or otherwise divulged negligently or maliciously. No cellular telephones, cameras, or other electronic mobile devices capable of capturing still images or video shall be allowed in any area where customer information is visible. Unauthorized access to these files could be a violation of law in some cases. Among these files are:
1. LSIORB Project accountholder credit card numbers, demographical and transactional information, and

2. Payment, collection and legal information.

Security Policy and Manual. The Operations Services Contractor shall develop and submit a security policy for review and approval by the Joint Board. The security policy shall automatically incorporate any policies adopted by the Joint Board. The Operations Services Contractor shall provide each of their employees with a copy of the approved security policy manual, obtain a signed copy of the acknowledgement and compliance document, and ensure that all employees working under the Operations Services Contract are aware of the policies and enforce compliance.

Joint Board Right to Remove. The Joint Board reserves the unqualified right, at any time and without incurring liability, to require removal or immediate removal from the Project of any Operations Services Contractor employee whom the Joint Board identifies as a potential threat to the health, safety, security or general well-being of LSIORB Project's customers, employees, agents or assets or whom the Joint Board determines does not meet the minimum performance requirements of the work. Replacement employees shall meet all normal employee requirements.

Time Keeping. All personnel will be required to report to the Operation Services Contractor's onsite manager, and clock-in and clock-out, including all rest or meal breaks while working. The Operations Services Contractor shall provide an electronic time recorder for the recording of employee time and attendance. Updating of employee's time and attendance shall be completed and maintained daily by a member of the Operations Services Contractor management team. Employee time edits are to be provided for review by management. The time recorder shall be independent for the LSIORB Project, and not shared with or connected to any other job site under Operations Services Contractor administration.

Payroll records shall also be accessible to the Joint Board and the Joint Board members for auditing purposes as well as employee time edits. The Operations Services Contractor shall provide weekly work spreadsheets and hours-worked reports by employee. The Operations Services Contractor is responsible for complying with employment laws. The method and process for meeting this requirement is at the discretion of the Operations Services Contractor.

The Operations Contractor shall develop standard operating procedures for clear direction to CSC employees governing the basic roles of their job assignment. The procedures shall augment and complement the RBOC user instructions provided by the RBOC Contractor, and shall include at a minimum:

1. Customer service representative start of shift requirements,
2. Customer service representative end of shift requirements and counting out,
3. Opening an account with one or more Transponders,
4. Opening an account without Transponders,
5. Servicing accounts without exchanges of funds,
6. Servicing accounts with exchanges of funds,

7. Closing accounts,
8. Video image processing,
9. Collections,
10. Violation packages,
11. Hot list vehicles and law enforcement procedures,
12. Escalation,
13. Medical emergency,
14. Police or safety emergency,
15. Supervisory roles and services,
16. Audit and reconciliation, and
17. Report generation.

D.4.4 Training

Training Goals. Operations Services Contractor employees shall be well trained in their tasks before handling customers' money, customers' accounts, or interacting with customers in person, on the telephone or through mail or e-mail. The Operations Services Contractor shall prepare and use a training program for employees, such that those trained employees shall present a positive, professional image for the LSIORB Project meeting all requirements of this RFP.

Tolls Training Plan. The Operations Services Contractor shall develop the training plan that will address all areas of the CSC and VPS, to include: introduction to the Joint Board and its Business Rules, customer interaction, building customer rapport and good will, problems and complaints, difficult customers, communicating with customers and projecting a professional positive image, quality assurance, employee development, and a monitoring plan, the RBOC application, the standard operating procedures, and special training modules for call center work, CSC storefronts, mail, faxes and e-mail.

Initial CSC and VPS Training Programs. Each Operations Contractor employee shall complete an initial two-week formal and practical training program prior to assignment to the operations Center or a CSC Storefront. Labor hours for employees that are terminated prior to their initial training period shall not be billable to the Joint Board.

Follow-up Training. The Operations Services Contractor shall be responsible for continuous training, whether onsite or offsite, of its employees assigned to the project and conduct biannual policy and procedures quizzes. As new policies and procedures are implemented, the Operations Services Contractor must update the training plan and conduct a training session for all personnel accordingly. Operations Services Contractor employees shall be monitored, developed, and retrained to provide positive, personal attention to all of the LSIORB Project's customers

D.5 Operations Performance, Requirements and Measurement

D.5.1 Call Center Time

CALL CENTER TIME			
#	**Performance**	**Requirement**	**Measurement**
1	Average call wait time	Not to exceed 30 seconds	Monthly average as reported on the phone system reports
2	Professional and Courteous	Calls shall be handled in a professional and courteous manner 100% of the time	Call monitoring shall be part of the regular QC process and reported on the monthly QC report. In addition, LSIORB reserves the right to conduct random monitoring and record the results.
3	Time to respond to escalations	Every effort shall be made to resolve escalations related to standard products, services and policies while the customer is on the telephone without a call-back required. For escalations that cannot be handled on the initial call 100% must be resolved within 1 Business Day.	All escalations that cannot be addressed while the customer is on the phone shall be opened as a service request and tracked through the Service Request R reporting system. Requirement evaluated on an average monthly basis.
4	Accuracy of first contact information	99% of customer queries related to standard products, services and policies accurately answered on first contact	Call monitoring shall be part of the regular QC process and reported on the monthly QC report. In addition, LSIORB reserves the right to conduct random monitoring and record the results.

D.5.2 Customer Account Maintenance

CUSTOMER ACCOUNT MAINTENANCE			
#	**Performance**	**Requirement**	**Measurement**
5	Time to scan correspondence	100% shall be scanned into the work flow system within one business day of stamped receipt	Monthly operational reports shall include average backlogs on a daily basis and averaged monthly in the monthly operations reporting package.
6	Time to process incoming mail, email and faxes	Applications – 100% within one business day.	Monthly reports generated from the System.

CUSTOMER ACCOUNT MAINTENANCE			
#	Performance	Requirement	Measurement
		All Payment Types - 100% within one business day. All other correspondence types 100% within two business days.	
7	Time to QC mail or email statements, notices and invoices	100% within 2 Business Days from receipt of files from mail house	QC logs shall be maintained and reported on a monthly basis
8	Processing Accuracy	Average accuracy for all items processed on a monthly basis shall exceed 98%	All processing functions shall be reported as part of the monthly QC reporting package. In addition, LSIORB reserves the right to conduct random audits.
9	Correct assignment of all Transponders to accounts	99.95% correctly assigned	

D.5.3 Customer Service Availability

CUSTOMER SERVICE AVAILABILITY			
#	Performance	Requirement	Measurement
10	Walk-in Center	Monday-Friday 9am-5pm Saturday 9am-2pm Excluding approved holidays	LSIORB observation and audit
11	Staffed telephone coverage for central call center	Monday-Friday 9am-5pm Saturday 9am-2pm Excluding approved holidays	LSIORB observation and audit

D.5.4 Customer Service Availability

CUSTOMER SATISFACTION			
#	Performance	Requirement	Measurement
12	Customer Satisfaction Rating	95% of customers must rank the service as at least satisfactory or better	Periodic formal surveys as requested by LSIORB

D.5.6 Video Image Review

VIDEO IMAGE REVIEW			
#	Performance	Requirement	Measurement
13	Manual Review Times	100% must be reviewed within two business days from the receipt of the image batches into the BOS.	BOS image review reports
14	Accuracy	98% of all manually reviewed images shall be accurately entered into the BOS. This includes the correct license plate and state of origin as well as proper reject codes for bad images.	Images accuracy will be part of the normal QC functions and shall be reported on a monthly basis.

D.5.7 Operational Reporting

OPERATIONAL REPORTING			
#	Performance	Requirement	Measurement
15	Monthly operational reporting package	All monthly reports as defined within this Component 3 document shall be delivered to LSIORB within 10 calendar days from the end of each month.	LSIORB observation
16	Reporting accuracy	100%. All operational reports shall be error free when submitted. This includes any excel formulas as well as data entry.	LSIORB observation

D.6 Liquidated Damages

D.6.1 Specific Standards

There are specific standards for Tolling Component 3 set forth in this RFP. Actual damages to the Joint Board as a result of Contractor's failure to provide the promised services would be difficult or impossible to determine with accuracy. Liquidated

damages as set out herein shall be a reasonable approximation of the damages that shall be suffered by the Board as a result of the Contractor's failure to provide the promised services. Accordingly, in the event of such damages, at the written direction of the Joint Board, the Contractor shall pay indicated amounts as liquidated damages, and not as a penalty. Amounts due the Joint Board as liquidated damages, if not paid by the Contractor within fifteen (15) days of notification of assessment, may be deducted by the Joint Board from any money payable to the Contractor pursuant to the Agreement between the Board and the Contractor. The Board will notify the Contractor in writing of any claim for liquidated damages pursuant to this paragraph on or before the date the Board deducts such sums from money payable to the Contractor. No delay by the Joint Board in assessing or collecting liquidated damages shall be construed a waiver of such rights.

The Contractor shall not be liable for liquidated damages when, in the opinion of the Joint Board, incidents or delays result directly from causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, acts of God, fires, floods, epidemics, and labor unrest; but in every case the delays must be beyond the control and without the fault or negligence of the Contractor.

If the Joint Board elects not to impose liquated damages in a particular instance, said decision shall not be construed as a waiver of the Board's right to pursue future assessments for liquidated damages for failure to meet project milestones or performance standards and associated liquidated damages; nor construed to limit any additional remedies available to the Board as provided in subsection D.4 Operations Performance, Specifications and Measurement.

D.6.2 Project Schedule

If the failure to meet project schedule is attributable to the contractor's failure to provide the build-out of Operations Center, documentation or other required support then the Joint Board will have the right to assess liquidated damages for failure to meet project progress milestones according to the Table D.2 Liquidated Damages for Missed Project Milestones.

Liquidated Damages for Missed Project Milestones		
Milestone	**Operations**	
Phase II Operations Center Build-out Complete (Available to RBOC Contractor)	$1,000 / day	
Phase II Operations Center Site Acceptance (Begin Test Operations)	$1,000 / day	

Liquidated Damages for Missed Project Milestones		
Milestone	**Operations**	
Phase II Begin CSC Operations (6 months in advance of East End Crossing Bridge Opening)	$1,000 / day	

Table D.2 - Liquated Damages for Missed Project Milestones

D.6.3 Operations Performance Liquidated Damages

Operations Performance Liquidated Damages – Liquidated damages may be assessed on a per item basis. Per item is defined as each individual performance requirement as defined in subsection D.4 Performance, Requirements and Measurement**.** Each item will be evaluated on a monthly basis, or as stated per item in subsection D.4, unless Liquidated Damages have been assessed under which case they will be evaluated every day until cured. Operations Services has 16 performance requirements. Each of these requirements is considered a separate item, and therefore the cap on Operations Performance Liquidated Damages is $1,600 per day. These items shall be measured and tracked as indicated in subsection D.4 and a report shall be issued on overall performance on a monthly basis or as provided showing daily detailed and summary data. The overall performance for each month for each item will be the measure for determining whether each item requirement is being met, provided however, if during spot performance checks by the Joint Board it is discovered that an item is failing to meet the performance requirement as a matter of course the Board reserves the right to notify the Contractor of such failure and assess Liquidated Damages for the item until the failing performance is cured by the Contractor. The Joint Board has the option of assessing Liquidated Damages based on each item once they have been shown to be below the performance level based on the monthly reports and the $100 per day per ITEM would be eligible for assessment until the performance level has been corrected. The Performance Liquidated Damages can only be applied on a going forward basis following notification by the Joint Board.

D.6.3 Liquidated Damages Deducted from Amounts Due

The Joint Board may recover any and all liquidated damages by deducting the amount thereof from any monies due or that may become due the Contractor, notwithstanding any liens, notices of liens or actions of subcontractors, and if said monies are insufficient to cover said damages, then the Contractor or the Surety shall promptly pay any remaining amounts due on demand.

D.6.4 Liquidated Damages Disallowed

In the event that liquidated damages are disallowed by court order for any reason whatsoever, the Joint Board shall be entitled its actual damages.

D.6.5 Delay in Revenue Collection

In cases of delay in the initiation of revenue collection, damages assessed may include monies sufficient to completely compensate the Joint Board for lost revenue based on the Official Traffic and Revenue estimates.

D.6.6 Limitation of Liability

Except to the extent of the limitations identified in Sections D.5.15 Limitation of Contractor's Liability, Nothing herein contained shall be construed as limiting the Joint Board's rights to recover from the Contractor any and all other amounts due or that may become due to the Board, or any and all costs and expenses sustained by the Board for improper performance hereunder, or for breach or breaches in any other respect including, but not limited to, defective workmanship or materials.

D.6.7 Written Notice

The Joint Board shall provide prior written notice to Contractor before assessing any liquidated damages.

D.6.8 Nonperformance Beyond Reasonable Control

Notwithstanding anything to the contrary, in no event shall Contractor be liable for nonperformance and related liquidated damages where the cause of the nonperformance is beyond the reasonable control of the Contractor.

D.7 Actual Damages

The Joint Board has the right to recourse and compensation in cases where the Board suffers actual damages in terms of:

D.7.1 Non-Performance or Negligent Performance

Staffing shortages due to the non-performance or negligent performance of Contractor which are made at the Joint Board's expense due to Contractor's refusal or abandonment of making such staffing or other corrections after ten (10) days following Contractor's receipt of written notice from the Board as to the existence and extent of such required corrections, and any other cases where the Joint Board is able to demonstrate its loss under this Contract that is indirectly or directly caused by the non-performance or negligent performance of services by Contractor.

D.7.2 Failure to Comply with Contract Obligations

The Contractor shall reimburse the Joint Board for any revenue lost which has been due to the Contractor's failure to comply with its obligations under this Agreement.

When revenue is lost due to failure to process and manage accounts and the toll revenue loses cannot be recovered from the customers, the Contractor will be held responsible for these loses when:

1) The Contractor has been informed of the problem;
2) The Contractor does not respond within the required time period;
3) It is determined that the loss of revenue is the result of Contractor negligence.

D.7.3 Actual Damages Calculation

The Actual Damages may be calculated in terms of:

a. Lost Revenue from toll collections demonstrated by
   i. Transaction data from the Back Office Host,
   ii. Video Transaction data from the Back Office Host, and
   iii. Observation made by any other means showing that revenue collection was unaccounted for due to failure of the Operations staff to perform,
b. Any other case where the Joint Board is able to demonstrate its loss due to Contractor failure.

D.7.4 Reimbursement of Costs

The Joint Board has the right to be reimbursed for the differences in costs and/or additional costs associated with procuring alternative equipment and services if the Contractor's system fails to meet specifications, performance requirements or installation requirements.

D.7.5 Contractor Not Liable

The Contractor shall not be liable for actual damages when, in the opinion of the Authority, incidents or delays result directly from causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, acts of God, fires, floods, epidemics, and labor unrest; but in every case the delays must be beyond the control and without the fault or negligence of the Contractor.

Appendix E: Maps and Design

Reference Documents and Design of the Roadway Project can be found at:

Downtown Crossing:
http://transportation.ky.gov/Ohio-River-Bridges/Pages/Project-Sections.aspx

East End Crossing:
http://www.in.gov/ifa/2750.htm

For Coordination:

ITS Provisions by the Design Build Contractor Section 19 of Technical Provisions
http://www.in.gov/ifa/files/121019_.IFA_Final_.RFP_Vol_2_TP_Addendum_7.pdf

Electronic Toll Provisions for Design Build Contractor Section 20 of Technical Provisions
http://www.in.gov/ifa/files/121019_.IFA_Final_.RFP_Vol_2_TP_Addendum_7.pdf

Project Related Documents:

http://www.kyinbridges.com/project/

Appendix F: Traffic and Revenue Studies and Reports

Traffic and Revenue Studies can be found at:

To be determined

Additional Appendices to be Determined