

# Request for Proposals

**RFP-2016-1201**

**Washington State**  
***Good To Go!***  
**Back Office System**

Offered by

**Washington State**  
**Department of Transportation**



**Washington State**  
**Department of Transportation**

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## 1.0 Overview of Scope of Work

Appendix 2 defines the Business Requirements for the Washington Department of Transportation (WSDOT) Customer Service Center (CSC) Tolling Back Office System Project. Based on these Business Requirements, the Vendor shall complete the Business Requirements Response Guide in Microsoft Word Version 2010 or later. The Business Requirements Response Guide is available in electronic form and provided as Appendix 4.

### 1.1 Current WSDOT Tolling Business Environment

The scope of this RFP is to implement the next generation of WSDOT's CSC BOS. The existing CSC BOS was implemented in 2011 as a vendor-hosted solution and is managed and operated for WSDOT by its current Toll Customer Service Center vendor.

WSDOT administers the Tolling program in Washington State and the associated *Good To Go!* Toll payment program. WSDOT's Tolling program currently consists of the facilities outlined in Table 1.

Toll Facility	Key Characteristics
State Route 16 Tacoma Narrows Bridge	Single Toll point in eastbound direction with fixed Toll rate for automated vehicle identification (AVI) and photo-Tolling Transactions
State Route 167 High Occupancy Toll Lanes	Multiple Toll points for AVI Transactions only; currently no photo-Tolling equipment for post pay Transactions
Interstate 405 Express Toll Lanes – Bellevue to Lynwood	Express Toll Lanes with multiple Toll points supporting photo-Tolled and AVI Transactions; dynamic Toll rates based on traffic volume; individual Transactions packaged into Trips for processing within the current back office system
State Route 520 Evergreen Point Bridge	Single Toll point in both directions with variable Toll rates based on time of day for both AVI and photo-Tolling Transactions
State Route 99 Tunnel (under development)	Single Toll point in both directions with variable Toll rates based on time of day for both AVI and photo-Tolling Transactions

**Table 1: Description of WSDOT Tolling Facilities**

Table 2 provides the Transaction volumes and revenue generated at each facility in Fiscal Year 2016. The information for the Interstate 405 Express Toll Lanes represents a partial fiscal year since Tolling at this facility did not commence until September 2015. Also, please note that this information is included to provide Vendors with a perspective on the current size of the Tolling program. The next generation BOS being procured under this RFP must be able to scale to fully support anticipated program growth as specified in this RFP.

Facility	Transactions	Toll Revenue Collected <sup>1</sup>	Total Revenue Collected <sup>2</sup>
State Route 16 Tacoma Narrows Bridge	14,800,360	\$ 78,190,730	\$ 81,052,189

Facility	Transactions	Toll Revenue Collected <sup>1</sup>	Total Revenue Collected <sup>2</sup>
State Route 167 High Occupancy Toll Lanes	1,128,750	\$ 1,387,376	\$ 1,487,028
State Route 520 Evergreen Point Bridge	23,217,000	\$ 69,352,819	\$ 76,726,557
Interstate 405 Express Toll Lanes	7,517,562	\$ 12,332,708	\$ 15,784,753
<b>Total</b>	<b>46,663,672</b>	<b>\$ 161,263,633</b>	<b>\$ 175,050,527</b>

**Table 2: FY 2016 Transactions and Revenue by Toll Facility**

<sup>1</sup> FY 2016 unaudited revenue; and <sup>2</sup> FY 2016 unaudited revenue including penalties and fees

Table 3 provides a summary of key statistics for the WSDOT Tolling program for FY 2016 along with a forecast for FY 2020. Please note that WSDOT uses the terms “passes” and “Transponders” interchangeably.

Item	FY 2016 (Actual)	FY 2020 (Forecasted)
Total <i>Good To Go!</i> Accounts	675,000	1,100,000
Total Pay By Mail Accounts	3,000,000	4,500,000
<i>Good To Go!</i> Passes Active	1,230,000	2,000,000
Number of Combined Toll Trips Per Year	46,650,000	66,000,000
Number of Incoming Phone Calls Per Year	1,250,000	1,775,000
Number of Incoming Emails Per Year	175,000	225,000
Number of Pieces of Incoming Mail Per Year	450,000	640,000
Walk-in Customers Per Year	145,000	205,000
Passes Distributed Per Year	335,000	475,000
Image Reviews Performed Per Year	15,000,000	21,000,000
Toll Bills Issued/Mailed Per Year	2,860,000	4,000,000
Notice of Civil Penalties (NOCP) Issued/Mailed Per Year	390,000	550,000
Miscellaneous Letters Mailed Per Year	275,000	375,000
Account Statements Emailed Per Year	2,685,000	4,375,000
Administrative Hearings Requested Per Year	3,500	7,200
Vehicle Registration Holds Requested Per Year	60,500	85,500

Item	FY 2016 (Actual)	FY 2020 (Forecasted)
Customer Service Center (CSC) Operating Hours	M - F, 7 A.M. - 6 P.M.; Sat, 9 A.M. - 1 P.M.	
Walk-in Center (WIC) Operating Hours	M - F, 8 A.M. - 5 P.M. Sat, 9 A.M. - 1 P.M.	

**Table 3: Summary of Key WSDOT Tolling Program Statistics**

The BOS is a core element of WSDOT's Toll program. The BOS manages the customer relationship and financial management aspects of WSDOT's Tolling program and its *Good To Go!* Toll payment program. The existing Contract was a bundled procurement for customer service center operations and a back office system and this Contract is approaching end of Contract term.

The current CSC BOS integrates with the various Roadside Toll Systems (RTS) to provide customer account management and back office system support for the Tolling program. The existing BOS is considered the first generation (Gen 1) in customer Toll Transactions processing for WSDOT. Given WSDOT's desire to implement a single account for all prepaid and postpaid customer usage and with the anticipated integration of Toll technology as an alternative payment method on the Washington State Ferries (WSF), the use of Tolling technology will be expanded into a second generation (Gen 2) of Toll Transaction processing and customer relationship management.

Traditional Toll systems were designed for prepaid revenue, and violators, of the Toll facility. When WSDOT procured the current CSC BOS in 2009, no systems were available to handle both prepaid Transactions and postpaid, or "invoice" type accounts in a single system. The current WSDOT CSC BOS system design involved a modification of the Toll system vendor's violation system to support a postpaid Transaction as an accounts receivable Transaction. If the customer did not pay the Toll, then the Transaction would be treated as a violation. However, WSDOT considers postpaid Transactions one of our payment options and desires to give our postpaid customers the same level of service as customers who establish a prepaid account.

Over the past five (5) years of operations, WSDOT has determined this "two system" approach is not efficient. Customers of WSDOT Toll facilities may move between being prepaid and postpaid customers due to changes in account status. In addition, when a Transaction moves from postpaid to the civil penalty phase, due to non-payment, no customer account information is maintained, only the Transaction information and associated registered owner information is retained. Therefore, customers have been in situations in which they believed they paid all Transactions, but because a single customer account does not exist for all Transactions, outstanding postpaid Transactions may exist which the customer is not aware of. This is just one example of an older system design that is not appropriate for the WSDOT's current and future Tolling concept of operations.

As documented in a Washington State Auditor's Office (SAO) report released on May 4, 2016, the current CSC BOS has a number of other challenges including:

- Limited reporting and analysis capabilities;
- No collections module deployed within the system;
- Lack of automated system functionality to process write-offs based on pre-defined WSDOT Business Rules;
- Limited online Data entry controls and validations; and
- Limited automated financial reconciliation capabilities.

Because of these various challenges, WSDOT obtained funding from the Washington Legislature to support requirements definition, RFP development, and solutions evaluation for a new BOS.

## 1.2 Solution Overview

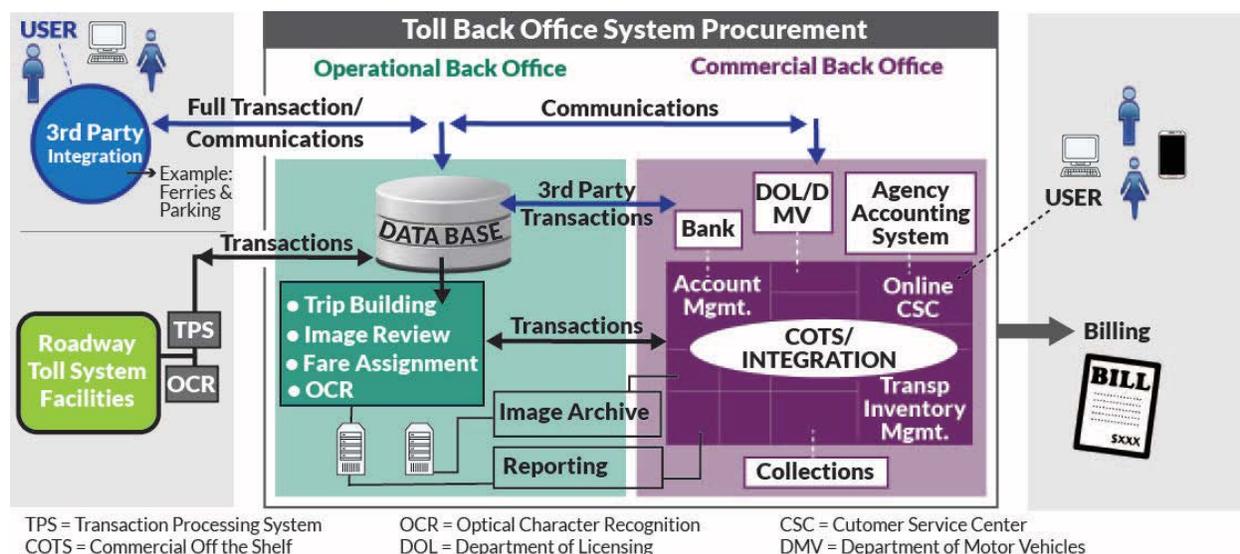
The new BOS System will provide the full functionality of the existing system, address functional deficiencies identified by the SAO, address key limitations with the existing system, and support several key enhancements to program functionality including the concept of a single customer account for both prepaid and postpaid Transactions.

The new BOS will support all existing Toll facilities and the State Route 99 Tunnel which is under development. The new BOS will be architected to be scalable to support and to facilitate future integration with additional Toll facilities currently being studied such as the Interstate 405 Express Toll Lanes from Bellevue to Renton. It will be designed to integrate with WSF to allow *Good To Go!* to be utilized as a payment option for WSF fares. It will also support interoperability with California Toll Operators Committee (CTOC) agencies.

The requirements for the new BOS envision two (2) distinct, yet tightly integrated components: the operational back office (OBOS) and the commercial back office (CBOS). Based on market research performed as part of our pre-implementation planning activities, WSDOT expects that much of the functionality in the commercial back office will be configuration-based and potentially some extension of commercial off-the-shelf (COTS) based Software solutions found in enterprise resource planning (ERP) and/or customer relationship management (CRM) Software solutions. As an alternative to a COTS solution, WSDOT will consider a proven in-house developed solution if the Vendor can demonstrate that the proposed solution has been successfully implemented for multiple external entities to perform functionality similar to that being requested under this RFP.

The functionality in the OBOS, on the other hand, is likely to consist of more built-for-purpose functionality specific to the Tolling industry. Please note that WSDOT prefers a COTS solution for the financial management and accounting requirements and not a Vendor in-house developed custom accounting module.

Figure 1 depicts the anticipated application architecture for the BOS and its two (2) primary components.



**Figure 1 : WSDOT BOS Application Architecture**

The new BOS shall be designed and sized to handle approximately 80 million annual Transaction records in its first year of operations. Likewise, the System must be designed to be scalable to process approximately 350 million annual Transaction records in Year 5 after Go-Live to handle

future Tolling and ferry projects and support WSDOT's *Good To Go!* Customer Service Center (CSC) operations. The System should be modular to allow the BOS to be configured based on user functional groupings.

WSDOT has developed a set of Business Rules for WSDOT CSC operations including the BOS solution. WSDOT's Business Rules provide the framework for the Tolling program's business operations and are the foundation for the requirements for the BOS. The WSDOT Tolling Business Rules are provided in Appendix 7. These Business Rules shall be adhered to by the Vendor in all aspects of the implementation and operation of the BOS throughout the life of the Contract.

Vendors, at their option, may propose a business rules engine as part of their BOS solution set if the use of such a business rules engine will facilitate maintaining the Business Rules and reduce the necessity for code changes to the BOS application.

The WSDOT's *Good To Go!* CSC operations may require more than one physical location and the Vendor will provide the complete infrastructure including Hardware, Software and communications to support the locations. The Vendor will provide adequate physical, System, and communication security (including internet and intranet) to support the CSC operations. The Vendor will also provide a System backup and disaster recovery site to support high System availability and operations in case of emergency.

### 1.3 **Scope of Services**

The scope of services to be provided by the Vendor under this RFP includes:

- Licensing of COTS and/or Toll-industry specific Software solutions included as part of the Vendor's solution, which licenses shall be perpetual and irrevocable;
- Systems integration services including:
  - Software configuration,
  - Design and development of required customizations,
  - Design and development of interfaces,
  - Design and development of Data conversions including Data migration support from the existing CSC BOS application,
  - Planning and execution of testing including unit, System, user acceptance, security and performance testing for all appropriate BOS components,
  - Preparation of training materials, user documentation, and technical documentation,
  - Delivery of user training in a train-the-trainer format,
  - Organizational change management advisory support to assist in preparing an organizational change management strategy/plan,
  - Design, development and testing of a Tolling Data Warehouse as a WSDOT optional element, and
  - Design, development and testing of integration with WSF to support using *Good to Go!* as payment method for WSF Tolls (please refer to Section 10.0 for additional details);

- Establishment and on-going management/operations of a development test, production, quality assurance/production patch and disaster recovery environment;
- Establishment and ongoing operations of the technical environment required to perform image review;
- Establishment and ongoing operations of the CSC telephony System including the interactive voice response (IVR) System (WSDOT Option);
- Provision of local area network, work stations and other peripherals (printers, standalone credit card readers, magnetic ink character readers, etc.) for the CSC and four (4) walk-in sites;
- Ensuring PCI and PA-DSS compliance for the duration of the Contract (please refer to Section 17.18);
- Compliance with all aspects of State of Washington Office of Chief Information Officer (OCIO) Policy 141.10 and other security and access control requirements as identified in Section 17;
- Ongoing Software and Hardware maintenance for all solution elements for the duration of the Contract including periodic technology refreshes;
- On-going support of the application System and all aspects of the technical environment including the telephony System, the interactive voice response System, image review environment, work stations and other peripherals at the CSC for the duration of the Contract and in accordance with the performance and incident response requirements outlined in this Appendix;
- Managing of System elements at the latest patch levels;
- Technology refresh of Hardware components in Year 3 after implementation and every third year thereafter; and
- Continued support for all the BOS elements whenever upgrades are provided by the Vendor or other Hardware or Software providers Subcontracting to the Vendor; and
- Nonexclusive, perpetual, and irrevocable licenses for all BOS elements (Vendor Intellectual Property and Third Party Software).

The Vendor shall provide project space for Vendor, WSDOT and other WSDOT consultant staff (General Toll Consultant, Independent Verification and Validation (IV&V) consultant and Quality Assurance Consultant, etc.) who are working on the Project on a regular basis. Please refer to Section 28 for additional information. WSDOT expects key Vendor personnel and other Vendor staff who regularly interface with WSDOT team members to be co-located at the project space with WSDOT staff during the Implementation phase of the Project.

Co-location will continue during Operations and Maintenance for appropriate key staff. Space for up to five (5) Vendor staff will be provided at the primary call center. This space will be provided by either WSDOT or the CSC Operator. The location of the primary call center has not been determined at this time but it will be within the State of Washington and due to real estate costs will likely be outside of the immediate Seattle metro area.

Some Project Work (such as Software development activities) may be performed off-site with the approval of WSDOT. Certain Project activities with the approval of WSDOT may be performed off-shore. However, no Vendor or Subcontractor staff member located outside of the United

States will be allowed to have access to the BOS production System, any production-like Systems (Quality Assurance or Production Patch) or to any actual Customer Data.

WSDOT expects the Software, Hardware and other equipment and Products to be provided to WSDOT as a service. The Vendor will own or lease in its name all Software licenses, Hardware, equipment, etc. for purposes of provisioning the required services to WSDOT. Please refer to Section 18 for additional information on Hardware and Software requirements.

The Vendor shall locate both the primary hosting site and the disaster recovery site in the United States. The location of the disaster recovery site must be geographically distant (at least 250 miles) from the location of the primary hosting site. Please refer to Section 19 for additional information.

WSDOT will consider a Cloud-based solution for the primary hosting site, the disaster recovery site and other System functions (for example the IVR) where appropriate. If a Vendor elects to implement its CSC BOS solution utilizing a Cloud-based deployment model, the Cloud provider's primary Data center and disaster recovery Data center must be in the United States. In addition, the Vendor must certify that the Cloud provider meets all the security and other Data center and Hardware requirements of this RFP and make available to WSDOT appropriate documentation to support this certification. The use of a Cloud-based solution for any part of the technical solution required under this RFP does not relieve the Vendor of its obligation to meet any of the requirements as specified under this RFP.

## **1.4 Development Methodology**

WSDOT's assumption is that the BOS Project will be implemented following a waterfall methodology. However, WSDOT is open to considering the use of an iterative or agile methodology for System configuration and development activities where this approach allows WSDOT users to perform hands-on testing of System components earlier in the Project. Under such an approach, System functions should be configured, developed and provided to users to initially test in logical sprints or waves of functionality. However, WSDOT expects the actual System Go-Live(s) to be performed following a waterfall methodology including integration and commissioning testing, security testing, performance testing, user acceptance testing, operations testing and the cut-over to production operations.

## **1.5 Implementation Approach and Phasing**

WSDOT envisions implementing the new BOS in two (2) phases. Phase 1 or the initial Go-Live will include deploying the production System for use by the CSC Operator with integration to the lane Systems at all Toll Facilities including the new State Route 99 Tunnel. Phase 1 shall include at a minimum implementation of:

- OBOS, excluding Trip Building functionality, for the Phase I Go-Live, Trip Building for the Interstate 405 Express Toll Lanes and State Route 167 High Occupancy Toll Lanes will continue to be performed by the RTS applications for each Toll Facility and provided to the OBOS as a single Trip Transaction;
- CBOS including all required Data integrations with other third party Systems;
- Customer web site;
- Production hosting site;

- Disaster recovery site;
- Hardware and other equipment required to operate the CSC and walk-in centers;
- Telephony System;
- Interactive voice response unit;
- Document scanning and management System; and
- Email support.

Phase 2 shall include the transition of Trip Building from the RTS applications to the OBOS, implementation of Regional Interoperability, the implementation of the Data Warehouse (if this optional element is selected by WSDOT) and other System components as recommended by the Vendor.

The target date for the Go-Live of Phase 1 is December 1, 2018. Initiating the new System by this date will allow for adequate time for marketing the start-up of Tolling on the State Route 99 Tunnel and for potential new customers generated by the commencement of State Route 99 Tolling to establish their accounts in the new System versus migrating these accounts from the existing BOS application. Tolling is currently scheduled to begin on the State Route 99 Tunnel on March 1, 2019.

WSDOT requires at least a six-month stabilization period between the Go-Live dates for Phase 1 and Phase 2 which must also include a minimum 60-day buffer between the commencement of State Route 99 Tolling and the Go-Live for Phase 2. Within these parameters, Vendors may propose a Go-Live date for Phase 2 in their Project schedules, but it must be no longer than 365 Calendar Days from the Go-Live date for Phase 1 (no later than December 1, 2019).

Table 4 provides WSDOT target dates for Phase 1 and Phase 2. Figure 2 on the page below provides a high-level timeline for the BOS Project. The target dates and the BOS Project timeline are based on a Project start date of July 1, 2017. This schedule is for illustrative purposes only. The Vendor shall propose their own Project Schedule within the parameters outlined within this section.

Milestone	WSDOT Target Date
<b>Phase 1</b>	
Integration and Commissioning Test Completed	August 31, 2018
User Acceptance Test Completed	October 5, 2018
Operations Test Complete	November 15, 2018
Phase 1 Go-Live	December 1, 2018
Phase 1 Acceptance	February 1, 2019
<b>Phase 2</b>	
Operations Test Complete	November 15, 2019
Phase 2 Go-Live	December 1, 2019
Phase 2 Acceptance	February 1, 2020
Final System Acceptance	August 1, 2020

**Table 4: Target Dates for BOS Project**

''	Task Name	Start	Finish	Duration	2017			2018				2019				2020		
					Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
1	Complete Procurement Phase and Select BOS Vendor	12/1/2016	6/30/2017	152d														
2	Project Initiation	7/3/2017	9/29/2017	65d														
3	Preliminary Design	7/3/2017	11/30/2017	109d														
4	<b>Phase 1</b>	<b>12/1/2017</b>	<b>11/30/2018</b>	<b>261d</b>														
5	Final Design	12/1/2017	2/28/2018	64d														
6	Installation and Testing	3/1/2018	11/15/2018	186d														
7	Training	9/3/2018	11/30/2018	65d														
8	Production Cut-Over	11/30/2018	11/30/2018	1d														
9	<b>Phase 2</b>	<b>11/1/2018</b>	<b>6/1/2020</b>	<b>413d</b>														
10	Final Design	11/1/2018	3/4/2019	88d														
11	Installation and Testing	3/5/2019	11/15/2019	184d														
12	Training	9/2/2019	11/29/2019	65d														
13	Production Cut-Over	11/29/2019	12/3/2019	3d														
14	Production Support through Final Acceptance	12/3/2019	6/1/2020	130d														

Figure 2: Proposed BOS Project Timeline

## 1.6 Configuration Definition

Throughout the RFP the term ‘Configurable’ and ‘User Configurable’ will both be used. Both configurable and User Configurable items are included as part of the development and ongoing operations of the BOS. To provide clarity and avoid misinterpretation, WSDOT has defined the terms “Configurable” and “User Configurable” as:

**Configurable** – will mean that the BOS is capable of being configured by the Vendor’s development staff, programmers, etc. to adapt to changes throughout the term of the Contract. Configurable changes, directed either by WSDOT or at the Vendor’s discretion will be considered part of the Vendor’s operations of the BOS and not subject to code changes, requests for extra Work, Change Orders or considered out-of-scope Work.

**User Configurable** – will mean that users of the System such as operations staff, management staff, etc., with appropriate user rights may make changes to the BOS. User Configurable items will not be dependent on the Vendor’s development staff, programmers, etc. nor will it be subject to code changes, requests for extra Work, considered out-of-scope Work or require additional System testing and or regression testing.

**Fixed** – In addition to the “Configurable” terms, WSDOT recognizes that elements or components of the BOS will be “Fixed” whereby specific code changes may be required, as well as additional testing.

## 2.0 Operational Back Office

### 2.1 Concept Overview

The OBOS will be the System of Record for Transaction Data (both individual Toll point Transactions and fully-formed Trip Transactions). The OBOS will perform three (3) main functions: 1) vehicle identification, 2) Trip Building, and 3) rate assignment, which are discussed at a high level below.

The OBOS will integrate with the lane Facility Management and Administration Systems (FMAS) from each of the WSDOT Tolling Facilities. Individual Toll point Transactions will be sent from the lanes to the OBOS via web service or another near real-time Data transfer process, as approved by WSDOT, for initial processing. Batch transfer of Data will be accomplished through a secure file transfer mechanism as approved by WSDOT. Once the individual Toll point Transactions are received from the RTS vendors, the OBOS will utilize Transponder ID, OCR Data, account information, other technologies, and manual review to correctly identify the vehicle.

Once vehicles from each individual Toll point Transaction are correctly identified, the OBOS will assemble those individual Toll point Transactions into fully-formed Trip Transactions based on WSDOT approved Business Rules. The goal of the OBOS is to generate and maintain Trip Transaction life cycle information. The Work performed in the OBOS to process a Trip Transaction will include assembling individual Toll point Transactions into complete and logical Toll Trips according to WSDOT’s Trip definitions.

After the Trip Transactions are formed, but prior to sending them to the CBOS for further processing, the OBOS will determine the appropriate Toll rate and include that information in the Trip Transaction record. The OBOS will assign the lowest possible associated Toll rate (which is

the Transponder rate seen on the sign by the customer) to each Trip Transaction prior to sending it to the CBOS. Additional Trip-based fees or increments, such as the Pay By Plate fee or Pay By Mail increment will be added by the CBOS based on how the Trip Transaction is ultimately billed to the customer.

The Vendor will be responsible for designing and implementing the logic necessary to process individual Toll point Transactions in the OBOS, including vehicle identification, Trip Building, and Toll rate assignment, and then pass the fully-formed Trip Transactions to the CBOS for posting or billing.

The OBOS will also include management reporting capabilities which will integrate individual Toll point Transaction Data and Toll rate display information from each of the lane FMAS, Trip information from the OBOS, receipt acknowledgement information from the CBOS, Toll rate information from the WSDOT Northwest Region Traffic Management Center (TMC), and potentially other WSDOT management Systems in support of WSDOT's Tolling program. Finally, the OBOS will include the capability to update specific Trip Transaction information received from the CBOS, if corrections are made based on Business Rules or customer feedback.

## 2.2 Transaction Processing and Trip Building

The OBOS shall be responsible for Toll Trip Building based on individual Toll point Transaction Data received from each RTS's lane System vendor. There are currently two (2) lane System vendors: TransCore, which operates the State Route 16 Tacoma Narrows Bridge Facility and Kapsch, which operates the Interstate 405 Express Toll Lanes, the State Route 520 Evergreen Point Bridge, the State Route 167 High Occupancy Toll Lanes, and the State Route 99 Tunnel, which is under development.

The RTS vendors will record all Toll point events and assemble them into complete Toll point Transactions. The RTS vendors will then transmit all individual Toll point Transaction Data to the OBOS. The OBOS shall receive individual Toll point Transaction Data via web service or other approved means from the RTS vendors, which must then be assembled into logical Trips based on WSDOT's approved Trip definitions provided by the TMC through an interface. The Trip Building, performed by the OBOS, includes determining which Toll points a vehicle traveled through in a single Trip based on WSDOT Business Rules, as well as determining the appropriate Toll rate (static, variable, or dynamic). The determination of the appropriate Toll rate is based on TMC Toll rate files, RTS vendor Toll rate Data file information, or static Toll rates or rate plans. The appropriate Toll rate is then included in the Trip Transaction record prior to sending the completed Trip Transaction to the CBOS.

For Express Lane facilities, the number of individual Toll point Transactions generated by a single vehicle in a single Trip is dependent on several factors. These factors include entry and exit location, ability to accurately identify the vehicle by Transponder number or license plate number at each Toll point, date/time sequence, and other logic that may be necessary to build an accurate Trip Transaction. As an example, a vehicle may generate seven (7) individual Toll point Transactions as its Transponder is read at every Toll point along the length of the northbound I-405 ETLs.

A vehicle may enter and exit an ETL multiple times in a single Trip. In this case, the individual Toll point Transactions may or may not be grouped into a single Trip Transaction based on WSDOT Business Rules.

For all individual Toll point Transactions received, the Vendor will perform the following processes at a minimum:

1. Individual Toll point Transactions on the same Toll Facility within a given timeframe with matching Transponder information will be processed per the Business Rules for Transponder-based Trips.
2. Individual Toll point Transactions on the same Toll Facility within a given timeframe without Transponder information, but with matching license plate information, will be filtered using a photo Toll process to determine whether the license plate number contained in the Trip Transaction matches a license plate number associated with a valid *Good to Go!* account and the license is associated with a Transponder. When a match is found, the Trip Transaction will be processed according to the Business Rules for Pay By Plate Trips. In cases where the *Good To Go!* account has a Transponder associated with the vehicle, the customer will be sent a notice via mail, email, or text informing them that their Transponder may not be working properly.
3. Individual Toll point Transactions on the same Toll Facility within a given timeframe without Transponder information, but with matching license plate information, that is not successfully processed through the Pay By Plate process (described in Item #2 above) will be processed according to the Business Rules for Pay By Mail Trips.
4. Individual Toll point Transactions on the same Toll Facility within a given timeframe regardless of Transponder or license plate information availability may be processed using account-based strategies or other technological solutions as approved by WSDOT.
5. Prior to completing the Trip Building process, the OBOS will perform necessary re-processing to ensure that any orphaned individual Toll point Transactions that should otherwise be combined with another logical Trip Transaction are included in that Trip Transaction and are not sent to the CBOS as a single point Trip Transaction.
6. All other individual Toll point Transactions on the same Toll Facility within a given timeframe will be processed in accordance with exception-based Business Rules (to be determined during the Requirements Definition Phase of the Project). The goal of exception-based Business Rules is to ensure that every individual Toll point Transaction received from the RTS vendors eventually ends up billed to a customer or included on an exception report, which can be reviewed for quality assurance and continuous improvement purposes.
7. It is anticipated that individual Toll point Transactions from WSF will consist of multiple Tolls (i.e., vehicle, passenger, trailer, etc.), the breakdown of which will need to be preserved through processing and posting. WSF individual Toll point Transactions will not include images; therefore, any Transactions that cannot be successfully posted will need to be identified and reported for auditing purposes.

It is possible that Trip Transactions will be made up of individual Toll point Transactions that include only Transponder information, only license plate information, or a mix of both. Additionally, if account information or other technologies are used to identify vehicles, those individual Toll point Transactions should also be incorporated into Trip Transactions, as appropriate. The Vendor's Trip Building engine shall be able to accommodate any combination of vehicle identification method to ensure the most complete and accurate Trip Transaction result.

The OBOS will receive a Trip definition file from the TMC in accordance with the Toll Rate Module ICD that identifies and defines all logical Trips that can be made on Express Toll Lane facilities. The OBOS' Trip Building process must utilize only the defined Trips to create fully-formed Trip Transactions for processing in the CBOS. The WSDOT Toll Rate Module Interface Control Document is provided as Appendix 15.

It is critical to WSDOT that all individual Toll point Transactions received from the RTS result in a fully-formed Trip Transaction or are marked as an exception. When individual Toll point Transaction Data does not result in a fully-formed Trip Transaction, WSDOT requires a detailed explanation for quality assurance and continuous improvement reasons. To that end, the OBOS will be responsible for Transaction reconciliation of the individual Toll point Transaction Data received from the RTS vendors with both the exceptions and the completed Trip Transactions sent to the CBOS for processing.

The Vendor will provide a graphical user interface based dashboard to view the Trip Building process. The Vendor shall also provide the ability to export Data for further analysis. The Trip Building dashboard will show the following metrics and have the following functionality at a minimum:

- Overall number of individual Toll point Transactions received from the RTS vendors;
- Number of individual Toll point Transactions formed into Trip Transactions;
- Trip Transactions for a selected Toll Facility, time-period, Transaction type, etc.;
- Comparative Transponder-based Trip Transactions to photo-based Trip Transactions and mixed Trip Transactions;
- Access for WSDOT to drill-down into the details of the Trip Transaction at any time;
- All associated images for the Trip Transaction; and
- Status of the individual Toll point Transaction in the overall Trip Building process.

During Phase 1, the RTS vendor will send fully formed Trip Transactions based on its own Trip Building algorithms for use by the OBOS. This information may be used by the Vendor to prove out its Trip Building process initially and as verification against its Trip results on an ongoing basis. After no later than 365 Calendar Days from the Phase 1 Go-Live, however, the Vendor's Trip Building process should be more heavily, if not completely, relied on for creating fully formed Trip Transactions for processing by the CBOS (required scope for Phase 2 implementation).

## 2.3 Trip Transaction Types and Exceptions

The Trip Building process will first use the Transponder number (if available) to build the Trip Transaction. Each Transponder-based Trip Transaction will fall into one of the following categories:

- **Valid AVI Trip Transaction** – the Transponder status is “valid” including “low balance”; and
- **Non-Valid AVI Trip Transaction** – the Transponder status is either “invalid,” “lost” or “stolen” at the time of Trip Building. These types of Trip Transactions may be handled differently on ETL facilities.

The Trip Building process will next use the license plate information (if available) to build the Trip Transaction. Each license plate based Trip Transaction will fall into one of the following categories:

- **High Confidence Pay By Mail or Pay By Plate Trip Transaction** – license plate number can be identified via OCR with high confidence and the manual image review process may be bypassed.

- **Low Confidence OCR Pay By Mail or Pay By Plate Trip Transaction** – Manual image review will be performed by the OBOS that will confirm and/or update the license plate information before the Trip Building process is completed and the Trip Transaction will be re-processed before being sent to the CBOS.

The Trip Building process will next use account information (if available) or other technologies to build the Trip Transaction. These alternative strategies will allow what may otherwise be considered orphan Toll point Transactions to be re-processed and included as a logical Trip Transaction before being sent to the CBOS.

The following individual Toll point Transactions received from the RTS vendors will be considered exceptions by the OBOS as determined during the Trip Building process. Those exceptions may include:

- **Duplicate Trips** – Duplicate Trip will be filtered by the Trip Building process and logged as duplicate in exception table. Only one Trip will be used by the Trip Building process to send to the CBOS.
- **Transactions sent without valid Transponder or license plate Data** – will be marked in accordance with the WSDOT approved Business Rules and logged in the exception table. These types of Transactions will be held in the OBOS for reporting purposes.
- **Other** – per WSDOT Business Rules and policies.

## 2.4 Static, Variable and Dynamic Pricing

The rate assignment process performed in the OBOS as part of the overall Trip Building process shall determine the Toll amount due for each Trip Transaction for both single point Toll facilities and Express Toll Lanes based on the following factors:

- The Toll rate in effect at the time the vehicle passed through the first Toll point on a facility in a given lane for that specific Trip.
- The Transponder status and Transponder mode in effect at the time of the Trip.
- Any exception conditions known at the time the Trip Transaction is built that qualify the Trip for Toll exemptions or discounts.

WSDOT utilizes static pricing (fixed price), variable pricing (time of day pricing), and dynamic pricing (based on congestion and speed levels). The details of each pricing model (including specific Toll rates and effective times) will be provided to the OBOS based on WSDOT policy. Neither the OBOS nor CBOS applications will be responsible for calculating the Toll rates.

The OBOS will provide the ability to accept Data for each type of pricing model and apply them to a specific facility for a given period. The System will be configurable to support different rate plan schedule types, including a failover Toll rate schedule based on historical information in case of communications loss. The OBOS will support different pricing models, including WSDOT-defined segment-based pricing as well as Trip-based and per-mile pricing.

More detailed definitions of the WSDOT pricing models follow:

- **Static** – Static model includes a single fixed rate that is applied for a particular segment or facility until it is changed by the Washington State Transportation Commission.

- **Variable** – Variable model includes a fixed rate schedule that is applied for a particular segment or facility for a particular time of day and/or day of the week.
- **Dynamic** – Dynamic model includes a Toll rate algorithm developed and managed by the TMC. Calculated Toll rates will be distributed to the OBOS in accordance with the approved Toll Rate Module ICD. The actual Toll rate that was displayed on the Toll rate signs in the lanes will come from the RTS vendors in the Toll rate Data file in a new ICD that will need to be developed by the Vendor.
- **Failover** – Failover model includes a historically based Toll rate schedule in case of a communication failure for dynamically priced facilities.

The RTS vendor will provide its Toll rate Data file for all dynamically priced facilities for use by the OBOS via an ICD that will be developed through the design process by the Vendor. This Toll rate Data file will contain information related to any manual overrides or default Toll rates used in the lanes that are not reflected in the TMC provided Toll rate file.

## 2.5 Suspension or Change of Toll Rate

In addition to standard pricing models mentioned above, the OBOS will support manual overrides of Toll rates by authorized WSDOT staff, both in real time and retroactively. In most cases, retroactive Toll rate overrides will be completed prior to posting to the customer's account. However, the System shall allow for overrides after posting to the account, based on relevant accounting rules. The OBOS will also allow authorized WSDOT staff to suspend Tolls in the event of a major incident or Force Majeure.

The OBOS must support an option to configure the start and end time for the suspension or Toll rate change and should provide a pull-down menu from which the facility, direction and applicable Toll points can be selected. In addition, a configuration option must exist to allow Tolls to be suspended or Toll rates changed for all Trip Transactions (by facility) that do not meet/exceed a configurable minimum speed threshold. Based on the invocation of a Toll suspension, the OBOS will modify all Trip Transactions for the affected location(s) and time to indicate a zero-dollar (\$0.00) Toll amount. The OBOS will be able to implement any suspension or change in Toll rate at least 12 hours in the past.

The Vendor will provide a graphical user interface based dashboard to manage variable and dynamic pricing. The dashboard will have the following functionality at a minimum:

- Setup and revise variable Toll rate plan and schedule;
- Manual override option; and
- View the rate plans (historic, current, and planned).

## 2.6 Transaction and Image Transfer

The OBOS will receive the individual Toll point Transactions and images from the RTS vendors and will perform all the functions necessary to assemble the Data into fully formed Trip Transactions ready to be processed and posted by the CBOS. The OBOS will communicate and interface with RTS vendors based on a Roadside Interface Control Document (ICD).

The RTS vendors will provide individual Toll point Transaction Data and images to the OBOS for further processing based on the Roadside ICD. The individual Toll point Transactions are currently transferred via web service, while the associated images are currently transferred using

Secure File Transfer Protocol. During design, the Vendor may propose alternative Data transfer methods for consideration.

Changes to the current Roadside ICD are required to implement the OBOS. These changes will necessitate working sessions between the Vendor, RTS vendors and WSDOT. The Vendor will lead and coordinate the sessions. The Vendor will deliver the final updated ICD to WSDOT.

## **2.7 Transmission Error Identification**

The Vendor shall use the existing WSDOT network communication infrastructure to provide a new object-oriented web-based interface to the RTS vendors. Using this new interface, the OBOS will identify any transmission errors during communication between OBOS and RTS vendors and will notify the RTS vendor(s) involved and WSDOT staff to resolve the issue in a timely manner according to the Key Performance Indicators (KPIs) for issue identification, notification and resolution. Some examples of transmission errors could include but not be limited to:

- Network communications lost;
- Server failure;
- Non-conformance with the Roadside ICD; and
- Other unknown transmission errors.

The Vendor shall identify the issue with the above errors, classify them into the service level issue tiers, and notify and work with RTS vendor and WSDOT in resolving the issue identified during the transmission. The Vendor shall escalate the issue per the System maintenance protocol. All the transmission errors will be logged in the OBOS for audit trail and review purpose. These Transactions will be cached by the RTS vendors for later processing by the OBOS with appropriate monitoring and controls to avoid the loss of any valid Transactions.

## **2.8 License Plate Character Extraction with OCR**

WSDOT requires the OBOS to determine the license plate details from the images captured by the RTS vendors using the Optical Character Recognition (OCR) Software. The Vendor will integrate the OCR Software with the new OBOS application. Specifically, the OCR Software shall be able to automatically identify the plate characters, plate state and plate type information from the images. The OCR Software shall also allow for specialty plates, which often include stacked characters and special characters. The OBOS will automatically determine the region of interest information and provide a cropped version of the image focused on the license plate. For images where the region of interest does not contain a license plate, OBOS will not send these images for image review. Instead, these images should be marked as non-viable and included in an exception report which can be used for quality control and continual improvement purposes.

A confidence level must be tied to each component of the resulting information (plate number, state, and plate type) provided by the OCR Software. Based on the confidence level, WSDOT shall allow the Vendor to bypass the manual image review process. The OCR confidence value will be easily configurable by the OBOS to handle any change in the Business Rules to bypass the manual image review process. Additionally, the OBOS will allow for a forced manual review option for selected images regardless of the resulting confidence level. OBOS shall identify the OCR confidence level in the Toll Trip Transaction record.

The Vendor shall work with WSDOT during the design phase to review the Business Rules and configure the OCR Software within the OBOS accordingly to meet the performance targets established by the KPIs.

The RTS vendors may send OCR results for all images that contain a license plate from its OCR solution for use by the OBOS. This information may be incorporated into the Vendor's image review process or simply used as verification of its OCR results on an ongoing basis.

## 2.9 Manual Image Review

WSDOT understands that the image review process can be a primary source of lost Toll revenue. Manual image review can be an excellent opportunity to increase revenue collection and reduce operating costs. Through its own experience and with the support of industry experts, WSDOT recognizes that the most significant part of the return on investment of the image review process comes from eliminating incorrectly rejected images and billing errors. Achieving the goal of optimal revenue collection of image-based Transactions requires a concentrated focus on the entire image processing value stream. Simply reducing the number of images that require a human review is only part of the answer. Increasing revenue and reducing operational costs will require providing the image reviewer with:

- A high-quality image;
- User interfaces which focus on image review efficiency and utilize human factor engineering techniques to reduce Data entry errors;
- Incorporating double-blind image review techniques; and
- Reports which allow the image review vendor to effectively monitor operational results.

Since accurate image-based Transactions are integral to Trip Building on Express Toll Lanes (including any future multi-Toll Zone Toll facilities with photo-based Tolling), image review accuracy and efficiency is a priority for WSDOT.

With that in mind, the OBOS will provide a set of manual image review tools and reports which focus on license plate identification accuracy. The image review System shall implement the following process:

- First Image Review: For those image-based Toll Trips which cannot be directly billed to a customer account based on a low confidence rating, OBOS shall select the best image and present that to the image reviewer through the image review interface.
  - The image reviewer shall not have to select the best image or provide any other preparation of images for future image processing, such as image cropping, during the image review process;
  - The image review interface shall present the image reviewer with the vehicle image, an extract of the OCR license plate read and any other Toll Transaction information which would assist the image reviewer with accurately identifying the vehicle license plate such as vehicle axle count, Toll plaza location, and Toll Trip timestamp;
  - The image review interface shall provide tools for improving the chances of accurately identifying a vehicle license plate such as enhancing brightness, contrast, sharpness and zoom. In addition, the image review interface shall provide a link to examples of all U.S. and Canadian license plates including U.S. territories;

- The image reviewer shall be provided with the ability to select the appropriate plate state, plate type and input a plate number:
  - The OCR read should not be auto-populated. An image reviewer should have to select the appropriate license plate values, not simply accept what the OCR has presented, and
  - If drop-down tools are provided to image reviewers for selecting license plate values, the drop-down lists shall include all variations of states or provinces plate types for which WSDOT pursues Tolls;
- The image reviewer shall be provided tools necessary for rejecting unreadable images:
  - The image review System shall provide a User Configurable list of reject reasons codes, and
  - Rejection of images shall follow all appropriate accounting rules.
- Second Image Review: After this initial image review, OBOS shall provide a second image reviewer with the same vehicle and Transaction information as the first reviewer. The second reviewer shall not be provided with the license plate values input by the first reviewer.
  - The second image reviewer shall be provided with the same set of tools for improving the chances of accurately identifying the vehicle license plate as the first reviewer;
  - The second image reviewer shall be provided with the same set of image reject tools as the first reviewer;
  - If the second image review matches the first image review and the Transaction is related to Express Toll Lanes, the Toll Trip record shall be updated with the confirmed license plate information and provided to the Trip Building engine for Trip matching purposes;
  - If the second image review matches the first image review and the Transaction is not related to the Express Toll Lanes, the Toll Trip record shall be updated and forwarded to CBOS for Toll Trip posting to the associated customer account; and
  - If the first and second image reviews do not match, the image and Transaction information shall be sent for a third review.
- Third Image Review: This review will be conducted by a supervisor level staff member and will be the final arbiter of the license plate identification or rejection.
  - The third image reviewer shall be provided with the same set of tools for improving the chances of accurately identifying the vehicle license plate as the first reviewer.
  - The third image reviewer shall be provided with the same set of image reject tools as the first reviewer.
  - If the third image reviewer provides license plate identification and the Transaction is related to the Express Toll Lanes, the Toll Trip record shall be updated with the confirmed license plate information and provided to the Trip Building engine for Trip matching purposes.
  - If the third image reviewer provides license plate identification and the Transaction is not related to Express Toll Lanes, the Toll Trip record shall be updated and forwarded to CBOS for Toll Trip posting to the associated customer account.

The Vendor will monitor and report on the quality of images received from the RTS vendors in a manner that allows for the quick escalation of any in-lane camera or OCR issues. For example, by monitoring the image review dashboard (see below), the Vendor will be able to identify whether image reviewers are rejecting images based on a bad camera aim and report that back to the appropriate WSDOT and/or RTS vendor representative.

As feedback to the Vendor, the OBOS will also allow flagging of specific images for more detailed review. The Vendor will provide the capability for Authorized Users to review all flagged images manually to prevent repeated erroneous posting of Tolls or issuance of Toll bills.

The OBOS will store images in their native format (as received) as well as any metaData received from the RTS vendors. The OBOS application will store all processed images in a fashion that is easy to recall by license plate numbers, state, or any other references used by the application to identify the images.

The OBOS will provide an image review dashboard utility that will provide the status of the relevant processes in the image review function and the ability to export Data for further analysis. The dashboard will provide the following status details, including but not limited to:

- Images reviewed per reviewer over a given period;
- Images backlog;
- Image rejections (by reason code, reviewer, etc.);
- Image quality statistics;
- OCR Data manual modifications; and
- Tertiary review information.

The dashboard details will help the image review supervisor to manage and monitor the CSC Operator image review staff and the quality of images received to improve the overall manual image review process.

## **2.10 Trip Re-processing from Image Review**

WSDOT requires the ability to allow Toll Trips to be re-processed based on manual image review corrections. The OBOS will allow Trip Transactions to be re-processed prior to sending the Trip Transaction to the CBOS for posting or billing. This includes any photo-based individual Toll point Transactions that should have been part of a Trip Transaction created by matching Transponder numbers if they were available.

The OBOS will allow image reviewers to apply corrections to wrong or missing OCR values based on a manual review of images not already included in a Trip Transaction and to re-process those images before finalizing the Trip Transaction. The image reviewer will be able to make the determination if the corrected license plate information is part of an assembled, partially-formed Trip and easily tie them together. The OBOS will send the new, fully-formed Trip Transaction to the CBOS for posting or billing.

In the event a customer contests one or more individual Toll point Transactions that make up a Trip Transaction after posting or billing, the System shall allow CSC staff to perform a secondary manual review of the associated images to validate that the images were processed correctly or to correct any error(s) and re-process the Trip Transaction(s) based on the correction(s). Any potential correction to Trip Transaction(s) could result in either a credit to an account or a refund

to a customer. In all cases, the original individual Toll point Transaction and Trip Transaction information shall not be overwritten and will be retained in the Database for auditing purposes.

## 2.11 Operational Reporting

The OBOS shall include the ability to produce a variety of scheduled and ad-hoc operational reports including, but not limited to: speed-flow scatter plots, travel time vs rate graphs, entrance and exit graphs. Specific reports will be determined during design workshops. These reports should allow the user to select a time period as well as specific corridors, Toll points, or lanes for analysis purposes. For purposes of estimating, the Vendor shall assume within their scope the design, development and testing of 15 medium complex operational reports. The Vendor shall assume 80 hours of effort is required to design, develop and unit test a medium complexity report.

## 3.0 Commercial Back Office

The CBOS will process valid Toll Trips from the OBOS to a customer account. The goal of the CBOS is to be the central repository of all financial and customer account information and the repository of the Transactions and balances that define the financial state of Toll operations. The CBOS is to be an integrated solution, which combines customer relationship management (CRM), non-account customer billing information, accounting, Transponder inventory and Toll enforcement activities. The CBOS shall be based upon WSDOT's Business Requirements for both the Toll program and accounting activities. In addition, the CBOS will generate reports that WSDOT requires to support meeting the goals of the state's Toll program. The BOS Vendor will be responsible for designing the logic necessary to process Transactions at the CBOS and interface into WSDOT's general ledger System for financial reporting purposes.

The CBOS will perform the customer relationship management and financial management functions for the *Good To Go!* program. Functions in the commercial back office include, but are not limited to; account set-up, account management and billing, Transponder order management and inventory management, accounts receivable management, adjudication and financial reporting. The CBOS will also include a collections module, as well as the capability for a bi-directional interface with third party collections Systems.

The CBOS will also include a write-off module that will identify Transactions which meet the criteria for write-off (based on WSDOT Business Rules) and perform an automated write-off after final review and approval by WSDOT accounting staff (please refer to the Write-Off requirements in Section 12.4 for more details).

The CBOS will be integrated with WSDOT's TRAINS financial System and act as Toll related accounting subsystem for WSDOT's financial management System. As such, the CBOS must support all functionality for financial period close. It will also interface with the Office of State Treasurer, banks and other third party Systems as required. The integration between the new CBOS and TRAINS should be architected with as much flexibility as possible to facilitate future integration with the planned One Washington statewide financial System. For additional information about the planned One Washington project, please refer to <http://one.wa.gov/>.

The CBOS will be responsible for providing the tools necessary to allow Authorized Users to make any required adjustments to the value of a Toll Transaction established by the OBOS. An example would be providing the tools necessary for a customer service representative (CSR) to adjust the Toll amount when a customer disputes the rate charged. Adjustments to Toll rates will be made by the CBOS as a part of normal Toll billing or manually by a CSR, based on a customer dispute.

Certain adjustments and/or dollar limits will require a supervisor approval prior to completing the adjustment. The CBOS will communicate these Toll rate adjustments back to the OBOS for quality control and continual improvement purposes.

To support future changes to Business Requirements, WSDOT needs the CBOS to be a highly configurable application with both System and User Configurable parameters available for customizing the CBOS application. The CBOS will provide a configuration management interface for the Toll operations staff to easily configure the user and System parameters. WSDOT realizes that configurability has limits. However, WSDOT wants to maximize the flexibility and configurability of those System parameters which support customer account management and communications such as timing of invoicing customers, negative account balance levels before issuing Toll bills, Transponder prices, the amount of fees and discounts, etc. Where available, configurability should be available to identified user roles without the need for programming changes.

Most of the configuration should not require the System to be restarted unless required as a System-level configuration. The user and System-based configuration will include configurations related to the following functional areas including but not limited to:

- Account Management;
- Transaction Management;
- Inventory Management;
- User Case Management;
- Correspondence Management; and
- Reports Management.

## 4.0 Account Management

The CBOS application Software will provide customer account management and support functionality to support the *Good To Go!* Customer Service Center operations and *Good To Go!* customer website. The account management functionality shall include at a minimum the following capabilities:

- Account setup;
- Account maintenance;
- Dispute resolution;
- Account notification generation, delivery and archiving;
- Inventory management;
- Pass and photo Transaction management; and
- Toll adjudication management; and
- Marketing support.

Based on user authorization, the account management functionality will be used by both customers through a self-service portal (website) and customer service representatives who will be responsible for the providing the customer service and support to the WSDOT customers.

## 4.1 **Good To Go! Customer Accounts**

The *Good To Go!* customer account will be the primary tool for tracking customer activity and performing account management, including, but not limited to: contact information history, Transponder and license plate history, Toll Trip history, payment history and dispute history. Authorized users should have the ability to perform all customer account management functions through the customer account interface.

WSDOT envisions a single customer account architecture that can support both prepaid and postpaid customer usage in a single account based on customer preferences and the application of WSDOT Business Rules.

## 4.2 **Single Customer Account**

As opposed to the more traditional separate customer service and violation architecture for managing prepaid and postpaid Toll Trips, the WSDOT single customer account architecture is intended to improve the customer experience by providing a single location for tracking all Toll facility usage and providing tools to quickly resolve challenges within a single customer account.

For image-based Transactions, CBOS will allow a customer to pre-establish a plate-based *Good To Go!* account with customer contact information, plate information and payment information at a minimum. If the customer does not have a pre-established account, then the CBOS will create a plate-based account utilizing registered owner information and set the account to bill the customer for usage of the Toll facility by mail (Toll bill).

For pass-based Transactions, CBOS will allow a customer to pre-establish a pass-based *Good To Go!* account with customer contact information, pass information and payment information at a minimum. As a billing option, and to safeguard against challenges with their registered pass, CBOS should prompt the customer to add all vehicles they use on a Toll facility to their pass-based account.

CBOS will also streamline the underlying financial general ledger System by allowing the posting and other financial activities, such as Toll adjustments or reversals, of all Toll Trips, whether pass-based, plate-based, prepaid or postpaid, to a single account. WSDOT expects the single account architecture to streamline financial reconciliations processes. In addition, with the elimination of the two-account approach to prepaid and postpaid Toll Trips, WSDOT expects reporting on customer activity to be more efficient.

The CBOS will include two (2) primary account types within the single account architecture:

- Standard Account – CBOS shall be User Configurable in terms of number of passes and/or vehicles classified as a Standard Account. Currently six (6) or fewer passes and/or vehicles is deemed to be a Standard Account. In accordance with WSDOT Business Rules and depending on customer preferences, this account can be registered or unregistered, pass-based, photo-based (or a combination of the two), prepaid, zero-balance, or postpaid and can include account balance replenishment or postpaid balance payment by a variety of payment forms (details on the account options and payment forms below).
- Commercial Account – CBOS shall be User Configurable in terms of classification of a Commercial Account. Currently, seven (7) or more passes and/or vehicles. In accordance with WSDOT Business Rules and depending on customer preferences, this account can be pass-based, photo-based (or a combination of the two), prepaid, zero-balance, or postpaid and can include account balance replenishment or postpaid

balance payment by a variety of payment forms (details on the account options and payment forms below).

Customers will make their preference selections during account establishment. Details of each option are provided below.

#### **4.2.1 Unregistered Customer**

WSDOT offers customers who wish to remain anonymous the opportunity to enjoy the lowest Toll rates by setting up an account which does not include any contact information. The requirements of this account option are less flexible than other registered accounts. The requirements of this account option are:

- Prepaid account only (manual replenishment);
- Can only be set up in person at a walk-in Customer Service Center;
- No identifying personal information required;
- May choose to provide an email address to receive statements, and may establish read-only online account access;
- At least one pass must be assigned to the account (no plate only option);
- If a Toll Transaction cannot be posted to the account, a Toll bill will be sent in the mail to the registered vehicle owner;
- Prepaid funds cannot be refunded if an unregistered account is closed; and
- Only available in the standard account type (no commercial account option).

Based on WSDOT Business Rules, CBOS should provide functionality to convert this account option to any other account option via an account management interface.

#### **4.2.2 Prepaid Customer**

WSDOT offers its customers a prepaid customer account option that will require the customer to maintain a prepaid balance for all Toll facility usage. Customers who choose the prepaid option will pay the lowest Toll rates. The requirements of the prepaid customer option are:

- Available for both standard and commercial account types;
- Support pass or plate-based Toll Trip posting (or a combination of both);
- Support regular and non-revenue Toll Trip posting (see Non-revenue customer section below);
- If the Toll Trip can only be posted by vehicle license plate (photo), account will be assessed a photo-enforced fee (Pay By Plate fee);
- Automatic or manual account balance replenishment;
- Must maintain a minimum account threshold of \$8 or more which shall be User Configurable;
- Customer shall be able to define period in which account is valid (please refer to Customer Defined Account Period section below for details);

- Allow for a configurable Grace Period in which a negative account balance will not result in account suspension in which future Toll Trips will be billed by mail (please refer to Grace Period section below for details); and
- Account characteristics such as prepaid balance requirements, low-balance threshold, delinquency criteria, and photo-enforced fee shall be User Configurable.

The customer will select this account option and provide the necessary account information during account establishment. Based on WSDOT Business Rules, CBOS should provide functionality to convert this account option to any other account option via an account management interface.

### 4.2.3 Zero Balance Customer

For some customers, establishing a prepaid balance and committing to regular account balance replenishments creates a barrier to joining WSDOT's Toll program. At the same time, these customers desire a low Toll option and are not averse to leaving a payment mechanism on file with WSDOT. For these customers, WSDOT will offer a zero balance account that does not require the maintenance of a prepaid account balance. The requirements of the zero balance option are:

- Available for both standard and commercial account types;
- Support pass or vehicle-based Toll Trip posting (or a combination of both);
- Support regular and non-revenue Toll Trip posting (please refer to the Non-revenue customer section below);
- If Toll Trip can only be posted by vehicle license plate (photo), account will be assessed a photo-enforced fee (Pay By Plate fee);
- Automatic account balance replenishment only;
- Customer shall be able to define period in which account is valid (please refer to the Customer Defined Account Period section below for details);
- Allow for a configurable Grace Period in which a negative account balance will not result in account closure (see Grace Period section below for details); and
- Account characteristics such as delinquency criteria, and photo-enforced fee shall be User Configurable.

The customer will select this account option and provide the necessary account information during account establishment. Based on WSDOT Business Rules, the CBOS should provide functionality to convert this account option to any other account option via an account management interface.

### 4.2.4 Postpaid Customer (Pay By Mail)

For customers who do not wish to open a prepaid or zero balance account, WSDOT will offer a postpaid (or Pay By Mail) option. Since this account option requires additional processing in the form of license plate image validation (image review) and mail processing, Pay By Mail customers will pay the highest Toll rate. The requirements of the postpaid option are:

- Available for both standard and commercial account types;
- Vehicle-based Toll Trip posting only;

- Support regular and non-revenue Toll Trip posting (please refer to the Non-revenue customer section below);
- Posted Toll Trips shall include the lowest Toll plus a Pay By Mail Toll Increment;
- Customer shall be able to define period in which account is valid (please refer to the Customer Defined Account Period section below for details); and
- Account characteristics such as the Pay By Mail increment shall be User Configurable.

This account option will also be used to bill Toll Trips related to prepaid and zero balance accounts should they become and remain delinquent beyond the Grace Period.

When CBOS receives Toll Trip information that cannot be billed to an active, prepaid or zero balance customer account, the System will either post the Toll Trip to an existing postpaid customer account or retrieve registered owner information from DOL or motor vehicle agencies in other states and create a new postpaid customer account.

Requests for payment will be mailed to postpaid customers based on WSDOT Business Rules. The request for payment (or Toll bill) will include WSDOT language regarding payment and dispute options as well as information regarding consequences for non-payment (please refer to the Toll Bill Process section below).

#### **4.2.5 Non-revenue Customers**

WSDOT offers customers who meet criteria adopted by the Washington State Transportation Commission a discounted Toll rate. These non-revenue customers include; transit agencies, rideshare customers, motorcycles and other government agencies depending on the nature of their usage (such as Washington State Patrol or other emergency vehicles). To offer the most flexibility for future changes to non-revenue eligibility requirements, the CBOS shall be able to identify non-revenue Toll Trips captured by pass or vehicle license plate and by an individual Toll facility or multiple Toll facilities. The requirements of the non-revenue option are:

- Must be established by CSR (or other WSDOT authorized user);
- Customer must provide required documentation to validate Non-revenue eligibility;
- Available for both standard and commercial account types;
- Support pass or vehicle-based Toll Trip posting (or a combination of both);
- Customer shall be able to define period in which account is valid (please refer to Customer Defined Account Period section below for details);
- After account establishment, customers who have been certified as Non-revenue and who have been assigned the appropriate user role and login credentials shall be able to specify which passes and vehicles on their account will be considered non-revenue (must meet non-revenue requirements for individual Toll facilities); and
- Account characteristics such as the pass-based, vehicle-based and Toll facility eligibility shall be User Configurable.

#### **4.2.6 Government Customers**

WSDOT offers other government agencies an account option that allows them to identify which vehicles they use on a Toll facility that will be considered non-revenue. In addition, WSDOT offers its state government customers the ability to pay Toll (and other account charges) via an inter-agency payment (IAP) mechanism. For an IAP process, an OST initiated email is sent to WSDOT and Operations vendor. The email will indicate the account or Toll bill and the dollar amount of the payment. CBOS needs to record the payment as an IAP, differentiated from others. The requirements for government accounts include:

- Must be established by CSR (or other WSDOT authorized user);
- Customer must provide required documentation to validate government customer eligibility and provide necessary information to support inter-agency payments;
- Available for both standard and commercial account types;
- Support pass or vehicle-based Toll Trip posting (or a combination of both);
- Customer shall be able to define period in which account is valid (please refer to the Customer Defined Account Period section below for details),
- After account establishment, customers who have been certified as non-revenue and who have been assigned the appropriate user role and login credentials shall be able to specify which passes and vehicles on their account will be considered non-revenue (must meet non-revenue requirements for individual Toll facilities); and
- Account characteristics such as the pass-based, vehicle-based and Toll facility eligibility shall be User Configurable.

#### **4.3 Customer Defined Account Validity Period**

For its infrequent customers, WSDOT currently allows for a “short term” account which allows a customer to identify the vehicle they used on a Toll facility within three (3) Calendar Days of the Toll Trip, provide payment information and have any Tolls Trips taken within a two-week period to be paid at a lower Toll rate than standard Pay By Mail customers.

Expanding on this concept, the CBOS will support a customer-defined account validity period. At account creation and as a feature of future account management, the customer will be offered the option of putting an end date on the period in which Toll Trips can be posted to their account. This functionality will allow infrequent users to enjoy lower Toll rates than regular Pay By Mail customers and will allow other customers to define a period of ineligibility if they do not intend to be using any WSDOT Toll facilities (e.g., on vacation).

If Toll Trips relate to a pass or vehicle associated with an end-dated customer account, the Toll Trip will be processed via Pay By Mail Business Rules.

#### **4.4 Negative Account Balance Grace Period**

For prepaid and zero balance accounts, WSDOT will allow a prepaid customer account balance to be negative for a set amount or period while they work with the customer to rectify any account replenishment or Toll payment challenges. The amounts and/or length of Grace Period of delinquency will be User Configurable based on WSDOT Business Rules.

During the Grace Period, the CBOS shall continue to attempt to replenish a prepaid balance or process a Toll payment utilizing the payment mechanisms provided by the customer. The frequency and number of replenishment and/or payment attempts will be governed by WSDOT Business Rules.

If the account remains delinquent beyond these thresholds, all future Toll Trips will be billed by mail. If the account owner is not the registered owner of a vehicle with future Toll Trips, posting of these Toll Trips will follow the Pay By Mail Business Rules and a Toll bill will be issued for Toll payment.

Note: The Grace Period shall be configurable by transportation mode and Transaction type.

## 4.5 Commercial Account Interface

WSDOT has commercial accounts with hundreds of passes and/or vehicles. To facilitate more efficient and effective management of the passes and vehicles associated with a commercial account, the CBOS shall provide an interface which allows commercial account customers to add, remove or edit pass and vehicle information based on the upload of a delimited file. Customers shall be able to review, edit and approve the pass and vehicle list prior to updating their account. Response time for retrieving commercial account information shall follow response time requirements found in Section 18.12.

## 4.6 Merging Customer Accounts

Under certain circumstances, customers may find themselves with multiple customer accounts active at the same time. The circumstance for multiple active customer accounts might include:

- A customer opened multiple accounts within one family or company;
- Due to delinquency beyond the Grace Period, accounts created for vehicles on the delinquent account for which the delinquent account holder was not the registered owner of the vehicle; and
- Changes to registered owner information (such as address changes) resulted in multiple Pay By Mail accounts opened for the same registered owner.

Based on WSDOT Business Rules, the CBOS shall allow a customer to merge accounts by moving passes and vehicles and transferring any prepaid balance or balance due. CBOS shall provide the merge account feature to customers on the website or to CSRs through the account management interface. The following requirements will apply to account mergers:

- Customer initiating merge will submit a merge request which must be accepted by the other account owner prior to transferring passes, vehicles or account balances;
- If a customer is merging between two (2) or more accounts they own (such as a prepaid account and a Pay By Mail account), customer must have login credentials (or other identifying information) for all accounts to complete an account merger;
- If the account holder of the account being transferred into rejects the request, then the transfer is cancelled and the Transponder and available balance stays with the original account; and
- If the account merger is accepted:
  - CBOS will transfer account balance (following all general ledger posting rules),

- Transfer passes by end dating pass on original account and adding start date to new account,
- Transfer vehicles by end dating vehicle on original account and adding start date to new account,
- Populate a note in both accounts detailing merger (Transaction and account history should remain with original account), and
- Notify both customers of successful merger.

WSDOT understands that errors can occur despite the number of warnings and gates that are put in place to avoid errors. Therefore, CBOS shall provide functionality to unmerge accounts. Due to the risks, which are inherent in repeatedly merging and unmerging accounts, the unmerge process shall only be processed by a WSDOT authorized user or CSR with the appropriate user role. The unmerge process shall reverse all actions taken during the merge process and, to the extent possible, restore the original accounts to their pre-merged state. CBOS shall note the accounts and notify the account holders of the unmerging.

## 4.7 Customer Account Establishment

Accounts can be created via the *Good to Go!* website, mailing or faxing a written application, visiting a walk-in center or calling the Customer Service Center. Regardless of the customer contact choice, customer account set-up will include the capture within the CBOS of the customer information details outlined below. It is expected that these customer account establishment capabilities will be available to both the CSRs and to the customer through the customer website.

- Customer name:
  - System should allow for a primary and optional secondary authorized user with independent login credentials. The secondary credential will have the same access and account updates rights; and
  - Account owner may be an individual or business (please refer to the Commercial Account requirements).
- Address information:
  - System shall allow for one or more address inputs to allow for either mailing or billing addresses;
  - System shall support both US-based addresses and select international addresses (Canadian addresses at a minimum);
  - Addresses shall be validated with reliable address verification tools at the time of address input;
  - Address validation shall populate Zip+4 information for the customer;
  - For postpaid customers (Toll bill), addresses shall be received from multiple sources including: Authorized Users, DOL or other state motor vehicle agencies, national change of address Databases and other address verification tools. Since the number of address lookups and address sources will be difficult to estimate, WSDOT will handle costs related to multiple address lookups as a pass-through cost.

- The System shall allow for a hierarchy of these address inputs which allows for the best opportunity to reach the customer. The need for multiple addresses and the hierarchy of which to select for mailing and customer communication purposes will be based on the effectiveness of reaching the customer (returned mail);
- System shall allow customer to opt-in to automated address updates whenever they update the address on their vehicle registration with DOL;
- Note: This functionality may also be bi-directional with customer opting in to having their vehicle registration address updated whenever they update their *Good to Go!* address. Business rules are under development in conjunction with DOL.
- A complete address history shall be maintained and accessible through the customer account interface.
- Phone number information:
  - System shall allow for one or more phone numbers to support home, business or facsimile contact options;
  - Phone number inputs shall allow for US-based and select international-based phone numbers;
  - System shall allow customers to opt into phone or text-based communications; and
  - A complete phone number history shall be maintained and accessible through the customer account interface.
- Email address information:
  - Email address inputs shall be an optional input and should not interfere with a customer's ability to establish an account;
  - During input, System shall validate that the email address is active and prompt customer as to email validation results;
  - System shall allow customers to opt into certain account communications; and
  - A complete email address history shall be maintained and accessible through the customer account interface.
- Pass information:
  - System shall allow one or more *Good to Go!* passes to be assigned to the customer account (please refer to Commercial account requirements);
  - System shall allow multiple *Good to Go!* pass types to be assigned to an account. WSDOT currently has seven types of *Good to Go!* passes in inventory;
  - During pass assignment, System shall validate the pass number input through the utilization of checksum information provided with the pass;
  - System shall validate inventory status of passes assigned to customer accounts and prompt customer if pass status does not allow assignment to the customer account;

- System shall allow a customer to create a nickname for Transponders. The nickname will allow the customer to readily identify a pass on their account without having to know the multi-digit pass number. Customer shall be allowed to run reports based on their pass nickname. For commercial accounts, the customer can provide one nickname per pass; and
- A complete pass history shall be maintained and accessible through the customer account interface.
- Vehicle information:
  - System shall allow for one or more vehicles to be assigned to the customer account;
  - System shall support input of vehicle make, model, year and color;
  - System shall allow for a free form input of vehicle make, model, year and color for those non-standard vehicles which may be in operation on WSDOT Toll facilities;
  - System shall support input of license plate state, plate type and plate number including U.S. territories. WSDOT anticipates future Tolling with Canadian customers. System shall support input of Canadian province plate information;
  - During input, System should offer prompts to customer related to standard plate configurations based on the plate state selected by the customer. Prompts shall be examples of license plates from the license plate state selected. For example, specialty plates for each state can have the same plate number, but a slightly different stacked lettering which must be included to receive information from DOL. Examples of the correct entry of these specialty plate configurations will support more efficient Tolling.; and
  - A complete vehicle history shall be maintained and accessible through the customer account interface.
- Payment information:
  - System shall allow customers to select payment method at time of account establishment (please refer to Section 12.2 for details on payment type requirements);
  - During input of payment information, customer shall select account preferences related to: prepaid balance, zero balance or Pay By Mail (postpaid). Customer should be prompted for additional required information based on preferences selected;
  - If zero balance or short term account preferences are selected, System shall verify that payment information is valid prior to establishing the account. For credit cards, verification shall be to verify that the credit card number is correctly formatted. For ACH inputs, verification shall be validating the verification of the routing number and name of financial institution entered by customer;
  - If prepaid account is selected, the System shall charge credit card for amount selected by the customer;
  - System shall support primary and secondary payment methods for use if primary fails; and

- A complete payment information history shall be maintained and accessible through the customer account interface.

## 4.8 Customer Account Closing

Customer will have two (2) options for closing an account – a soft close and a hard close. A soft close will be accomplished by providing an end date to the customer defined account validity period. Under the soft close, no Toll Trips will be posted to the account. However, account balances will not be refunded and passes and vehicles will not be end dated.

If a customer wants to permanently close their account, a request for closure will be submitted via the customer website or by contacting the CSC or WIC. Account closure will include the following requirements:

- A User Configurable pending to close period will be required to make sure that any Toll Trips in process have time to be posted to the account;
- Upon final close:
  - Account balance will be refunded via the account replenishment or payment method associated with the account,
    - If the payment mechanism is no longer valid, the CBOS will support issuing a refund by warrant (please refer to Section 12.6),
  - Passes will be end dated,
  - Vehicles will be end dated,
  - Customer will be notified of account closure, and
  - Account will be noted with pertinent closing information.

In addition to the above requirements, an authorized WSDOT user will be able to close an account following a user defined period of account inactivity. The accounting closing process shall work similarly to if a customer had requested to permanently close their account.

## 4.9 *Good To Go!* Pay Card

The CBOS shall provide the capability to issue and manage the *Good to Go!* pay card. The *Good to Go!* pay card is an anonymous payment method associated with a *Good to Go!* account and a pass. Customers can purchase and reload a pay card at authorized retail locations and WSDOT WICs. The funds replenished to the pay card are automatically posted to the linked accounts. The *Good to Go!* pay card itself does not carry any monetary value. In the event the pay card is lost or stolen, the funds will remain with the customer's account and the pay card will not be replaced. The CBOS shall provide functionalities related to pay card issuance, tracking, inventory management, order management for retailers, reporting, and management.

## 4.10 Customer Account Search Capabilities

The Vendor shall provide robust customer account search capabilities and lookup options within the CBOS to enable CSRs to provide better customer service for *Good To Go!* account holders. A customer may call in with basic information and the CSR shall be able to lookup their accounts through a variety of search criteria including but not limited to:

- Account number;
- Account type;
- License plate;
- Transponder number including Transponder nickname;
- Name;
- Address;
- Phone/Email;
- Toll Bill number; and
- Account status.

#### 4.10.1 **Comment Search Capabilities**

The Vendor shall provide comment search and lookup capabilities within the CBOS for use by CSRs. The CBOS shall allow a CSR to search for *Good To Go!* customer account comments based on various search criteria including but not limited to:

- Comment description with wild cards;
- Keyword search;
- Comment category;
- Comment date; and
- Comment status.

#### 4.10.2 **General Search Capabilities**

The Vendor shall provide within the CBOS general search and lookup capabilities for the CSRs. The CBOS shall allow CSRs to search based on general search criteria including but not limited to:

- Search with wild cards;
- Keyword search;
- Search based on range (date, time & number); and
- Search based various status.

#### 4.10.3 **License Plate Search Capabilities**

The Vendor shall provide the capability within CBOS for CSRs to search for a customer account based on license plate information including but not limited to:

- License plate;
- Plate state/ country (i.e. Canadian plates);
- Plate type;
- Special characters;

- Plate owner name; and
- Plate owner address.

#### 4.10.4 Account Notification Search

The Vendor shall provide the capability within the CBOS for a CSR to search for *Good To Go!* customer account notifications on various search criteria including but not limited to:

- Notification type;
- Notification number;
- Notification delivery method and date;
- Date range based on creation date;
- Date range based on delivery date.; and
- Notification status.

#### 4.10.5 Customer Case Management and Case Search

CBOS shall provide a customer case management module for the CSR to record the details of a customer case and follow it through to its resolution. Customers can open a case for various reasons including but not limited to: disputed Transactions, disputed Toll bills, incorrect payments and questions about their account balance.

WSDOT customers will communicate via phone, email or text to follow up on their case status and CSR will need to be able to lookup their cases and provide status update and resolution to the customer. The Vendor shall provide the capability within the CBOS to allow CSRs to search for customer cases based on various search criteria including but not limited to:

- Case number;
- Case type;
- Case status;
- Case open date;
- Account number;
- Name;
- Address;
- Phone/Email;
- License plate; and
- Transponder number or Transponder nickname.

#### 4.11 Account Statement and Pay By Mail Notification Process

As a continuation of the single account concept, WSDOT desires to provide its customers with a statement of account activity and/or a request for payment of unpaid Toll Trips on a configurable frequency and through the communication channel(s) that best fits customer's preferences. To

that end, CBOS shall implement the following requirements related to customer account activity notifications.

#### **4.11.1 Account Statements**

Whether a customer account is prepaid, zero balance or postpaid, at the end of an account billing cycle, CBOS shall generate and deliver a statement of account activity to the customer via the preferred communication channel. The following are requirements related to account statements:

- The design and content of the customer account statements will be finalized during System design;
- CBOS shall provide tools which support changes to the design and content of customer account statements without the need for System programming changes;
- CBOS shall support User Configurable billing cycle periods. Billing cycle should be evenly distributed throughout the month in order to reduce the impact on customer service contacts;
- CBOS shall support multiple customer account statement delivery methods including, but not limited to:
  - Regular mail (this preference will include a User Configurable statement fee),
  - Email,
  - Text,
  - Fax. and
  - Customers may select delivery by multiple delivery methods; and
- CBOS shall maintain an exact copy of each account statement; which can be retrieved by the customer or a CSR (or other authorized user) an account management interface.

#### **4.11.2 Pay By Mail Notification (Toll Bill)**

Note: A Toll bill is a different document than an account statement. The Toll bill will include amounts due, unpaid Toll Trip information, instructions for payment or dispute, and language regarding the consequences of not paying the Toll bill in a timely fashion.

Customers will be sent a Pay By Mail notification (Toll bills) under the following scenarios:

- Customer does not have a *Good to Go!* account and is the registered owner of a vehicle with unpaid Toll Trips;
- Customer has set up a *Good to Go!* account, but opt for regular invoicing instead of providing some form of payment such as a credit card; and
- Customer has a *Good to Go!* account, but the payment mechanism provided fails such as with an expired credit card and the account has been negative beyond the grace period; and
- Customer license plate number does not match a license plate number in the California Toll Operators Committee (CTOC) License Plate Status file.

Whether a customer account is prepaid, zero balance or postpaid, if it meets the criteria for issuing a Toll bill at the end of its billing cycle, CBOS shall generate and deliver a Toll bill to the customer via the preferred communication channel(s) (one or multiple). The following are requirements related to Toll bills:

- The design and content of the Toll bill will be finalized during System design;
- CBOS shall provide tools which support changes to the design and content of Toll bill without the need for System programming changes; for example, the layout and wording on the statement;
- CBOS shall support User Configurable billing cycle periods;
- CBOS shall support multiple Toll bill delivery methods including, but not limited to:
  - Regular mail (this preference will include a User Configurable Toll bill fee),
  - Email,
  - Text,
  - Fax, and
  - Customers may select delivery by one or multiple delivery methods;
- Toll bill shall include:
  - Listing of any unpaid Toll Trips from previous Toll bills (if applicable),
    - If a Toll bill includes previously billed, yet unpaid Toll Trips, the Toll bill shall include a User Configurable reprocessing fee,
  - Listing of any new Toll Trips posted to the account since the last Toll bill,
  - Listing of any unpaid Toll Trips which have aged beyond the User Configurable payment period (currently 80 Calendar Days),
  - Previous balance due and the new current amount due,
  - Instructions for paying or disputing the Toll charges or fees, and
  - Language detailing the consequences of not paying a Toll bill;
- If unpaid Toll Trips remain unpaid beyond the User Configurable payment period and have been certified for civil penalty assessment, the Toll bill should identify these unpaid civil penalty Toll Trips and include a civil penalty for each unpaid civil penalty Toll Trip;
- A separate document, a Notice of Civil Penalty (NOCP), will be issued as a standalone document which details the resolution process for civil penalty Toll Trips (please refer to Section 5.0 Civil Penalty Program for details regarding NOCP processing); and
- CBOS shall maintain an exact copy of each account statement which can be retrieved by the customer or a CSR (or other authorized user) through an account management interface.

The Vendor shall provide the ability to easily change the text and structure of the Toll bills sent to *Good To Go!* customers. The customer's license plate details are used to capture the Toll Transactions and the unpaid Toll due is sent on a Toll bill to the customer for payment. Depending

on the Business Rules and promotional message requirements, the Toll bill static text messages can change on a regular basis. In addition, the structure of the Toll bill can change depending on changes in requirements due to new Business Rules.

The CBOS shall be designed to keep the Toll bill text and structure details flexible to allow for changes in the details by an authorized user without programming being required. The text and structure details can be kept as configuration parameters or in a Database table and can be utilized to build the Toll bill layout content to make it easily updatable as needed based on changes to Business Rules. The address layout shall also be flexible to handle any change in envelope type for the Toll bill statement and should be part of the flexible configuration. The CBOS shall also allow the flexible Toll bills to be generated and sent to the third-party printing and mailing services utilized by WSDOT.

## 4.12 Other Customer Account Notifications

WSDOT supports customer account management by offering various account notifications which inform a customer as to the status of various aspects of their customer account. The notifications include, but are not limited to:

- Account information change;
- Low balance alert;
- Account closure notification;
- Auto-replenishment failure;
- Low balance replenishment;
- Account balance zero;
- Credit card expiring;
- Credit card expired;
- Declined ACH;
- Replenishment change scheduled;
- *Good To Go!* pass is not being read and the customer is being charged a 25-cent fee;
- Vehicle registered on an account has an outstanding Pay By Mail Toll bill;
- New Transponder request; and
- Dispute resolution notification.

The CBOS shall allow the customer to opt out of those notifications that are not considered critical to supporting a customer's account status. For example, a customer will not be allowed to opt out of negative account balance notifications, as these are considered critical to effective account management. The CBOS should track the customer request to opt out and warn the customer through an on-screen prompt as to the ramifications of not receiving these account notifications.

### 4.12.1 Email or Text Notification Option

Based on customer preferences, the CBOS shall allow customers to sign up for their account notifications via email and text. During the account establishment or any time during account

usage customers shall be able to setup account notifications via email or text messages. The Vendor shall provide the gateway for text and short message service (SMS) transmission. The customer will pay for any charges related to the text message subscription services. If a customer does not sign-up for account notifications via email and text they will receive any critical notifications via letter through the mail as the default method.

#### **4.13 Barcodes for Letters, Envelopes and Mailing Labels to Identify Accounts**

WSDOT communicates with their *Good To Go!* account holders through regular mail for various reasons including but not limited to:

- Statements;
- Invoices (Toll bills);
- Transponder mailing; and
- Account balance and replenishment.

If the customer has opted-in for the regular mail option for correspondence then for any communication requiring WSDOT to send letters via mail, the Vendor shall generate a barcode on the envelopes for easier customer account identification and reduce any operational errors during return mail handling.

The Vendor shall generate a barcode containing *Good To Go!* customer account details on the mailing letters and envelopes for easy identification. The customer account details shall include but not be limited to customer primary address, account number and account holder name. The Vendor shall provide within the CBOS the ability to generate mailing labels with the same customer account details, as well as the ability to print this information directly on letters and envelopes.

The CBOS shall utilize the current standard barcode generation and reading tools in the market to generate and scan the barcode to identify the correspondence to the intended customer account.

#### **4.14 Toll Dispute Resolution**

WSDOT allows customers to dispute incorrect charges to their customer accounts or request a reversal of a fee as a customer courtesy. The CBOS will support the submission, tracking and communicate the resolution of customer disputes (see Section 4.17 and Section 5.4 for examples of customer dispute programs operated by WSDOT).

The CBOS will provide a dispute management tool that allows customers, via the website, and CSRs via the account management interface to create a dispute ticket. The dispute management tool shall log the dispute and allow the customer or CSR to submit the reasons for the dispute as well as upload any relevant documents. For example, if the Toll dispute is related to the sale of a vehicle, the customer or CSR should be able to provide the vehicle purchase information and upload sales documents and any report of sale documents provided to DOL.

The CBOS shall allow a CSR to research and/or validate the dispute through customer account note history reviews, detailed Toll Trip Data from both the CBOS and lane System Databases, and query the DOL in real time to validate vehicle ownership information. For documentation

purposes, CSRs shall have the capability to download and save or print account histories, Toll Trip Data, and DOL registered owner information in multiple media including, but not limited to .pdf or delimited formats.

The dispute management tools shall allow the CSR to input the results of the dispute, communicate the results to the customer via the customer's preferred delivery method, and close the dispute ticket.

The dispute management tools shall include reports that support reporting on dispute results and support quality control and continual improvement efforts.

WSDOT envisions business partnerships with other agencies or organizations such as WSF. Dispute management tools should allow for links to other agency or organization websites to assign disputes related to other transportation modes to the CSRs for those transportation modes to research and resolve.

#### **4.15 Advocate for the Customer Program (A4C)**

WSDOT allows customers to request relief from certain account and billing fees such as a Pay By Plate fee assessed for posting a Toll Trip by vehicle license plate (photo) or a reprocessing fee assessed if a customer does not pay a Toll bill prior to the User Configurable payment period (late fee).

Based on WSDOT Business Rules, CBOS shall provide a tool within the account management interface that automatically identifies any unpaid Toll Trip that contains a fee that is eligible for the Advocate for the Customer Program (A4C). The interface shall allow the CSR to process the fee reversal (in accordance with all financial requirements) and allow the CSR to select from a pre-established list of reason codes for the fee reversal. Certain adjustments and/or dollar limits will require a supervisor approval prior to completing the adjustment.

CBOS shall populate an account note with the relevant A4C information and send the customer a notification of the disposition of the A4C request (confirmed or denied) via the customer's preferred communication channel(s).

WSDOT Business Rules for the A4C program are provided in Appendix 7: WSDOT Business Rules.

#### **4.16 Enhanced CSR Tools**

WSDOT is seeking capabilities within the BOS to support CSRs and WSDOT staff in providing excellent customer service to WSDOT *Good To Go!* customers. These improvements include less wait time on both calls and in-person, and the ability to quickly provide accurate and timely information to customers.

To support improved levels of customer service, the Vendor shall provide various tools to enhance CSR performance including but not limited to:

- Quick System response time on the searches;
- More options to search the Dataset including visual search options such as customer information, license plates, Transaction details, etc.;
- Easy customer management dashboard layouts for faster response and user experience enhancements;

- Faster updates and results to the Dataset for CSR to inform the customer;
- Better comment handling, sorting and response time for CSR to review and inform the customer such as configurable comment standardization; and
- More operating steps integrated into the application resulting in fewer manual standard operating procedures (SOPs) for the CSR to follow and quicker familiarization with System functionality.

#### **4.17 Marketing Support**

WSDOT considers transparent, effective and often two-way communications with its customers critical to its success in delivering quality customer service. WSDOT routinely sends communications to its customers regarding service interruptions or other challenges related to traveling on Toll facilities. In addition, WSDOT often wants to notify its customer of opportunities to improve their traveling experience or lower their Tolls.

CBOS shall support the ability of WSDOT to communicate with its customers by pushing out information to customers via the customer's preferred communication channel. WSDOT envisions an interface which allows authorized staff to select a subset of customers based on specific criteria, such as Toll facility usage or other customer demographics, upload an email, text and/or voice communication and deliver message.

CBOS shall populate a note in the customer account regarding the date, time, and form of the message sent.

### **5.0 Civil Penalty Program**

If a Pay By Mail Toll Trip remains unpaid after a User Configurable amount of time (currently 80 Calendar Days), WSDOT may assess a civil penalty and pursue payment in accordance with RCW 46.64.160. The civil penalty program includes the following:

- Pre-civil penalty customer notification;
- Certification of unpaid Toll Trips eligibility for assessment of a civil penalty;
- Issuance of a Notice of Civil Penalty (NOCP);
- Opportunity for customer to dispute civil penalty through various relief programs including Customer Program for Resolution (CPR) and adjudication process (administrative hearing);
- Vehicle registration hold with DOL; and
- In-house and/or third party collections.

The following sub-sections detail the requirements of the civil penalty program.

Note: The Civil Penalty Program should be configurable by transportation mode and Transaction type so that it can be turned off for WSF Transactions initially but potentially turned on at a later date.

## 5.1 Pre-Civil Penalty Customer Notification

In accordance with state statute and WSDOT Business Rules, prior to issuing a notice of civil penalty to a registered owner of a vehicle listed on an active prepaid electronic Toll account, WSDOT must:

- Send an electronic mail notice to the email address provided in the prepaid electronic Toll account of unpaid Pay By Mail Toll bills at least ten (10) Calendar Days prior to a notice of civil penalty being issued for the associated Pay By Mail Toll. The notice must be separate from any regular notice sent by the department; and
- Call the phone number(s) provided in the account to provide notice of unpaid Pay By Mail Toll bills at least ten (10) Calendar Days prior to a notice of civil penalty being issued for the associated Pay By Mail Toll.

WSDOT is relieved of its obligation to provide notice as required by this section if the customer has declined to receive communications from WSDOT through such methods.

The CBOS shall support this notification requirement by identifying eligible Toll Trips prior to sending the Toll Trip for civil penalty certification and notifying the customer via the customer's preferred communication channel(s). The CBOS shall resend notifications a User Configurable number of times and will populate an account note with the relevant notification information. These notifications shall be automatically generated and sent by CBOS.

## 5.2 Certification for Eligibility of Civil Penalty

In accordance with state statute and WSDOT Business Rules, prior to issuing the NOCP Summary, each unpaid Toll Trip shall Systematically be placed in a queue for certification by a Toll Enforcement Officer (TEO). The CBOS shall support the following processes and tools related to civil penalty certification:

- Provide an interface for reviewing the images and other Toll Trip information related to unpaid Toll Trips which have reached the end of the User Configurable payment period (currently 80 Calendar Days);
- Provide the TEO with the capability to confirm for each NOCP whether there is the following information:
  - A clear and legible image of the license plate state and number,
  - A match between the state and plate number in the image and the state and plate submitted to and returned by the DOL,
  - The registered owner or renter's name is listed,
  - The date of the Transaction is more than 80 Calendar Days past due,
  - If visible, the make and model of the vehicle matches the DOL information, and
  - Whether the customer address is complete.

Upon confirmation of all the above, the TEO shall approve the NOCP Transaction for inclusion in the NOCP Summary.

If the TEO is unable to confirm any of the above criteria, the TEO should reject the Transaction and select the appropriate User Configurable reject code. CBOS will place rejected Transactions in a queue for supervisor review. The supervisor shall have the ability to override a rejection and

make corrections to the NOCP. If the NOCP was processed correctly, (it was rejected for an authorized reason) the supervisor shall assign the appropriate write-off code. If the supervisor changes the NOCP information, it shall go back into the TEO queue for review and certification. If the only reason for the rejection is that the Transaction is less than 80 Calendar Days, it shall return to the image certification for continued aging.

### 5.3 Notice of Civil Penalty

In accordance with state statute and WSDOT Business Rules, if a customer fails to pay their photo-based Toll Trip, CBOS will generate a Notice of Civil Penalty to be issued to the registered owner or renter of the vehicle that incurred the Toll Trip. Each NOCP will have a \$40 civil penalty along with the unpaid Toll amount. This amount shall be shown in an NOCP Summary.

The NOCP Summary shall be in a form substantially similar to that provided by WSDOT and include, but not be limited to:

- One or more NOCPs which each shall include:
  - Registered owner's or renter's name either obtained by DOL, forwarding address, or other means; i.e. sold vehicle with new registered owner (Reassignment);
  - License plate number and jurisdiction;
  - Toll Trip information, i.e. Date, Time, Lane, Location;
  - An image of the captured license plate that is clearly legible;
  - Toll charges, and penalty amount and due date to pay the NOCP Summary;
  - Toll Enforcement Officer certification, signature and identification number;
  - Reprocessing fee(s), if applicable;
  - Current known address;
  - Unique identification numbers and bar coding to track and process the NOCP Summary and individual NOCPs;
  - Description of the consequences of an unresolved NOCP;
  - Information on disputing the NOCP or NOCP Summary;
  - Payment information; and
  - WSDOT Toll Enforcement Office contact information.

Occasionally, WSDOT makes changes to its customer notifications based on changes in legislation, changes to Business Rules, or customer feedback. Changes in the past have been as simple as text changes and as complex as changing lockbox vendors which required a new payment voucher design. WSDOT seeks flexibility in its CBOS solution such that these changes can be made without the need for System programming or outages to install the changes.

The CBOS shall support changes to the design and content of an NOCP Summary document without the need for System changes. The CBOS shall retain an exact copy of all NOCP Summaries issued to a customer that can be accessed via the customer account management interface.

## 5.4 Customer Program for Resolution (CPR)

In accordance with state statute and WSDOT Business Rules, WSDOT offers customers with unpaid Toll Trips which have been assessed late fees and civil penalties the opportunity to correct the cause of the payment delinquency and have the fees and civil penalties waived.

The CBOS shall provide a tool within the account management interface that automatically identifies any unpaid Toll Trip that contains a fee or civil penalty that is eligible for CPR. The interface shall allow the CSR to process the fee reversal (in accordance with all financial requirements) and allow the CSR to select from a pre-established list of reason codes for the fee reversal.

The CBOS shall populate an account note with the relevant CPR information and send the customer a notification of the disposition of the CPR request (confirmed or denied) via the customer's preferred communication channel(s).

## 5.5 Adjudication Program

In accordance with state statute and WSDOT Business Rules, WSDOT has developed an administrative adjudication process to review appeals of civil penalties issued by WSDOT for Toll nonpayment detected using a photo Toll System.

During the adjudication process, the customer must have an opportunity to explain mitigating circumstances as to why the Toll bill was not timely paid. In response to these circumstances, the adjudicator may reduce or dismiss the civil penalty and associated administrative fees.

### 5.5.1 Interface with OAH Case Management System

WSDOT's Contracts the services of the Office of Administrative Hearings (OAH) to support its adjudication program. Administrative Law Judges (ALJ) review evidence packages, hear (or continue) cases and provide WSDOT staff with information regarding the disposition of the case and the amount due (if changed).

OAH has offered a solution to WSDOT in which WSDOT's BOS application will interface with their Prism<sup>®</sup> case management System (CMS). OAH believes that their staff can be more efficient using this tool to manage WSDOT's cases. OAH tracks cases throughout their lifecycle and their CMS solution efficiently captures performance Data and provides document templates. In addition, it has an engine for scheduling cases that is linked to notices.

Under this approach, WSDOT forwards cases in a standard protocol to OAH, and OAH automatically uploads the case Data to its CMS. OAH schedules the hearings, holds the hearings, writes the orders, and publishes the hearings. It documents all these processes electronically in its CMS. Upon disposition of a case, OAH transfers the electronic files back to the WSDOT BOS. This Data exchange is based on a Windows Communication Foundation (WCF) solution.

The Vendor shall develop and maintain an interface to the OAH CMS application. This interface shall transfer the following to the OAH CMS:

- Customer contact information;
- Vehicle and pass information;
- Unpaid Toll Trip information; and
- Evidence package information;

The interface shall also support receiving case disposition information from OAH CMS.

### 5.5.2 Administrative Hearings Functionality (WSDOT Option)

As a WSDOT Option, the CBOS, in lieu of an interface with the OAH CMS, shall support administrative hearing management including:

- Schedule hearings and track hearings with the ability to cancel or reschedule a hearing;
- Notify customer of hearing time and location via the customer preferred communication channel(s);
- Support development of an evidence package including:
  - All account history notes, unpaid Toll Trips and associated Tolls, fees, and civil penalties, any documents provided by the customer in advance of the hearing,
  - Evidence packages must be provided to the customer and the administrative hearing officer for review prior to the hearing,
  - Evidence packages shall be made available to the customer within one week of scheduling their hearing. Evidence packages shall be sent to the customer through the customer's preferred communication channel,
  - Evidence packages shall be made available to the hearing officer at the same time as the customer. Hearing officers shall be able to view, download or print evidence packages through the adjudication interface, and
  - CBOS shall associate the evidence package with the customer account and allow for retrieval through the customer account management interface;
- Provide a user interface for the administrative hearing officer to note the customer account with the disposition of the case and select a pre-established disposition reason code, reverse Tolls, fees and civil penalties (as needed and in accordance with financial accounting Business Rules); and
- Notify customer of results of hearing via the customer's preferred communication channel(s).

## 5.6 DOL Registration Hold Program

If a NOCP is not disputed and remains unpaid after the User Configurable time period for contesting the NOCP, WSDOT utilizes the DOL's vehicle registration hold program to encourage payment. Under this program, a customer will not be able to renew their vehicle's registration until their unpaid NOCP(s) are satisfied.

In accordance with WSDOT and DOL Business Rules, CBOS shall identify unpaid NOCPs that are eligible for vehicle registration hold and send a daily file to DOL for processing. CBOS shall track all unpaid NOCPs that have been forwarded to DOL and provide reports for analyzing the results of the registration hold program.

CBOS shall provide a change file to DOL every night that will include any changes to an unpaid NOCP that were processed during the preceding 24-hour period. Changes may include; notification of payment or dismissal by WSDOT or update to the amount due. When unpaid NOCPs are resolved (paid or dismissed), WSDOT will communicate a release of the registration

holds to DOL within 24 hours. At this time, customers may not pay the unpaid Tolls directly to DOL.

The Business Rules supporting the DOL Registration Hold Program are provided in Appendix 7: Business Rules.

## **6.0 Collections**

WSDOT envisions in the future that collections could be performed either by WSDOT's Torts, Claims and Records Management Division or by one or more external collections agencies on the State master Contract. WSDOT is seeking to evaluate two (2) potential alternatives for providing Systems support for collections activities: interfacing with third party Systems or providing collections functionality within the CBOS.

### **6.1 Integration with Third Party Collections Systems**

The CBOS must provide a bi-directional application program interface (API) to support integration with the collection System utilized by the WSDOT Torts, Claims and Records Management Division (currently Great Plains) and with one or more third party collection Systems for the collection agencies that are on the State of Washington Contract (there are currently four (4) firms on the State Contract). Customer account and receivable information shall be sent to the internal WSDOT or third party System and customer payment information shall be sent back to the CBOS. The CBOS must also place a hold on any Transactions sent to collections to prevent a customer payment from being accepted for an item in collections. However, a customer may make payments on other Transactions on their account or put money on their account, etc.

### **6.2 Collections Functionality (WSDOT Option)**

To support internal collections, the CBOS, as a WSDOT Option, shall provide functionality to manage and track collections. Functional capabilities shall include but not be limited to:

1. Provide a rules-based point System that establishes collection probabilities to help prioritize accounts for collection. WSDOT may only pursue receivables for collection when the type of receivable is deemed collectable;
2. Provide a work flow to route accounts for review and approval prior to turnover to collections;
3. Provide Transaction/account flag to indicate collection activities (internal or external) and provide ability to enter comments on customer account;
4. Prohibit posting of payments to customer accounts for items in collection;
5. Provide a work queue to manage assignments of collections cases;
6. Automate generation of standard letters;
7. Provide document management capabilities to store documents received from a customer and link the documents to the collections case and customer account;
8. Provide skip tracing functionality through integration with one or more skip tracing vendors;

9. Integrate with the accounts receivable function to support receipt of customer payment and the application of this payment to the amount owed following WSDOT Business Rules (generally first-in, first-out);
10. Integrate with a credit reporting service to request credit reports and post information received to the collections case and customer account (through the State of Washington Contract where permitted by RCW and administrative rules); and
11. Charge simple interest on accounts in collection.

## 7.0 Settlements

WSDOT may offer settlements for unpaid Tolls and penalties based on applicable Business Rules. The customers who have exhausted all debt reduction options may be eligible for settlement with WSDOT approval. WSDOT requires CBOS to have the following general functions for the customer debt settlement management:

1. Have a role-based control for offering a settlement to a customer account. WSDOT is the approval authority for settlement requests;
2. Offer the settlement based on a percentage of the total due, dollar amount, or a specific number of Tolls, fees and/or civil penalties due. These shall be the configurable parameters based on the individual customer case;
3. Document the settlement terms on the customer account, including upload of settlement Contract and payment terms with customer signature (signature may be electronic) to account;
4. Write-Off the reduced amount after the settlement Contract terms have been satisfied. The customer account and general ledger (GL) shall be adjusted and updated accordingly;
5. Allow payment plans on a settlement account, with a method of documenting the payment plan, tracking customer payments, generating customer correspondence related to the payment plan, and charging simple interest on the unpaid balance;
6. Separate all activities for the debts under settlement and any other Tolling activities outside the settlement for the same customer account;
7. Provide a reporting capability that summarizes the settlement account activities for a given period, such as settlement offered, debt written-off, and payments received, etc.;
8. Exclude the settlement offered customer accounts from other enforcement efforts deemed as appropriate by WSDOT, such as DOL hold, collections, interest calculation, etc. based on WSDOT Business Rules.

## 7.1 Payment Plans

WSDOT may offer payment plans as a pay option for qualified customers based on applicable Business Rules. Customers who cannot fulfill all Toll and fee obligations immediately may be eligible, at WSDOT's option based on Business Rules, to enter into a payment installment agreement with WSDOT. WSDOT requires the CBOS to have the following general functions for payment plan management:

1. Conduct automatic draws on customer credit cards for a configurable period and payment amount;
2. Separate the payments made as part of a payment plan and the payments made for other items for the same customer account;
3. Monitor all payment plan activities, including payment schedules and expected payments versus received payments;
4. Generate automatic notifications to customers and WSDOT when the automatic draws fail or payments are missed;
5. Charge a configurable amount of simple interest on unpaid balances;
6. Identify accounts and/or Transactions subject to settlement and/or payment plans;
7. Report potential eligibility of customer accounts for payment plan and settlement status for a given period;
8. Prevent any other activities, such as dismissal once the account is flagged for payment plan and settlement;
9. Segregate existing activities from payment plan/settlement activities;
10. Keep track of status and statistics on all payment plan related activities, such as the number of customers on a payment plan, the total amount due, all payment activities, auto draw rejections, etc.;
11. Have a role based setup process for establishing a customer payment plan. WSDOT is the approval authority to put the customer on a payment plan;
12. Exclude customer accounts under a payment plan from other enforcement efforts deemed as appropriate by WSDOT, such as DOL hold, collections, etc.

## 8.0 Customer Website

### 8.1 General Requirements

The Vendor will design, develop, implement and operate a website that supports account maintenance activities for WSDOT customers having a *Good To Go!* account with a link to the WSDOT corporate website. The BOS Vendor will follow a recurring schedule of website updates to keep it current in consultation with and authorization of WSDOT. The BOS Vendor will provide and use content management Software to allow for non-secure site content modifications by authorized WSDOT staff, information posting and editing and published changes keeping the website live. The live changes via content management Software will allow minimal downtime for the website unless absolutely needed.

An accessible website entry point shall be provided to allow authorized *Good To Go!* customers to perform account-related activities online. The BOS Vendor will provide a separate, secure website to host the customer account access functions, which will be linked to/from the WSDOT CBOS. The BOS Vendor shall ensure that appropriate security measures are instituted to prevent unauthorized access to the BOS server(s) through the website and that Confidential Data entered and viewed by the customer remains secure as per applicable federal, state and local laws, PCI standards and applicable WSDOT policies.

The BOS website shall provide the following functionality at a minimum:

- Allow WSDOT customers to open a *Good To Go!* account;
- Provide *Good To Go!* customers a well-organized portal from which to manage account activities;
- Show unpaid Toll bills for customers to pay;
- Provide at least a 12-month history of Toll Transactions;
- Provide the ability to view license plate image details for a Toll bill or an NOCP;
- Provide the ability to view a breakdown of fares and fees, as applicable, for each Transaction;
- Provide the capability to be utilized in a mobile friendly format from a mobile device;
- Provide support for multilingual access as governed by WSDOT;
- Link to WSDOT-specified project partner websites;
- Provide ability to support special promotions for WSDOT customers related to accounts, Transponders and other options as needed basis;
- Provide ability to order a Transponder;
- Provide Web traffic tracking metrics (site/page hits, etc.);
- Provide 24/7 access for all web functionality excluding approved scheduled maintenance windows and release times;
- Provide a “contact us” function that allows customers and other website users to send email to and receive email from an official *Good To Go!* email address;
- Achieve Level AA accessibility and comply fully with State of Washington accessibility guidelines as found at <https://ocio.wa.gov/policies/policy-188-accessibility>; and
- Comply with State of Washington security standards and guidelines as found at <https://www.ocio.wa.gov/policies/141-securing-information-technology-assets/14110-securing-information-technology-assets>.

The process for designing and developing the website will be as follows:

- The Vendor shall prepare wireframes and provide the wireframes to WSDOT for review. WSDOT will then perform an independent usability study (either performed by WSDOT or by a third party engaged by WSDOT) of the wireframes and the Vendor shall make any updates to the wireframes based on the results of the usability study;
- The Vendor shall prepare visual design mock-ups and provide the visual design mock-ups for review by WSDOT. The Vendor shall make any updates to the design mock-ups required based on WSDOT review;
- The Vendor shall then perform HTML development and required back-end development and conduct unit testing and integration testing of these program units;
- WSDOT will conduct a usability study of the unit tested and integration tested website. The Vendor shall make any required updates based on the results of this usability study and re-execute its internal testing (unit and integration) as required;

- The Vendor shall engage at their expense and subject to WSDOT approval an independent, qualified firm to perform accessibility testing and security testing; and
- The Vendor shall present their Accessibility Certification and Security Certification to WSDOT prior to the start of User Acceptance Testing.

During the Operations and Maintenance phase, WSDOT expects to conduct period usability studies (either performed internally or by a third party engaged by WSDOT). Updates which only require text changes to website content should be allowed in real-time with limited regression testing.

## 8.2 **Open a *Good To Go!* Account**

WSDOT customers shall be able to open a *Good To Go!* account using the *Good To Go!* website. The account opening process will be same as the one used by the CSR at the CSC. The account opening process may require multiple pages of information and the website will be able to handle the Data entry without timing out and will provide the user with the option to save one page at a time to handle any issues. In case of any errors or lost connectivity, only the current page information will be lost and will require user to pick up from the last saved page to continue the process of account opening.

Customers shall be able to logout, save information and return to place where session ended and finalize account opening without needing to re-enter previously save information.

The customer will have the option to request Transponders to be shipped to them or they can activate a Transponder kit bought through third party vendors on the new account. The website shall validate the Transponder number and provide instructions to the customer in terms of how to add the Transponder purchased from the retailer to their account.

The default correspondence setting for letters, statements and invoices will be via electronic means but a customer must be able to specifically “opt-in” to receive paper correspondence via mail. Based on WSDOT Business Rules, certain paper correspondence sent via mail may be charged an additional fee.

## 8.3 **Manage *Good To Go!* Account**

The *Good To Go!* website shall provide an easy to use account management portal for *Good To Go!* customers to manage their accounts. The functionality available shall include at a minimum: updating any account information; changing account types; purchasing Transponders, reviewing account statements, updating payment information, and making payments on the account. The account information also includes any periodic configuration setup options required for the account like correspondence delivery options. The portal will also allow customer to review the Transaction history as a single snapshot including Tolls, fares, fees, payments and adjustments together for easy understanding of the account activity. The website should be able to produce a receipt and confirmation number for any financial activities the customer performs on the web.

The customer can also request to dispute any Transaction which they believe is not accurate on their account. The *Good To Go!* customers will also be able to see any pending Toll bills related to their license plates in the account and will have the option to pay a Toll bill via their *Good To Go!* account balance. The *Good To Go!* customers can also request to merge their account with another *Good To Go!* customer if the required criteria for the merge request is met. In this case,

the account merge criteria shall be displayed for the customer on the website. The merge functionality shall include an option for Transponder re-assignment to the merged account.

#### **8.4 View and Pay or Dispute Toll Bills and Notice of Civil Penalty**

The *Good To Go!* website shall provide customers with the capability to view their Toll bills and notice of civil penalties based on the license plate and use the website online payment options to make payments for the pending Toll bills and violation Transactions. Customers can also use the online website to make advance payments for their usage of the Toll facilities based on their license plate details.

The CBOS shall allow *Good To Go!* customers to pay online for any Toll bills outstanding for the customer before or after they opened their *Good To Go!* account. The new CBOS will search and link all outstanding Toll bills via Pay By Mail for the license plates registered to the customer's *Good To Go!* account.

The customer can view the Toll bill details online while reviewing their *Good To Go!* account. The website will display the outstanding Toll bills and will allow a customer to pay for the Toll bill using their *Good To Go!* account balance or separately using a one-time payment option.

The customer shall be able to dispute a Toll bill via the website. Customers will be prompted to provide reasons for the dispute, such as a vehicle sale, and to upload any pertinent documentation. The customer will be provided a dispute number for tracking the resolution of their dispute. CBOS will mail, email or text the resolution status of a dispute based upon the customer communication channel preference.

#### **8.5 Customer Viewing of Images Associated with a Transaction**

The Vendor shall provide customers with the option of reviewing images associated with the Transactions posted to their accounts. This shall include the capability to view all image-based Transactions posted to an account. The customer shall have the option to click on the image link to view the image for the Transaction before making a payment.

WSDOT appreciates the constraints of storing large Image Files. The CBOS shall support the viewing of images related to customer Toll Trips for 120 Calendar Days prior to archiving. This does not change any requirements related to storing Customer Data outlined in WSDOT's archiving Business Rules.

#### **8.6 Special Promotions**

The *Good To Go!* website shall have the capability to implement special online/web-based promotions for the *Good To Go!* customers related to account opening, discount plans and Transponder purchases. This includes the ability to support and prioritize multiple promotions at the same time. The promotions will be available for a fixed period based on the discretion of WSDOT and after that, they would expire. Customers who meet the eligibility requirements for multiple promotions may use more than one promotion at a time. The website will be able to handle and adapt to the expiration details accordingly.

## 8.7 Fulfill Transponder Inventory Request

The *Good To Go!* website shall provide options for the *Good To Go!* customers to request new Transponders fulfillment from the inventory even if the Transponders are reported out of stock in the main inventory at the Customer Service Center. The Transponder fulfillment will occur once the inventory is replenished at the Customer Service Center and Transponders will be shipped to the customer address as requested.

If out of inventory, the customer will be provided with notice that the Transponder is on backorder and the website will provide the status of the order and the estimated delivery date. The customer will have the option of having the Transponder cost deducted from their account or the customer may charge the Transponder to the credit card on file on the account or to a different payment method.

Customers shall be able to cancel Transponder requests via the web if the order has not yet been fulfilled.

## 8.8 Live Chat

The *Good To Go!* website shall provide a live chat feature which interfaces to the CSC (or other location specified by WSDOT). The website should prompt the customer to the live chat option after a configurable amount of time using the website (feature shall be available for both customers with an account and other users – for example someone trying to pay a Toll bill). The live chat feature should allow customer to upload pertinent documents to support resolution of any customer issues. The live chat feature should be capable of generating reports on customer activity and issue resolution results.

The Vendor should also describe in their proposal other customer interaction tools within their solution that can be made available for WSDOT use. One example of interest to WSDOT is a tool for CSRs to use text/SMS to work through questions via cell phone.

## 8.9 Social Media Communication Channels

WSDOT utilizes other social media communication channels to interact with its customers. The *Good To Go!* website shall allow customers to contact and receive responses from WSDOT through social media platforms such as Facebook and Twitter.

## 8.10 Multilingual Access

The *Good To Go!* website shall provide options to display the website in multilingual display fonts based on the direction of WSDOT to handle multilingual customer usage of the website. The base language shall be English with option for the user to switch the website view to a different language of their choice. The website shall support the following languages: English, Spanish, Vietnamese, Russian, Chinese, Korean and Japanese.

## 8.11 Web Metrics

The *Good To Go!* website will track web metrics details. The Vendor shall provide these metrics to WSDOT on at least a monthly basis to support review and analysis by WSDOT on potential improvements to the website.

## 8.12 Allow Customers with Negative Balance to Make Payment Online

The CBOS shall allow *Good To Go!* customers to pay online to resolve a negative outstanding balance on their *Good To Go!* account. The CBOS will display online the customer's current balance on their *Good To Go!* account including the negative balance and any Pay By Mail Tolls. The System will provide the customer with different payment options for paying online. Once the payment is made online, the CBOS shall update and display the account balance for the customer to view the current balance of their *Good To Go!* account.

## 8.13 Experience with User Centered Design

The Vendor shall provide a Lead Web Developer to lead and manage the design and development of the CSC Website who has a minimum of five (5) years of experience in user centered design. In addition, WSDOT will either assign WSDOT staff with appropriate expertise or independently engage a consultant with experience in web design to assist in planning and executing usability studies for the CSC Website.

## 9.0 Inventory Management

Currently, there are approximately 1.8 million Transponders that have been distributed from multiple distribution points, including third party retailers. WSDOT has ongoing marketing campaigns for increasing pass disbursement for better Toll collection efficiency. In addition, it is expected in the future that *Good To Go!* passes will be accepted as a method of payment at other facilities, such as WSF and potentially parking facilities.

WSDOT maintains partnerships with various retailers to sell the passes independently. WSDOT may also deploy independent kiosks for the customers to sign up a new account, replenish their account(s), and buy and activate passes.

WSDOT receives funding for the purchase of its Transponders from multiple funding sources. For example, incentive programs which offer discounted Transponder costs for special promotions may be sponsored by other budget programs. CBOS shall be capable of tracking Transponder inventory by budget source.

The CBOS shall provide a full featured inventory and order management function which will be utilized by the CSC Operator and/or WSDOT to perform inventory management business functions. Inventory will include Transponders and the *Good To Go!* pay card as well as all other mailing and packaging items such as welcome kits and envelopes. The inventory management function of the BOS shall have capabilities including but not limited to:

- Inventory Item Definition and Location: Define, catalog and classify components and related material. Maintain reference Data for inventory management, such as specifications, item type and class, commodity codes, etc. Identify item storage locations and maintain perpetual balances of each item at each location;
- Warehouse/Storeroom Configuration and Management: Define storage facilities and facility layouts and manage physical storage locations. Support optimized utilization of space and facilities and ensure safekeeping of material;
- Inventory Transactions and Material Usage Tracking: Support accurately tracking the movement of material in and out of storage through inventory Transactions for issues,

returns, receipts and transfers between storage locations. Track the usage of material to individual assets. Support material sales and scrapping of material. Maintain historical records and accumulate statistics for use in inventory analysis (e.g., service levels and turnover). Provide the ability to add and track new or temporary inventory (such as promotional passes);

- **Material Replenishment:** Manage the replenishment of inventory to ensure the most effective use of inventory investment dollars to achieve target levels of availability and to ensure the most effective flow of the supply stream. This includes initiating the purchasing of material to replenish the main warehouse and transfers to satellite warehouses from the main warehouse to maintain appropriate level;
- **Supply Chain Planning:** Support advanced planning for material requirements (for example for a promotional campaign associated with opening a new Toll facility);
- **Cycle Counting and Physical Inventory:** Provide a physical counting program. Provide reports which compare physical counts with inventory balances in the System to support diagnosing and correcting the source of discrepancies and provide the capability to adjust inventory as necessary;
- **Serialized Item and Lot Tracking:** Identify and track the storage and use of individual serialized units through inventory, including, but not limited to, repairable components;
- **Inventory Accounting and Valuation:** Maintain, monitor and manage the value of inventory items using standard valuation methods (currently this is first-in-first-out for Transponders and average cost for other inventory items). Interface with WSDOT TRAINS to report changes in value through inventory Transactions and adjustments. Track inventory value by source of funding and projects, such as capital and operating inventory. Apply material costs to appropriate expenditure accounts as material is consumed;
- **Order Entry:** Allow an authorized WSDOT or CSC Operator staff member to place orders from merchants and reserve inventory (on-hand or on-order) to fulfill the merchant order. As a highly desirable feature, provide self-service capability to allow a merchant to place their own order via the Web with the same order management/order processing occurring upon receipt of a Web order as if WSDOT or CSC staff had entered the order into the CBOS.

The inventory module of the CBOS shall be configured to support the following WSDOT inventory management:

1. Receive orders of passes, communicate with WSDOT regarding pass orders, test passes for operability, and report on pass inventory activity.
2. Sell and activate passes by POS, such as *Good To Go!* service centers, kiosks, web orders, and third party retail outlets.
3. Sell passes to customer accounts with and without prepaid balances.
4. Sell passes without a customer account;
5. Generate packing slips and invoices, shipping product, and collecting payments for pass sales to third party retailers.
6. Track the pass statuses via pass type.
  - a. The CBOS needs to track return merchandise authorization (RMA) status and manage the defect exchange with the manufacturer.

- b. The CBOS needs to support the reuse of lost and returned (unused) passes under an applicable operations scenario.
  - c. The CBOS needs to separate passes between those sold by WSDOT and those sold by third party retail outlets.
  - d. The CBOS needs to support pass transfers between accounts.
7. Provide a dashboard that forecasts the inventory replenishment needs by pass type based on the purchase, transfer, and sale history. This element shall specifically include the status of passes by type on hand at the CSC as well as those with a scheduled delivery date.
  8. Provide capability to generate pass purchase orders for WSDOT review, adjustment and approval based on burn rates and forecasted needs. The CBOS shall have a reporting capability on inventory management status and related activities for a user-defined period.
  9. Utilize the CBOS inventory functionality and associated tools to track package orders, inserts, activation stickers and other items included in pass kits.
  10. Track inventory and support ordering of the *Good To Go!* pay card.

Note: WSDOT does not currently have an agency purchasing System so the purchase orders will be generated and maintained only in CBOS following the planned implementation of One Washington. CBOS will likely interface into the One Washington System to initiate the purchase order within the new state System.

## 10.0 Washington State Ferries Integration

The CBOS must integrate with WSF to allow WSF customers with a valid *Good To Go!* pass and a valid account to apply their prepaid balance to ferry Tolls. The use of a *Good To Go!* pass as a payment method will work as follows:

- The Tolling lane reader captures the Transponder ID when the vehicle is at the Tollbooth;
- The WSF Tollbooth operator will calculate the fare and select *Good To Go!* as form of payment;
- If insufficient funds are available on the prepaid balance as indicated by the *Good To Go!* “whitelist”, the WSF System will request only the balance available and then capture the remainder via another form of payment (“multi-payment mode”);
- WSF ticketing System then sends the *Good To Go!* Transaction ID, Transaction value and the Transponder ID to the *Good To Go!* System via a formatted XML message for approval;
- If the total *Good To Go!* Transaction value is available on the customer’s account an approval is sent to the WSF ticketing System in near real time; and
- Once the approval is received from *Good To Go!* the ticketing System will complete the Transaction and print a receipt.

The CBOS shall provide:

- Verification of prepaid account balance via a Transponder “whitelist” that includes the account balance;

- Processing, posting and reconciliation of WSF fares paid with *Good To Go!*;
- Payment of WSF fares using a valid *Good To Go!* pass;
- WSF Transaction visibility on the *Good To Go!* website, IVR and statements including a breakdown of the Transaction by individual fare. The WSF Transaction ID will also be shown on the website and statements for audit purposes;
- Read-only access for WSF CSRs assisting customers with questions about Transactions paid with *Good To Go!*;
- Processing and posting of credit Transactions received from WSF's back office, including customer discounts related to loyalty programs and Transaction adjustments; and
- Customer billing process for scenarios where a customer's account has insufficient funds when the ferry fares are posted to the customer's *Good To Go!* account. These Transactions will not have images like other Toll Transactions. Bills will be mailed to customers; however, fees and penalties will not be applied.

WSF and the WSDOT Tolling program will maintain their own separate Customer Service Centers and customer service Systems. No Data migration of customer information will be required from WSF Systems.

The Vendor shall develop, test, operate and maintain automated electronic interfaces with WSF facilities and back office to support acceptance of the *Good To Go!* Transponder as a method of payment for ferry fares. The interface will support WSF validation of an available prepaid balance on the *Good To Go!* account. The balance shall be usable as full or partial payment for the fare depending on the amount available, with the remainder to be collected by WSF from the customer via a secondary form of payment. The interface will send an acknowledgement message back to WSF that the full or partial payment amount has been collected. Additionally, the interface will accept ferry Transactions that are broken down into multiple amounts for different fares and potentially discount amounts. These Transaction details will be retained and will be viewable to CSRs and customers via the web site, IVR and statements. The interface will also accept and acknowledge credit amounts for refunds issued via the WSF back office.

The Vendor shall document the interface in an ICD for review and approval by WSDOT.

## 11.0 **Additional CSC Support Tools**

### 11.1 **Computer Telephony/IVR System Integration**

WSDOT is continuing to evaluate whether the telephony System and IVR should be provided by the Vendor as part of the BOS solution or by the CSC Operator. The Vendor shall provide proposed solutions under both alternative approaches as outlined below.

#### 11.1.1 **Interface with CSC Operator Provided IVR System**

Through interviews with various potential CSC operations vendors, WSDOT has come to the understanding that the tools provided to a CSC Operator can have an impact on their efficiency and their cost of operations. With the goal of providing the best set of tools for future operators and customers, WSDOT is requesting the Vendor to provide as part of their base proposal an

estimate of the costs of developing and maintaining an interface to a telephone and IVR System provided by the CSC Operator.

Under this scenario, the CSC Operator would be responsible to procure the telephone and IVR System and support the integration with the BOS either with their own staff or through a third-party integrator. In addition, WSDOT will require the CSC Operator to provide resources for on-going maintenance of the telephone and IVR System. Any System provided by the CSC Operator will at a minimum meet the requirements detailed in Section 11.1.2.

In addition to the costs of integrating with a System provided by the CSC Operator, WSDOT is requesting an analysis of any risks the Vendor foresees in this approach and any limitations which might be inherent in this approach in terms of the BOS solution being proposed by the Vendor.

### **11.1.2 Vendor Provided Telephony and IVR System (WSDOT Option)**

As a WSDOT Option, the Vendor shall install and operate a fully functioning voice over internet protocol (VOIP) telephone System at the CSC and all satellite CSC facilities. The Vendor shall provide an Interactive Voice Response (IVR) System. The Vendor shall provide the required Hardware, Software and integration to allow CSC Operator staff and *Good To Go!* customers to utilize the IVR System with the BOS applications.

The IVR System shall support multi-lingual operation including support for English and Spanish. The IVR shall allow a customer to indicate the reason for their call and for the routing of a call to a CSR based on the nature of the call. The IVR System will include an option for a customer to request to speak to a CSR at the CSC at any point. The IVR will also provide an option to be transferred to WSF customer support for questions about WSF Transactions.

Any requests that cannot be handled by the IVR shall be transferred to a CSR. If the customer initially provides Data, such as the account number, then this information will be retained and made available to the CSR who takes the call. The caller is not expected to provide the same Data again. The IVR System shall allow call transfers between CSRs. In the event of a call disconnect, the IVR System shall reconnect the caller with the CSR who the caller was previously working with.

The IVR System shall provide the customer with the estimated wait time and offer an option for the customer to provide their phone number for a call back while maintaining the customers place in the queue. If the customer prefers, the IVR System should have the ability to allow a customer to leave a voicemail that can be retrieved by CSC Operator staff.

The Vendor shall provide the IVR System configuration scripts for WSDOT's review and approval. The Vendor will use existing IVR System scripts as a baseline for the new IVR System scripts design and development. Scripts should use automated voice or other technology for real-time updates to IVR messaging and phone tree.

The IVR System will allow *Good To Go!* customers to access account related details by securely connecting and accessing to the CBOS customer account management System. The IVR System will allow customers to make payments with no CSR assistance required for both account replenishment and Toll bills.

*Good To Go!* customers will use secure personal identification number (PIN) to access their account details via the IVR System. The IVR access PIN will be setup during the *Good To Go!* account opening. The Vendor will take steps to make the transition from the current IVR System to the new one as seamless as possible with minimum changes. This may require migration of the PIN details from the existing System to the new IVR System.

The IVR System shall have the capability to support a minimum of up to 200 concurrent sessions. The CSC Operator will identify if additional trunk lines are required and will coordinate with WSDOT to arrange the provision of such facilities. The IVR System will be able to record, store and archive all customer/CSR conversations for a minimum of 60 Calendar Days.

The IVR System shall have the capability to broadcast automated recorded telephone notifications to all customers calling in. The IVR shall also allow the CSC Operator to set up for auto-dial customers for up to five (5) simultaneous calls, deliver a message, play the spoken name, and ask the caller for a confirmation.

The IVR System should provide an option for real time surveys to be offered to customers after they complete their call with the CSR. The IVR should have the ability to segment calls and route topics to specific groups of pre-identified CSRs. The IVR should also have easily configurable wrap codes. In addition, the IVR should have a robust workforce management capability for call volume forecasting, CSR scheduling and CSR productivity analysis.

## 11.2 Document Scanning and Management System

The Vendor shall provide the required Hardware, Software and integration to allow CSC staff to use a Document Scanning and Management System (DSMS) function with the BOS. The DSMS function will support the following activities at a minimum:

- Scan paper documents up to the size of 11x17;
- Store scanned images as PDF files;
- Support storing of other file types like Microsoft Word documents, emails and Microsoft Excel under the DSMS;
- Scanned files must be accessible and readable per WSDOT retention guidelines;
- Allow files to be catalogued for easy searching by individual keywords;
- Provide for searching on metaData such creation date of an image or a file, last modified date, creator/owner, etc.;
- Restrict access to the document based on user security roles and privileges;
- Maintain an audit trail which monitors/logs document additions, changes, deletions (based on retention schedule and with appropriate security), view and retrieval;
- Manage document retention in compliance with WSDOT's current approved records retention schedule. Please refer to:  
[https://www.sos.wa.gov/assets/archives/RecordsManagement/Department-of-Transportation-Records-Retention-Schedule-v.1.4-\(September-2014\).pdf](https://www.sos.wa.gov/assets/archives/RecordsManagement/Department-of-Transportation-Records-Retention-Schedule-v.1.4-(September-2014).pdf);
- Support retrieving previous versions of the edited documents; and
- Support sharing and accessing documents via mobile devices.

The Vendor will integrate the DSMS with BOS whenever paper copies require scanning and digital storage for recording purposes. One example is the account management process where the scanned account verification documents are scanned and tied to the appropriate account and allow CSC staff to access them while reviewing the customer account.

The Vendor shall be responsible for any migration required to associate existing scanned documents with the new BOS.

### 11.3 **Email Support**

The Vendor shall provide the required Hardware, Software and integration to allow email exchange and support from the BOS. The email System will support the following communication:

- Between CSC staff and *Good To Go!* customers;
- Between CSC staff and WSDOT users of the BOS;
- Automated communication from the BOS to either *Good To Go!* customers or WSDOT users of the BOS (please also refer to Section 4.19 Marketing Support); and
- Automated support maintenance emails from the BOS to the CSC Operator, WSDOT and other BOS users as required.

The Vendor will utilize an industry standard email delivery System to support the email communication within the CSC. The email delivery System shall support HTML, plain text or rich text for emails. The email delivery System will have an easy to use user interface and include standard features such as:

- Spell checking;
- Drag and drop feature;
- Printing capabilities;
- Auto response;
- Auto forwarding;
- Web browser based (web mail) mail access; and
- Encryption.

The CBOS will provide a method for tracking and reporting on email (volume of outgoing and incoming email, etc.) In addition, CBOS shall be able to report on the effectiveness of email marketing by tracking the number of emails sent, emails opened and clicks on links within an email.

All the email communications will be stored and archived as per the Business Rules. *Good To Go!* customer account related emails will be linked to the appropriate account for later review and use by both CSC staff and the customer. The Vendor will be responsible for migrating all the Data and files from the existing email System to the new System.

### 11.4 **CSC Dashboard**

The Vendor shall provide a CSC dashboard to monitor the status and activity on customer accounts. The CSC dashboard shall provide a real-time snapshot of the status of customer accounts including but not limited to:

- Account status including balance;
- Account notifications;
- Account Trips posted;
- Account payments;
- Account comments and logs; and

- Account configurations.

The CSC dashboard shall also provide for real time analysis using the historical account Dataset within the CBOS. The CSC Operator and WSDOT staff shall have the capability to utilize the CSC dashboard to configure different CSC parameters including the wrap codes for CSRs working with customers.

## 11.5 Photo Recognition Application for Plate Registration

The Vendor should provide the capability within the CBOS to allow *Good To Go!* customers to take a picture of their license plate and upload the picture via the CSC website while setting up an account. The CBOS should include a photo and optical character recognition Software application that will scan the image uploaded by the customer, convert it into the license plate number, and register it in the account for posting plate-based Transactions to the customer account. This function should also be able to be utilized by a CSR while receiving and reviewing a photo emailed by a customer and converting it into the actual license plate number for registering it in the account.

This feature may also be provided by the Vendor as a mobile application for the customer to take a photo of their license plate using their cell phone and uploading it to CBOS as part of the customer account registration process. The CBOS will then convert the picture and store the license plate as part of the customer account.

## 12.0 Accounting and Financial Requirements

### 12.1 General Requirements

The CBOS is the central repository of financial information for the WSDOT Tolling program and is the Toll related general ledger subsidiary System to TRAINS. WSDOT uses modified accrual accounting to record all Tolling related financial activities. Each Transaction must be separately accounted for in its own legal fund and Transactions will move between funds. There are six (6) legal funds (soon to be seven (7) with the addition of the State Route 99 tunnel) for four (4) facilities and the central Toll account. Financial Transactions will move monies between funds.

For the next generation of Tolling System, WSDOT prefers a commercial off the shelf (COTS) accounting package that can be seamlessly integrated and mapped with the Tolling BOS. As an alternative to a COTS solution, WSDOT will consider a proven in-house developed solution if the Vendor can demonstrate that the proposed solution has been successfully implemented for multiple external entities to perform functionality similar to that being requested under this RFP. The Vendor's financial solution (whether COTS or custom) shall comply with Generally Accepted Accounting Principles (GAAP), including GASB statements, Washington State statutes and rules, and WSDOT specifications. The CBOS shall meet the following general accounting and financial management requirements:

1. Map the general ledger (GL) balanced double entries for all financial activities based on WSDOT defined GL posting rules. The setup for the GL accounts shall be configurable and updatable easily in the CBOS;

2. Support financial reconciliation at the Transactional level following WSDOT reconciliation requirements;
3. Implement role based security;
4. Provide for configurable fiscal period closes, both monthly and annually. Fiscal periods for TRAINS are established by WSDOT and must comply with the Washington State Office of Financial Management (OFM) fiscal calendar;
5. Keep more than one fiscal period open at a time to allow for month-end and year-end adjustments. During first “X” days of the month, the prior fiscal period will remain open for any adjusting entries. WSDOT require the “X” day to be configurable for month-end and year-end adjustment purpose. No entries shall be made to a closed accounting period;
6. Have the capability to accrue and report Transactions in the proper fiscal period;
7. Have the capability to close out nominal accounts at fiscal year-end. Provide the capability to maintain real accounts from one period to the next; ensuring that the end balance of one fiscal period equals the beginning balance of the next fiscal period;
8. Provide a user-friendly manual Journal Voucher (JV) entry function. It shall have a role based access control and an automatic entry validation check of account numbers and ensure balanced entry;
9. Interface with TRAINS and Systems of other state agencies or business partners, including but not limited to Office of State Treasurer (OST), DOL, third party collections or WSDOT in-house collections;
10. Calculate and record revenue allocations based on WSDOT defined allocation methodologies. The CBOS needs to generate the allocation matrices for WSDOT review and approval before execution;
11. Generate notifications on financial activities based on WSDOT’s configuration, such as lockbox payment file received and processed. Send out exception alerts to WSDOT users when the financial activities are outside of normal trends as defined by WSDOT configurable criteria, such as JV files out of balance, debit balances occurring in liability accounts, etc.;
12. Calculate aging receivables’ collectability; determine allowance rates, and write-off uncollectable receivables.

Overviews of various required accounting and financial functions are provided in the subsections that follow. Detailed posting rules for the Accounting and Financial functions of the System are provided in Appendix 8: WSDOT General Ledger Posting Rules.

## 12.2 Payment Processing

WSDOT requires CBOS to have a robust payment processing module that can handle the payments processing efficiently and accurately. All payments posted in CBOS should have corresponding CBOS and GL records. WSDOT has the following general requirements for the payment processing function:

1. Allow one-time, manual replenishment and auto-replenishment payments. For auto-replenishments, the CBOS shall provide configurable parameters for customers to choose;

2. Provide customers with options to set up the payment related alerts, such as payment returned, auto payment failure, credit card expiration, etc. The alerts will be sent through customer preferred communication methods, which include text, email, mail, etc.;
3. Accept multiple types of payments, including cash, check (including eCheck processing), debit cards, branded credit cards, *Good To Go!* pay cards, e-wallets, Electronic Benefit Transfer (EBT), and inter-agency payment (IAP). Payments will be accepted in United States currency only;
4. Generate the appropriate GL entries by payment type. The GL entries need to include all information required in the Subsidiary Ledger (SL) Detail report;
5. Assign a single payment ID for each payment received, especially when one payment is made for multiple items or across multiple accounts for audit trail;
6. Identify and report payment by point of sale locations and by payment types, including payments from collections, lockbox and independent kiosks;
7. Process returned payments, such as returned check and credit card chargebacks, and apply applicable fees that are configurable by WSDOT Business Rules;
8. Reverse a returned payment when an appropriate reason is presented, such as credit card chargeback is reversed by the bank;
9. Process payment transfers between customer accounts when needed, and the original payment ID shall not be changed during transfers;
10. Allow a configurable payment prioritization based on WSDOT Business Rules. The payment order may depend on type of unpaid Toll, fee and aging criteria;
11. Support posting of partial payments;
12. Allow use of a *Good To Go!* account as a payment option with required authentication following WSDOT Business Rules. The *Good To Go!* account may be used to make one-time payment for Toll bills.

### 12.3 Receivables Collectability

WSDOT allowance rates are based on collectability of receivables. Collectability is a calculation based on payment history from System inception of Tolling to current fiscal period for all operational facilities. The amount of the allowance for doubtful accounts that should be recorded in the CBOS, TRAINS and the State of Washington's Agency Financial Reporting System (AFRS) application is determined as follows:

- (Allowance rate X Net Receivable) where Net Receivable is equal to (Gross Receivable – Dismissal- Payments- Write-Off)

WSDOT has the following general requirements for the CBOS's automatic receivables collectability analysis:

1. Have role based security control on who can access this Data;
2. Develop the collectability rate based on historical receivable payment Data;
3. Allow an authorized user to adjust the allowance for doubtful accounts as of a certain date;
4. Calculate and provide authorized WSDOT users with an adjustment rate;

5. Allow an authorized user to review and approve the JV entries based on the adjustment rate;
6. Execute adjustments for the allowance for doubtful accounts in CBOS after WSDOT approval; and
7. Update GL accordingly.

## 12.4 Write-Off

WSDOT writes off uncollectable receivables/debts as part of its regular business process. The CBOS needs to allow WSDOT to execute write-offs by scheduled batch process and on an ad-hoc basis. The CBOS shall allow WSDOT to select the date range of aged Transactions for the scheduled batch, review the individual Transactions included in the batch, select Transactions to be excluded from the batch (without additional batch reconfiguration or delay), and have multiple approval authorities (configurable) to edit, approve, and release the batch. The proper GL entries shall be generated for each Transaction upon write-off completion, and all corresponding reports (receivable reports, GL reports, customer account reports, and write-off detail and summary reports) shall reflect the write-off results.

WSDOT has the following general write-off requirements:

1. Write-off Batch Process
  - a. Provide the capability for an authorized WSDOT user to configure write-off batch criteria.
  - b. Provide for segregation of duties such that a user preparing and editing the batch does not have access to approve or process the batch.
  - c. Set up for one-time or repeated batches.
  - d. Allow the batch criteria to include but not be limited to:
    - i. Fund;
    - ii. Type of receivables;
    - iii. Age of receivables; and
    - iv. Special marked receivables (such as returned from collections).
  - e. Provide an electronic workflow to allow for review and approval of the batch by WSDOT's approval authority before the write-off batch execution. Information which must be provided within write-off batch includes:
    - i. Customer account information (name, account ID, etc.);
    - ii. Receivable types;
    - iii. Dollar amount;
    - iv. Proposed reason(s) for write-off which must be configurable by an authorized user based on WSDOT Business Rules; and
    - v. Applicable Transaction dates (original Transaction date and receivable dates).
  - f. Provide the authorized WSDOT user with the capability to edit the batch. An authorized user shall be able to select all or some Transactions within the

proposed batch of Transactions meeting the write-off criteria. Upon selecting the Transactions for inclusion in the write-off process, the proposed batch will then be set for processing. Currently, the write-off of Tolling receivables requires the approval of the Director of WSDOT AFS.

- g. Generate and send a notification to WSDOT designated personnel after the write-off process is completed. A confirmation needs to be sent to ensure the customer accounts are updated accordingly and the appropriate accounting entries generated within CBOS and for integration to TRAINS.
  - h. Produce a write-off report at either the summary or detail level.
2. Write-off Customer Account Process
- a. Allow a CSR to flag selected Transactions for write-off on individual customer accounts based on WSDOT configured write-off Business Rules, such as discharged bankruptcies.
  - b. Provide for segregation of duties such as the preparer/initiator of the write-off request should not be approver or processor.
  - c. Allow a CSR to select the write-off reasons for each Transaction selected from a drop-down menu when the customer account meets write-off eligibility as defined by WSDOT configurable Business Rules. These reason codes shall include but not be limited to:
    - i. Discharged bankruptcy;
    - ii. Customer Program for Resolution (multiple reasons);
    - iii. WSDOT directed, etc.; and
    - iv. Configurable for additional write-off reason codes.
  - d. Allow the write-off to happen immediately on the customer account or it can be escalated to a batch for WSDOT review and approval based on the type of dispute/write-off reason or quantity of Transactions according to WSDOT Business Rules.
  - e. Generate a letter to the customer advising of the write-off and the new account balance when requested.

## 12.5 Bankruptcy Management

WSDOT requires CBOS to support actions that must be taken on a customer account when bankruptcy notification is received. The System shall support compliance with Washington State and Federal Bankruptcy laws, collection standards, and applicable WSDOT Business Rules. WSDOT requires CBOS to have the following general functions for bankruptcy handling and management:

1. Allow CSRs to flag the specified Transaction date range on the customer account. The System should include fields for the CSR to enter the bankruptcy filing date and case number. Transactions up to and including the filing date are covered under bankruptcy. When the CSR selects the date ranges for the specific Transactions/notices related to bankruptcy, the System should place a hold for those Transactions/notices identified and the System should automatically send a DOL hold removal.

2. Provide fields in the System for the CSR to enter the dismissal and discharge date (for reporting purposes).
3. Provide at a minimum the following configurable codes for flagging the account:
  - a. Chapter 7 notice received;
  - b. Chapter 11 notice received;
  - c. Chapter 13 notice received;
  - d. Order of Discharge; and
  - e. Notice of Dismissal.
4. Provide for configurable bankruptcy hold periods depending on the type of bankruptcy. When a customer account is placed on a bankruptcy hold the Transactions will not progress through the Toll System, the DOL hold on the vehicle will be released, and the account shall be excluded from the enforcement efforts deemed as appropriate by WSDOT, such as billing, collections, interest calculation, etc.
5. Send designated WSDOT and CSC Operator staff automatic notifications when the bankruptcy related holds are expiring.
6. Provide the ability for a CSR to be able to extend the bankruptcy hold date.
7. Allow CSRs to update a customer account as appropriate once the discharge documentation is received. The Transactions within the bankruptcy period will be written off based on WSDOT Business Rules. The customer account and GL should be updated accordingly. Allow the CSR to enter the case number, for discharge documentation. The discharged bankruptcy items will escalate to the write-off batch with a bankruptcy reason code.
8. Allow CSRs to remove bankruptcy holds in the event of a court dismissal; all Transactions will then be released to progress through the normal System processes. A DOL hold should automatically be placed back on by the System when the CSR has selected "Notice of Dismissal" as a reason code.
9. Track the new Transactions separately from the Transactions that are within bankruptcy period.
10. Report bankruptcy related activities on an ad-hoc basis, which may include the number of bankruptcy cases received, discharged or dismissed and the number of bankruptcy cases by bankruptcy type for a given period. The report needs to be able to be exported in both Microsoft Excel and Adobe PDF format.

## 12.6 Refund Issuance

WSDOT issues refunds from the customer prepaid account or the temporary suspense account in the event of overpayment and unidentified payments, depending on the reason for the refunds. The customers can request a partial or full refund from their prepaid account balances. The refund can also be issued automatically per the applicable Business Rules. WSDOT has the following general requirements for the refund function:

1. Issue refunds to the original form of payment, such as credit card or ACH. In the event the original payment method is no longer available; the state warrant shall be the default

refund method. The CBOS shall send automatic notification when the credit card or ACH refund fails. All cash or check payment refunds must be issued via state warrant.

2. Generate the payment voucher files to WSDOT for state warrant issuance.
3. Allow both manual and automatic refunds based on WSDOT Business Rules.
4. Cancel refunds if the refund has not been redeemed within a user-defined period based on WSDOT Business Rules. This may be applied to refunds that have aged beyond the validation period or refunds which were issued in error.
5. Allow CSRs to issue partial or full refunds for prepaid accounts when the customer request is received and the required criteria are met.
6. Issue the automatic refunds for closed prepaid accounts and overpaid accounts based on WSDOT Business Rules.
7. Set up a configurable closing account balance threshold so there will be no refund issued if the account balance is less than the set amount when the account meets the inactivity closing criteria, and apply applicable inactivity closing fee following WSDOT Business Rules.
8. Establish edits in the System that prevent promotional Toll credits from being refunded.
9. Ensure a full refund is issued when the customer initiates the refund process.
10. Update the warrant refund returned information, either electronically through the TRAINS interface or provide the capability for a CSR to perform this update manually when the state warrants are returned as undeliverable.
11. Perform an automated search for a potential new customer address through interface with skip tracing capabilities provided with the CBOS; update the CBOS with the new customer address after review by authorized WSDOT or CSC Operator staff.
12. Provide a reporting capability for refund related activities.
13. Display refund status on the customer account for CSRs customer service activities, such as request received, approved, refund issued, etc.

## 12.7 Interest Calculation

The RCW requires WSDOT to charge simple interest on past due Toll balances. The interest will only apply to the past due balance. The Transactions which have not reached past due status shall be excluded from the interest application. WSDOT needs the CBOS to calculate interest on unpaid Tolls based on WSDOT Business Rules.

WSDOT has the following general requirements for the interest calculation function:

1. Support a configurable interest rate (currently 1% simple interest).
2. Calculate and apply interest to past due Toll balances at either customer account or Transactional level.
3. Display the interest charges on the customer account and add it to the overall account balance due
4. Generate the proper accounting entries to the general ledger for the interest applied.
5. Calculate and apply interest on the same day each month for all eligible accounts.

6. Have a reporting capability that summarizes the interest related activities for a given period, such as interest added, dismissed, written-off, and paid, etc.

## 12.8 Discount/Incentive Programs

WSDOT may offer customer incentive programs to improve Toll facilities' performance and customer experience. The incentive programs vary and must be configurable to support WSDOT related Business Rules. The CBOS shall support the capability to offer programs that are either System wide or facility specific. Programs will not require customer signups. The CBOS shall have the following general capabilities for customer discount/incentive programs:

1. Support the facility specific customer discount/incentive programs.
2. Allow the configurable discount/incentive programs. The parameter may include but not be limited to:
  - a. Number of Trips traveled;
  - b. Time of day traveled;
  - c. Specific dates traveled;
  - d. Vehicle occupancy based;
  - e. Percentage Toll discounts;
  - f. Low income discounts;
  - g. Residency-based discounts or exemptions; and
  - h. Transportation mode or Transaction type.
3. Provide the role based control for all discount/incentive related System actions, such as signup and adjustments.
4. Apply the discount/incentive programs at Transaction or account level.
5. Set up multiple discount/incentive programs at the same time, including GL codes, following WSDOT non-revenue Business Rules.
6. Report the discount/incentive program details for a given period.
7. Provide the ability to establish the period (start and end) for the discount/incentive program.

## 12.9 Non-Revenue Transactions

Certain accounts/vehicles are exempt from Toll charges when the vehicles travel on the Toll facilities for qualified business reasons, such as emergency run, transit, etc. WSDOT requires CBOS to capture and post the non-revenue Transactions properly following WSDOT Business Rules, including general ledger entries. The CBOS should meet the following general requirements for the non-revenue processing:

1. Allow both automatic posting and manual adjustment for non-revenue Transactions.
2. Provide a role based control for all non-revenue related System actions, such as signup and adjustments.

3. Support the pass based, image based and account based non-revenue Transaction postings.
4. Provide the ability for non-revenue Transaction processing rules to be facility specific.
5. Capture multiple non-revenue reasons and GL codes following WSDOT non-revenue Business Rules.
6. Allow the non-revenue manual adjustment at both Transaction and account level.
7. Report detailed non-revenue activities for a given period upon request. As part of reporting, identify Transactions generated by plates associated with non-revenue accounts to support to clean-up of outstanding Transactions for vanpools, buses, etc. that are on accounts that go negative or do not have passes installed.

## 12.10 Auditability

The State of Washington has issued multiple bond series for the State Route 520 Corridor Program, including Motor Vehicle Fuel Tax (MFVT) General Obligation Bonds (State Route 520 Corridor Program – Toll Revenue). These bonds are general obligations for the State of Washington to which the state pledged its full faith, credit and taxing power. MVFT bonds are first payable from Toll Revenue and Motor Vehicle Fuel Tax. Master Bond Resolution No. 1117 adopted September 29, 2011 sets forth covenants associated with these bonds.

Additionally, the State of Washington entered into a United States Department of Transportation (USDOT) Transportation Infrastructure Finance and Innovation Act (TIFIA) Loan Agreement dated October 25, 2012 that has its own set of requirements as stipulated in the Federal Loan Agreement.

The BOS application will be designed to support and facilitate the conduct of all required internal and external financial audits as covenanted by existing outstanding debt. The most recent bond sale information on the bond issuance for the Motor Vehicle Fuel Tax General Obligation Bonds can be found at [http://www.tre.wa.gov/documents/2017C%20OS\\_Final.pdf](http://www.tre.wa.gov/documents/2017C%20OS_Final.pdf).

## 13.0 Management Reporting Requirements

### 13.1 General Requirements

To support Tolling financial reconciliation and customer service operations, WSDOT requires the CBOS to produce a series of financial and other management reports. To ensure System performance, these management reports will be generated from a separate reporting instance and not the Transactional Database. The production instance and the reporting instance shall be synchronized once per day. The management reports shall have the following general capabilities.

1. User Friendly - WSDOT requires all CBOS reports to be designed in a user-friendly manner. The user interface should be easy to navigate and use. The Reports menu shall be presented in a single screen for easy access. A brief description of the report shall be available to help a user determine the purpose of each report and to select the report the user needs to execute.

2. Scheduled Runs - For the frequently used reports, WSDOT shall have the capability to set up the report generation automatically on a schedule. When the scheduled reports have been executed, the reports shall be able to either be accessed/retrieved from a central report depository location, i.e. FTP site or report distribution Software package or be emailed to the users.
3. Pie Chart Capability (if applicable) - WSDOT often has needs for various allocation reporting. The management reports shall have an option to graphically present the reported information in a pie chart format when applicable; such as Toll revenue, pass sales, Toll Transactions, etc.
4. "As of" Reporting - WSDOT needs to have the capability to run the report on an "as of" period basis for historical comparisons. Each report shall be designed to accommodate these types of historical lookups. Each report shall support quarterly, yearly or multi-year comparison requirements.
5. Multiple Business Day definitions – Support various Business Day definitions based upon facility operational hours;
6. Report Filtering - provide filtering by facility to support WSDOT Tolling program or WSF-specific reporting;
7. Role-based security - Provide read-only access for external users, such as WSF accounting staff.
8. PDF and Excel - WSDOT requires all reports to be able to be exported in both PDF and Microsoft Excel formats.

## 13.2 General Ledger (GL) Activity Summary Report

The general ledger activity report provides activity summary for each general ledger account. The general ledger activity report is a critical report used to explain the balances in general ledger accounts, to reconcile between accounting Systems (CBOS and WSDOT TRAINS) and to validate the accuracy of entries and accounting practices for a specific fiscal period. The report needs to capture the summary of all debit and credit activities. Requirements for the general ledger summary report include:

1. The Report shall display the following fields for each entry:
  - a. Date / Fiscal Accounting period;
  - b. Dollar amount of each debit or credit entry;
  - c. Fund code;
  - d. General ledger account number and account name;
  - e. Entry description / Transaction type;
  - f. Type of account (i.e. balance sheet, income statement etc.); and
  - g. Posting date.
2. The Report shall have the capability to run on multiple parameters. These parameters shall include but not be limited to:
  - a. Date Range/Fiscal period;
  - b. Facility/Fund;

- c. General ledger; and
- d. Type of account (i.e. balance sheet, income statement etc.).

### 13.3 **Subsidiary Ledger (SL) Activity Detail Report**

The CBOS needs to be GAAP compliant, and all financial impacted activities must generate corresponding general ledger double entries. WSDOT requires a subsidiary ledger detail report to capture all double entries at the Transactional level. Requirements for the subsidiary ledger activity detail report include:

1. The following details must be displayed for each entry:
  - a. Fund;
  - b. GL account;
  - c. Debit or credit dollar amount;
  - d. Entry description;
  - e. Customer account information;
  - f. Transaction information (document # or ID);
  - g. Posting date;
  - h. Accounting period; and
  - i. Comments, if attached to a Transaction (i.e. manual journal entry); and
2. The report shall be designed and programmed to run efficiently. The users must have the ability to pull the report with multiple parameters. These parameters shall include but not be limited to:
  - a. Date range (including fiscal periods);
  - b. Entry descriptions; and
  - c. Fund and GL accounts.

### 13.4 **Trial Balance Report**

A trial balance report is required by WSDOT that lists all general ledger accounts and summarizes debit and credit activities in each general ledger account for a specific fiscal period. The trial balance is a critical report for reconciling between Systems, financial statement preparations and internal control and accounting practice measures. WSDOT requires CBOS to reconcile with WSDOT's TRAINS on all applicable general ledger accounts. If there is any financial information received from WSDOT TRAINS, the trial balance report needs to capture it separately. The trial balance report will be primarily used on a monthly, quarterly or yearly basis. The requirements for the trial balance report include:

1. The report needs to capture the following information:
  - a. Beginning balances;
  - b. Summarized Debit and Credit activity; and
  - c. Ending balances;

2. The report needs to display for each entry:
  - a. Date/ Accounting period of trial balance;
  - b. Summarized debit and credit amounts;
  - c. Fund;
  - d. General ledger;
  - e. Type of account (i.e. balance sheet, income statement etc.); and
  - f. Account coding (asset, liability, and revenue).
3. The report needs to have the capability to run with multiple parameters. These parameters shall include but not be limited to:
  - a. Date Range;
  - b. Facility/Fund;
  - c. General ledger;
  - d. Subsidiary general ledger; and
  - e. Type of account (i.e. balance sheet, income statement etc.)

### 13.5 Bank Reconciliation Report

On average, WSDOT processes around \$10 million dollars of Tolling related customer payments each month. It includes both one-time and auto-replenishment payments. WSDOT offers customers multiple payment methods at different point-of-sale (POS) locations. It is critical for the bank reconciliation report to capture all customer payment related information clearly and accurately. This report will be a key tool for the CSC Operator to conduct bank and customer account reconciliations. The information generated from this report will also be an input to other reconciliation components. The report shall be detailed enough that it can be tied back to the activities in a subsidiary ledger. The bank reconciliation report needs to provide both summary level financial information and Transaction level detail information for variance resolution. Requirements for the bank reconciliation report include:

1. The bank reconciliation report must capture and report the payment receipt activity details by POS locations, which may include but not be limited to:
  - a. Online;
  - b. IVR;
  - c. Bank Lockbox;
  - d. Call Center;
  - e. Mail & Fax;
  - f. Walk-in-Centers (WICs);
  - g. Kiosks/Mobile Units that WSDOT may deploy at special promotion events; and
  - h. System Initiated (Auto-replenishment);
2. WSDOT offers customers multiple payment methods. The bank reconciliation report must group payment details by payment methods at each POS locations. For credit card

payments, the details must be further separated by credit card brands. These payment methods may include but not be limited to:

- a. Credit Card (Visa, Master, Discover, American Express);
  - b. ACH;
  - c. Cash/Check/Money Order;
  - d. IAP (Inter-Agency Payments, used among Washington State agencies);
  - e. EBT (Electronic Benefit Transfer);
  - f. Interbank Funds Transfer (IBFT) for commercial accounts only; and
  - g. *Good To Go!* Accounts;
3. The bank reconciliation report must show how the payments are applied and recorded in the CBOS. The methods of payment application may include but not be limited to:
    - a. Customer deposit;
    - b. One-time Toll/fee payment;
    - c. Transponder purchase, including wholesale inventory payments; and
    - d. Temporary suspense account (unidentified payments);
  4. Some payments could be deducted by the bank in a later settlement due to payment returns that may be caused by insufficient funds, customer initiated stop-payment, chargebacks, and other reasons. The CBOS must have proper payment adjustment functions to act accordingly. The bank reconciliation report must capture all returned payments and related returned payment reversals if applicable in detail.
  5. Users must be able to run the report with multiple parameters. These parameters may include but not be limited to:
    - a. Timeframe (daily or monthly);
    - b. POS;
    - c. Payment methods;
    - d. Payment application; and
    - e. A combination of ones listed above.

### 13.6 **Customer Deposit Summary Report**

Customer deposits are recorded in a liability account, currently GL Account A597. Customer deposits are distributed to the Toll fund of the facility when the customers use the Toll facilities. WSDOT requires the CBOS to correctly record all customer deposit activities in this central Fund. The customer deposit summary report needs to show beginning balances and ending balances; clearly detail and summarize all customer deposit related activities; and track back to the bank reconciliation report. Requirements for the customer deposit summary report include:

1. Customer deposit activities that increase the balance shall include but not be limited to the following categories:
  - a. Method of deposit on accounts received by customer:

- i. Credit Card (Visa, Master, Discover, American Express),
    - ii. ACH,
    - iii. Cash/Check/Money Order,
    - iv. IAP (Inter-Agency Payments, used among Washington State agencies),
    - v. EBT (Electronic Benefit Transfer), and
    - vi. Interbank Funds Transfer (IBFT),
  - b. Toll credits by facility,
  - c. Other account adjustments:
    - i. Fee dismissals,
    - ii. Pass returns,
    - iii. Write-offs,
    - iv. Promotions,
    - v. Discounts, and
    - vi. Payment adjustment (chargeback reversal, returned refund, etc.), and
  - d. Account balance transfer-in;
- 2. Customer deposit activities that decrease the balance shall include but not be limited to the following categories:
  - a. Toll revenues distribution to Toll facility,
  - b. Fee charges:
    - i. NSF fee,
    - ii. Statement fee,
    - iii. Account maintenance fee,
  - c. Pass sales by Transponder type (including sales taxes),
  - d. Refund,
  - e. Other account adjustments:
    - i. Payment reversals,
    - ii. Payment to billing accounts, and
  - f. Account balance transfer-out;
- 3. The report shall run on multiple parameters. The report run selection shall include but not be limited to:
  - a. Increasing/Decreasing Activities,
  - b. Time Periods (Daily, Weekly, Monthly, Quarterly, Yearly), and
  - c. Funds/Facilities.

## 13.7 Refund Tracking Report

Currently refunds are issued automatically (overpayment), or upon customer request (partial refund or closing account). The refund must be issued in the form of original payment method. All refunds are issued in United States currency only. The refund defaults to a state-issued warrant in the event the original payment form is rejected. Some state-issued warrants are returned to WSDOT as undeliverable. WSDOT will send the returned warrant information to the CSC Operator to indicate the returned warrant status on the customer account within CBOS. A detailed refund activity report is required by WSDOT that can clearly document all refund related activities. Requirements for the refund tracking report include:

1. The report shall display where the refund is initiated. The locations shall include but not to be limited to:
  - a. Registered prepaid accounts,
  - b. Registered zero balance accounts (ZBA),
  - c. Billing accounts, and
  - d. Unidentified payment suspense;
2. The report shall display the payment methods that the refunds were issued to. The payment methods include:
  - a. Credit card by brand,
  - b. ACH, and
  - c. State warrant;
3. The report shall display the refund statuses. These statuses shall include but to be limited to:
  - a. Successful,
  - b. Cancelled,
  - c. Failed, and
  - d. Warrant returned;

For the failed refund Transactions, the report needs to indicate if they have been rerouted for state warrant request.

4. The report shall capture the reasons for refund issuance.
  - a. Customer request,
  - b. System – Closing accounts, Inactive account, and
  - c. System – Overpayment;
5. Users shall be able to run the report with multiple parameters. These parameters shall include but not be limited to:
  - a. Refund source,
  - b. Payment method (including credit card by brand),
  - c. Refund status,
  - d. Refund reasons, and

- e. Time period (day, month, year).

### 13.8 Toll Transaction Processing Summary Report

The OBOS receives Transactional information from Roadside Toll Systems and builds them into viable Trips for processing. WSDOT requires the OBOS to receive and process roadside Toll Transaction information according to WSDOT Business Rules and guidelines. It is critical for OBOS to document both viable and non-viable Transactions. It is a checkpoint for roadside Toll Systems performance. WSDOT requires OBOS to produce a comprehensive Toll Transactions processing report that will document the processing status for all Toll Transactions built for a given period. The report shall also provide the ability to locate a specific Trip or Transaction by license plate or pass number. Specific requirements for this report shall include:

1. The OBOS is responsible to build complete Toll Trips as either pass-based or image-based. This report will summarize all information received from each roadside Toll System and put them in the following processing categories:
  - a. Transactions received;
  - b. Viable Trips;
    - i. Trip build completed,
    - ii. In image review,
    - iii. Dismissed (from image review, duplicates, etc.), and
    - iv. Specialties (from HOV);
  - c. Non-viable;
  - d. Variances;

For the In-image review and dismissed categories, the report will provide additional details, to ensure all images are being reviewed and all dismissals are accounted for correctly. This includes:

- Image review Transactions -The report shall follow the normal image review workflow and summarize the Transaction counts in each stage of the workflow, and
  - Dismissed - The report shall list all dismissal reasons, including various image review rejection/dismissal reasons, and summarize the Transaction counts for each dismissal reason. The dismissal reasons must be configurable based on WSDOT Business Rules;
3. This report will support both operations and financial reconciliations. The report must be capable of be executed with multiple parameters. These parameters shall include but not be limited to:
    - a. Toll facility;
    - b. Toll lane;
    - c. Type of Transactions (pass vs. image);
    - d. Transaction processing category;
    - e. Counts/dollars (if applicable);

- f. Time period (day, month, year); and
- g. Transaction/System dates.

### 13.9 Toll Transaction Disposition Summary Report

WSDOT requires the BOS to capture and process Toll Transactions according to WSDOT Business Rules and guidelines. There are approximately 40 million Toll Trips traveled on WSDOT Toll facilities annually, and the pass penetration is around 70%. The pass-based Transactions follow a more straightforward process than the image-based Transactions. The CBOS needs to track all Transactions during processing, especially for the image-based Transactions when they go through the review, billing, aging and payment lifecycle. WSDOT requires CBOS to provide a comprehensive Toll Transactions disposition report that will capture the disposition status for all Toll Transactions received in CBOS for a given period.

1. The Toll Transactions normally go through various processing stages in CBOS. The report will summarize all Transactions received and show them in the following disposition categories:
  - a. Assigned and posted as pass-based Transactions,
  - b. Assigned and posted as image-based Transactions,
  - c. Image-based Transactions billed and paid,
  - d. Dismissals,
  - e. In-Process/Pending processing, and
  - f. Variances,

For the In-Process/Pending processing and Variances categories, the Report shall provide additional details, to ensure all Transactions are accounted for and no exceptions are left undocumented. Some Transactions that require additional process and tracking shall include but not be limited to:

- a. Vehicles with changes to registered owners after the Toll Transactions are billed,
- b. Vehicle owner information lookup requests that have been sent without a response, and
- c. Pass-based Transactions needing to follow the image-based Transaction process;

For the billed Transactions including NOCPs, the report shall provide additional statuses for tracking purpose. The billed Transaction statuses shall include but not be limited to:

- a. Paid/closed;
- b. Dismissed (including written off) with multiple reason codes;
- c. Reassigned due to vehicle owner changes; and
- d. Reopened due to returned payments;

2. The report users must be able to run the report with multiple parameters. These parameters shall include but are not limited to:
  - a. Toll facility;
  - b. Type of Transaction;

- c. Counts/dollars;
- d. Time period (day, fiscal month, fiscal year, calendar month, calendar year); and
- e. Transaction/System dates.

### 13.10 Inventory Management Report

WSDOT offers several different types of passes (Transponders) for the registered customers. The CSC Operator needs to receive, manage and distribute the passes on WSDOT's behalf. WSDOT has existing partnerships with local retailers who sell passes independently. The passes purchased through local retailers need to be activated in the CBOS before being able to be utilized on the Toll facilities.

An inventory management report is required by WSDOT that can show all pass statuses, activity in/out of inventory, and Cost of Goods Sold (COGS) for a given period. The report should also show all inventory adjustments made to record lost in mail, shortages, year-end adjustments, etc.

WSDOT also requires CBOS to report on Transponder-related paper goods inventories in the System (full cases only, not per piece). The report also needs to show inventory forecast by type based on the past fulfillment/sales statistics.

Inventory management report requirements include:

1. The report will be able to detail and summarize pass activities, and forecast inventory needs by type and by point of sale (POS) locations and CSR assignment. The passes currently offered include:
  - a. Sticker pass,
  - b. Flex Pass,
  - c. Motorcycle pass,
  - d. License plate pass,
  - e. Configurable for additional Transponder types, and
  - f. Transponder mailing supplies such as welcome kits, envelopes, dual lock sTrips, other inserts and communication materials.
2. The report will have a beginning count, detail of activity and ending count and cost for each type of pass. For all defective passes, customers can return the pass to WSDOT and exchange it for free. The pass activities shall include but to be limited to:
  - a. Increasing inventories:
    - i. New inventory received,
    - ii. Pass returns, and
    - iii. Defect returns,
  - b. Decreasing inventories:
    - i. Shipment to retailers,
    - ii. Sale to customer account, and
  - c. Transfers between POS Locations;

3. The report will summarize the status of all passes by type into the following categories:
  - a. In inventory,
  - b. Retail inactive,
  - c. Retail active,
  - d. Active,
  - e. Defect,
  - f. Inactive:
    - i. Damaged,
    - ii. Scrap,
    - iii. Stolen, and
    - iv. Lost;
4. The report will have the capability to be run on multiple parameters. These parameters include but not are not limited to:
  - a. Time period (monthly, quarterly and yearly),
  - b. Pass type,
  - c. Pass status,
  - d. POS,
  - e. Count, Sales Dollars, Cost Dollars, and
  - f. Fulfillment zip code (if not sold by retailers).

### 13.11 Receivables Aging Report

The Toll-related receivables can be established in a few ways, but this report must capture all receivables whether on a postpaid account or a negative prepaid account. A comprehensive aging receivables report is required by WSDOT that can show the status of all Toll related receivables for a given period. Requirements for the receivables aging report include:

1. The report shall capture gross receivables, payments, dismissals and Write-Offs;
2. The report must capture the receivables by facility (fund). The applicable WSDOT facility may include but not be limited to:
  - a. Central Toll Account,
  - b. State Route 520 Bridge,
  - c. State Route 16 Tacoma Narrows Bridge,
  - d. Interstate 405 Express Lanes,
  - e. State Route 167,
  - f. State Route 99 Tunnel,
  - g. WSF, and

- h. Configurable for future authorized facilities;
3. The report must display receivables in aging buckets that are in 30-day units, such as 0-30, 31-60, 61-90, 91-120, and all the way to 270-360. After 360 Calendar Days, the aging can be displayed in years up to 10 years. The receivables to be included in this report shall include but not be limited to:
    - a. Toll bill,
    - b. Toll,
    - c. Civil penalty,
    - d. Fees (multiple types),
    - e. Transponders,
    - f. Interest, and
    - g. Configurable for future types of receivables;
  4. An authorized user must have the capability to run the report with multiple parameters. These parameters shall include but not be limited to:
    - a. Facility,
    - b. Receivables type.
    - c. Counts and dollars,
    - d. Accounting periods (“as of” capability), and
    - e. Customer attributes (when applicable, such as zip code);

### 13.12 Write-Off Activity Report

WSDOT requires a report that can run on multiple parameters that captures receivables eligible for write-off or receivables that have been written off. The write-off activity report needs to run at either the detail Transaction or summary level. The report must indicate Write-Off reason and be run for a user-defined period. Requirements for the write-off activity report include:

1. WSDOT performs write-offs at the Transaction level for Tolling customer debts that are deemed uncollectable. The write-off qualified receivables shall include but not be limited to:
  - a. Receivables returned from collections deemed as uncollectable,
  - b. Receivables from the Customer Program for Resolution.
  - c. Receivables from discharged bankruptcy filing, and
  - d. Aged receivables that don't meet collections pursuit criteria;
2. WSDOT requires a report detailing or summarizing write-offs for a user-defined period. The information on this report shall include but not be limited to:
  - a. Customer account information (name, account ID, etc.),
  - b. Receivable types,
  - c. Dollar amount,

- d. Write-off reason codes, and
  - e. Write-off status (executed, failed, etc.) Transaction dates (original date and receivables date);
3. The report will be utilized primarily on a monthly basis. However, it also must be able to run at least quarterly and yearly.

### 13.13 Operations Production Reports

The BOS needs to provide a series of comprehensive production reports for the CSC Operations Vendor to use. The reports must be executable on either a scheduled basis or on-demand. WSDOT management will also rely on these reports to review the operations, evaluate the CSC Operator's performance and make key decisions. The reports parameters shall be configurable and the reports shall be to be executed without affecting the performance of the production Database. The key operational parameters covered by the production reports shall include but not be limited to the following:

1. Customers serviced - These statistics shall include the number of customers serviced at all POS locations. The POS locations may include the CSC call center, walk-in centers, online, email, etc. These reports shall provide trend analysis and monthly or yearly comparisons.
2. Customer accounts - These statistics shall provide WSDOT with an overview of *Good To Go!* account status, which may include the number of accounts by type opened and closed for a user defined period, the number of existing accounts by type, the average number of passes and license plates assigned to each type of account (if applicable), fleet account status, etc. Active accounts versus partial setups need to be excluded or separated out. Also, inactive accounts (accounts that have not had Toll charges or replenishment in a User Configurable number of years need to be excluded from active account reporting but must be able to be reported separately).
3. Calls - The call center is a key channel for customers to conduct business with WSDOT. These reports need to categorize the calls by type and average talk time for each type of call. Other statistics that shall be included on these reports include but are not limited to average call answer time, call abandoned rate, service level, peak periods, etc.
4. Walk-in Center activities - WSDOT operates a few walk-in service centers (WICs). These storefront activities are a crucial element of service delivery for the WSDOT Tolling program. These reports shall provide statistics on the number of customers served by WICs. The System shall log and report on the purpose of the customer visit and the CSR time spent on each customer visit.
5. Image review - Image review is a critical step to prevent/mitigate Toll revenue loss. These reports shall summarize the image review activities by CSR, which may include but are not limited to the images reviewed by shift, image rejections by reason codes, etc. The reports also need to summarize the image rejections by location that will help WSDOT to determine if a lane camera failure exists.
6. Website - These reports shall summarize all customer website actions that may include but are not limited to: number of logins, number of new online accounts created, customer activities by type, etc.
7. Pass distribution - There are several types of *Good To Go!* passes currently offered. These reports shall report on pass distribution related statistics, which may include passes

distributed by type, distribution pending, pass request by origination and type, lost and defect exchanges, etc. The pass forecast shall also be reported by pass type.

8. Back office activities - WSDOT requires payment and mail handling related back office activity statistics. These statistics may include but not be limited to payments processed by payment method and payment application, mail received and sent by type, faxes processed, etc.
9. Adjudications - Unpaid Tolls are subject to the civil penalty process. These reports shall capture the statistics for the civil penalty adjudication program, which may include but are not limited to number of civil penalties issued, rejected, adjudicated, number of customer hearings conducted (both written and in-person), and number of Customer Program for Resolution (CPR) offered, etc.

### 13.14 System and CSR Activity Report

WSDOT operations management needs to have an accurate picture on all System CSR activities to objectively evaluate operations performance and make any necessary changes. The CSC Operator will also rely on the System and CSR activities reporting to make corresponding changes, implement LEAN improvements, and conduct specific CSR training. The BOS needs to capture all System and CSR activities and produce a comprehensive System and CSR activities report. The report needs to be able to be executed based on time, shift IDs, roles, or POS locations. WSDOT anticipates the following general requirements from the System and CSR activities reporting:

1. The report needs to provide the type of System and CSR activities by POS locations and by roles. WSDOT customers can reach out to WSDOT for various needs related to Tolling, such as opening an account, updating information, making a payment, disputing a charge, requesting refunds, etc. Some of these services can be handled by automated System services, such as website and IVR, but many of these services must go through CSRs. The report needs to capture the number of customers serviced by both the System and CSRs and by the nature of services requested at each POS location, so WSDOT and the CSC Operator can make any required adjustments to maintain the appropriate level of services for Tolling customers.
2. All financial related System and CSR activities need to be captured for reconciliations, especially for payments and Toll adjustments. The System and CSR activities report shall provide detailed Transactional information for financial reconciliation. The report needs to capture all financial activities by both the System and the CSR, such as payments processed, payment adjustments, Toll revenue adjustments made, credits issued, etc. The CSC Operator who is responsible to perform Tolling reconciliation will rely on the report to balance the financial activities to the bank and WSDOT TRAINS GL.
3. The System and CSR activities report needs to provide analytical statistics so both the System and CSR production activities can be monitored and measured. WSDOT encourages LEAN and continuous process improvement. Being able to have the CSRs correctly trained, assigned effectively to meet customer demand and to make necessary System improvements are important parts of efficiency improvements. The report needs to provide information to indicate the opportunities for improvements that can be better made based on the System and CSR performance.

The report needs to indicate and alert WSDOT and the CSC Operator about any abnormal System and CSR activities. The report needs to show the average mean for the operational statistics so

any abnormal processing can be detected in a timely manner. The report also needs to be capable of comparing historical trends.

### 13.15 **Monthly Operations Report**

In support of monthly invoicing during the Operations and Maintenance phase, the Vendor shall submit a Monthly Operations Report which demonstrates compliance with all operational KPIs (please refer to Appendix 3: Contract, Exhibit J: Performance Measures, Liquidated Damages and Incentives). The report shall include the following KPI measurements for the month:

- BOS availability during peak hours, 7AM – 7PM;
- Overall availability of BOS System;
- Availability of phone System and IVR during peak hours (if in scope), 7:00 a.m. – 7:00 PM;
- Availability of customer web-site;
- Availability of System interfaces;
- CBOS System performance (CSR User Interface);
- Human acknowledgement of System Issues;
- Mean Time to Repair – Severity 1 issues;
- Mean Time to Repair – Severity 2 issues;
- Mean Time to Repair – Severity 3 issues; and
- Accuracy and Timeliness of the following:
  - Transponder Transactions,
  - Identification of registered vehicle owner,
  - Pay By Plate Transactions,
  - Process responses from DOL,
  - Image review System performance,
  - Account Auto Replenishment,
  - Improper payment processing,
  - General ledger reconciliation; and
  - Posting Payments and Deposits to Bank.

As a part of reviewing and approving the Vendor's monthly invoice, WSDOT will verify and approve the Monthly Operations Report.

### 13.16 **Allowance for Additional Reports**

In addition to the reports identified above and the operational reports outlined in Section 2.11, the Vendor shall include within its Technical and Price proposal the effort to prepare ten (10) additional medium complexity reports. For purposes of preparing this estimate, the Vendor shall assume 80 hours of effort is required to design, develop and unit test a medium complexity report.

The specific reports to be developed from this allowance will be identified during Preliminary Design and/or Final Design and approved by the WSDOT Steering Committee.

## 14.0 Data Warehouse and Business Intelligence Requirements (WSDOT Option)

WSDOT requires a Data Warehouse / business intelligence (BI) function to provide a platform for end-to-end support for reporting, Data analysis, and forecasting. WSDOT requires a robust Data Warehouse with business intelligence and analytics capabilities that allow a wide range of users to access this Data to perform business analytics, meet business reporting requirements both inside and outside of WSDOT, and to provide WSDOT leadership the information necessary to effectively manage WSDOT Tolling operations and to make more-informed business decisions. This Data Warehouse / business intelligence function will be implemented as a WSDOT Option under this RFP. The Vendor shall fully respond to the requirements for the Data Warehouse and the Data Warehouse will be scored as part of the technical and cost proposals. Prior to Contract execution, WSDOT will then determine whether to proceed with the implementation of the Data Warehouse as part of the scope of the BOS Project. If implemented as part of the scope of the BOS Project, the Vendor shall implement the Data Warehouse function as part of Phase 2.

The overall functional and technical design of the Data Warehouse environment will be confirmed and finalized during System design. WSDOT will take full advantage of the information captured within the BOS to support enhanced Data Warehouse functionality in addition to operational reporting requirements. The Data Warehouse will provide both tactical Data analysis associated with Toll program performance and strategic Data analysis associated with long-term planning and measurement of operational performance against strategic goals. These capabilities must be delivered within a Data Warehouse and BI environment design, deployed and operated by the Vendor. Delivered reports must be designed with the flexibility to be easily modified as the functional and reporting requirements evolve.

The Vendor will design, develop, test, and implement Data models in the Data Warehouse to support the business intelligence, management reporting and analysis requirements of WSDOT.

The Vendor will provide detailed instructor-led training on the Data Warehouse environment, Data Warehouse tools, the business intelligence toolset and the design of the Data model for WSDOT power users to enable WSDOT staff to be able to develop and extend their own reports prior to and after System go-live. This training must be provided with sufficient lead time to allow WSDOT power users to begin to utilize the test System prior to Go-Live to develop/test reports and queries.

The WSDOT Data Warehouse and business intelligence environment to be designed and implemented by the Vendor will consist of the following functional components:

**Data Warehouse Tools** – Collection of Data from varying sources which will be loaded on a periodic basis as determined by WSDOT considering Data availability and reporting timing requirements which (in general) will be performed no less than once every 24 hours.

This Data will be organized in a way that optimizes Data retrieval and end-user performance for reporting purposes and will be extensible, allowing for additional Data to be added at a future date. The Data structures will be organized subsystems or Data marts, grouping related Data together. Access to this Data will be controlled by an administrator via tools to create universes of Data, Data maps and varying relationships within and between the Data. The Data will be organized to provide user access to execute standard or ad hoc reports using the reporting tools

referenced below. Other than Data that is of a sensitive or restricted nature, it is an expectation that Data be made available to any authorized WSDOT business user;

**Ad hoc Reporting Tools** – This functionality must enable business users to create their own reports, modify a copy of an existing report to meet their specific reporting requirements, and explore enterprise Data; and

**Business Intelligence Tools** – The Vendor will implement an On-Line Analytical Processing environment (OLAP) which provides Data analysis, visualization and advanced reporting and analytical capabilities.

## 14.1 General Requirements

The Vendor will be responsible for the development, testing, deployment and ongoing support of a WSDOT Tolling Data Warehouse to provide WSDOT access to the raw underlying Data generated by various Transaction Systems and support ad hoc and advanced Data analysis needs. The purpose of the Data Warehouse is to allow access to raw Data and enable self-service Data reporting for WSDOT staff and authorized agents. The Data Warehouse may include Tolling related Data at a minimum from the BOS, various RTS applications and WSDOT TRAINS.

The Vendor will develop the Data Warehouse in a design build approach. The Vendor shall lead a detailed requirement gathering exercise and define Business Requirements for the Data Warehouse; develop a System architecture and detailed System design to support the Data Warehouse requirements; and develop, test and deploy the Data Warehouse for production use.

The Data Warehouse shall:

- Be architected to not impact the performance BOS Transaction System;
- Remain in sync with the BOS production Database for any Database objects identified by WSDOT for replication;
- Include an administrator level user role which can be utilized by authorized WSDOT staff for the purposes of accessing, manipulating Data for analysis, and augmenting the Data Warehouse to meet WSDOT needs;
- Include a Data viewer user role for use by WSDOT to allow external Data visualization/business intelligence Software installed on WSDOT machines to consume Data from selected objects within the Database;
- Support integrating the Tolling Data Warehouse with other WSDOT Systems (internally hosted and third party applications maintained for WSDOT);
- Provide an additional storage equal to the greater of 1TB or 15% of the total Data replicated on the Data Warehouse for use by WSDOT users (combined);
- Maintain constant compliance with industry best practices on Data management and Database security;
- Have a server uptime requirement equal to the requirements of the main BOS server; and
- Provide for sufficient System performance as defined by WSDOT for the anticipated user counts described in Section 14.3.

Additionally, the Vendor shall provide support to WSDOT in addressing Database configuration concerns and advice on addressing performance issues related to Data reporting, as needed.

## 14.2 Bill of Materials

The Vendor shall provide a Bill of Materials for the Data Warehouse that is consistent with the requirements outlined in Section 18.6.

## 14.3 Anticipated User Count

The anticipated user count for the Data Warehouse is based on the current patterns of Data usage by staff supporting WSDOT's Tolling program, combined with projected changes in how Data is expected to be shared in the future. This user count includes an estimated 20 regular users divided into three (3) categories, with up to ten concurrent users. This information is provided to assist proposers with proposing Hardware specifications for the Data Warehouse.

- Approximately four (4) Data analysts may be anticipated. Data analysts are users who routinely engage in Data processing heavy activities, including both regular reports and ad-hoc reports. Data analysts may also build applications for use within the Data Warehouse to meet reporting and other business needs. The Data analyst user group is expected to have high demands on the Data Warehouse.
- Approximately eight (8) Data consumers may be anticipated. Data consumers are users who routinely retrieve Data from the warehouse, but do not engage in extensive Data manipulation as part of their Data retrieval. The Data consumer user group is expected to have medium demands on the Data Warehouse.
- Approximately eight (8) report viewers may be anticipated. Report viewers are users who occasionally retrieve prepared Data for reporting. The report viewer user group is expected to have low demands on the Data Warehouse.

## 14.4 Data Warehouse Deployment and Configuration

The Vendor shall include within their proposal all services required to design, develop, test, deploy and operate the Data Warehouse for the duration of the Contract resulting from this RFP. The Vendor shall also ensure that their proposed Data Warehouse and business intelligence solution, including all Software, Hardware, development effort, and associated facility requirements, is fully represented in their Technical Proposal provided to WSDOT. The Data Warehouse should be co-located with other servers – unless the Vendor's Proposal involves a Cloud-based solution for cost savings. Additionally, personnel may be assigned to support multiple Systems – such as the core BOS production System and the Data Warehouse.

The Vendor shall provide all services related to the physical installation of Data Warehouse Hardware, installation of Data Warehouse and business intelligence Software, configuration of the server, and deployment of the Data Warehouse functionality for use by WSDOT in a production environment. The Vendor shall configure all users, security parameters, perform a baseline security audit prior to populating the Database with Data, and share this audit with WSDOT.

For purposes of sizing the development effort, the Vendor shall assume 50 development objects of medium complexity in the initial release (reports, dashboards and other development objects). In terms of on-going enhancements, the Vendor shall plan for an additional 20 new medium development objects per year following the System Go-Live.

The Vendor shall consult with WSDOT on the extent of replication necessary and configure the server to replicate any Database objects requested by WSDOT, including making recommendations on what Data should be replicated to best support Data analysis needs. The Vendor is expected to work collaboratively with WSDOT to enable the Data Warehouse to achieve the general requirements defined in Section 14.1.

## **14.5 Data Warehouse Hardware Requirements**

The Data Warehouse shall consist of industry standard Hardware. There shall be a second source of manufacture for all parts used which shall be documented and provided to WSDOT (exceptions require pre-approval by WSDOT in writing). Hardware and equipment supplied by the Vendor shall be certified to have a minimum five-year service life and have a Hardware mean time between failures consistent with the requirements listed in Section 18.3. Use of proprietary Hardware or customized Hardware is very strongly discouraged and must be disclosed, as indicated in Section 18.5. In addition, the Vendor shall provide documentation sufficient for a third party to maintain or replace any custom equipment that is utilized. Computer components compliant with ISO standard I/O interfaces are strongly preferred.

The Vendor shall provide a secure means to allow multiple users to directly access the Data Warehouse. The Vendor shall include a description of this access method in their Technical Proposal and outline the steps involved in the user workflow to access the Data Warehouse.

Vendors may propose either a traditional stand-alone server, an instance within a server, or a cloud based solution. Each of these alternatives is described below.

### **14.5.1 Traditional Server Option**

The Hardware used in the Data Warehouse shall be sized appropriately to store up to a full replication of the production Database, and either 1TB or 15% of all replicated Data of storage dedicated to WSDOT user table space. The server shall provide a similar level of service as found on the main BOS production server.

The Data Warehouse Hardware shall be updated at the same time as the BOS Project production server.

### **14.5.2 Server Instance Option**

The Hardware used in the Data Warehouse shall be sized appropriately to store up to a full replication of the production Database, and either 1TB or 15% of all replicated Data of storage dedicated to WSDOT user table space. The server shall provide a similar level of service as found on the main BOS Project production server.

The Data Warehouse Hardware shall be updated at the same time as the BOS production server.

### **14.5.3 Cloud Server Option**

The Vendor may propose a cloud based solution as an option for the Data Warehouse. Due to the dynamic nature of cloud based computing, the description of the cloud server option should include a description of how additional resources are assigned and enhanced security measures that will be implemented due to the nature of the cloud Database.

## 14.6 Data Warehouse Software Requirements

The Vendor shall describe the method of access envisioned for the Data Warehouse and provide all relevant Software licenses to achieve that vision. If the proposed method of access involves a computer System controlled by the Vendor, such as a remote desktop within the Vendor's secure network, then the Vendor shall provide Hardware as part of their proposed solution sufficient to utilize the Data Warehouse, with a minimum System configuration of the greater of:

1. The Software developer's recommended System configuration for the most demanding Software package installed on the System, or;
2. A desktop System including the following components:
  - a. Latest generally available version of Microsoft Windows 64-bit operating System;
  - b. 6th Generation Intel i5 (non-U series);
  - c. 8GB of RAM; and
  - d. 240GB of Total Storage.

If the Vendor includes a computer System controlled by the Vendor as part of the proposed method of access, the Vendor shall provide WSDOT the ability to install Software of its choosing onto the System or provide a documented expedited way to have Software installed on the machine upon WSDOT request.

The Vendor shall provide utility Software, Database development Software and business intelligence Software as part of its solution. The requirements for each type of Software are outlined below.

### 14.6.1 Utility Software

If the proposed access method requires a computer System controlled by the Vendor, then the Vendor shall ensure that a licensed copy of Excel is available to users of the System for basic Data manipulation tasks.

### 14.6.2 Database Development Software

The method of access shall allow up to five (5) users to concurrently access the Data Warehouse. The Vendor shall provide a SQL development Software tool for use by WSDOT. This Software must include native connections to the Database solution selected and provide tools that support direct queries of the Data Warehouse and Software development aides, as is industry standard for Database development Software packages.

The Vendor shall not provide an intermediate website or simple GUI query tool as the sole method for accessing the Data Warehouse. WSDOT staff shall be able to log into the server, run commands/queries directly on the server, retrieve the raw Data that results from these queries, and execute all actions associated with privileges granted by the WSDOT user on the Data Warehouse (consistent with general requirements outlined in Section 14.1).

### 14.6.3 Business Intelligence Software

The Vendor shall propose business intelligence tools for Data visualization and analysis of information in the Data Warehouse. The business intelligence tools provided by the Vendor shall

enable end-user Data access, agile ad-hoc Data analysis, and provide attractive visualizations that conform to current Data visualization best practices.

The business intelligence toolset shall at a minimum:

- Easily connect with Database and flat file sources of Data;
- Provide an interface that is approachable for novices;
- Provide advanced visualization and analysis capabilities for advanced users;
- Produce an array of visualizations that includes, at a minimum, tree charts, scatter charts, line charts, bar charts, and summary tables;
- Enable basic page layout and report design for presentation of the visualizations; and
- Export the finalized results to PDF.

## 14.7 Data Warehouse Availability

The Data Warehouse provided by the Vendor as described in this section shall be available 24 hours a day, seven (7) days a week except for maintenance windows approved by WSDOT. Emergency security updates are exempted from this requirement. The Vendor must notify WSDOT immediately of any unexpected or unplanned disruption in availability.

## 14.8 Data Warehouse Administration and Maintenance

The Vendor will be responsible for Database administration. The Vendor shall provide all of the staffing and subject matter expertise needed to perform Database maintenance and administration functions. While WSDOT will have a user role with administration rights, this WSDOT user role is intended to be used to develop new applications for reporting.

The Vendor shall ensure that:

- Password change requests are executed in a timely fashion;
- Replication of additional Database objects, if requested by WSDOT, begins in a timely fashion;
- Daily tasks, reports, and other processes within the Data Warehouse solution are executed regularly and automatically;
- WSDOT has a single primary point of contact for all issues related to the production Database;
- The subject matter expert assigned as the Vendor's primary point of contact shall be knowledgeable in the configuration, technology, and content of the Data Warehouse to expedite the resolution of issues and provide assistance to WSDOT on request;
- The subject matter expert assigned as the primary point of contact shall have at least five (5) years of experience as a Database administrator in the technical environment proposed by the Vendor. Other Vendor staff proposed to perform the design, development, testing and implementation activities shall have a minimum of two (2) years of Data analysis experience using the business intelligence and other application development tools proposed by the Vendor; and

- A subject matter expert with a similar skill set to the primary point of contact shall be available and assigned to the WSDOT BOS effort as a back-up resource when the primary point of contact is temporarily unavailable.

WSDOT expects an ongoing collaborative relationship to exist between WSDOT and the Vendor. WSDOT staff are anticipated to actively access, transform, and interpret Data from the Data Warehouse System. The primary point of contact shall assist WSDOT staff as needed.

## 14.9 Data Dictionary

The purpose of the Data dictionary is to provide WSDOT employees and authorized agents of WSDOT information on the design and content of the Data Warehouse system. The Data dictionary shall be an important tool or resource for WSDOT staff when working with the Database.

The Vendor shall provide a Data dictionary including information on Database objects in the Data Warehouse, except for objects created by users (such as WSDOT users) or automatically generated System objects. At a minimum, the Data dictionary shall include two (2) sections as described in the following subsections:

- Coded value crosswalk section; and
- Database object map.

The Data dictionary shall be logically organized and include a detailed table of contents that indicates the starting page number of each table of contents entry.

### 14.9.1 Coded Value Crosswalk Section

The Data dictionary shall include a section that contains an entry for each coded attribute (field) used in the Database, excluding user created fields and fields in automatically created System tables. This section is commonly known as “look up tables”, allowing users to decode coded values into plain English.

Each entry in the coded value crosswalk section shall include at a minimum:

- Name of the attribute (field);
- Datatype of the attribute (field);
- Tables where the attribute (field) can be found;
- Description of the intended purpose of the coded value;
- Short description of any changes made to the coded values (including a date when the changes occurred);
- Full list of the coded values; and
- Full list of corresponding plain English meanings.

The Vendor may include additional information as necessary to aid in the use and understanding of the coded values, such as interactions or implications of combinations with values in other record attributes (fields).

### 14.9.2 Database Objects Map

The Data dictionary shall include a section that graphically shows how tables are logically related, including the primary and foreign keys used to create the relationships. The Vendor may use editorial discretion to highlight important subsets of tables, instead of presenting a single diagram of all tables.

### 14.9.3 Frequency of Data Dictionary Update

The Vendor shall update the contents of the Data dictionary as needed when modifications are made to the Extract, Transform, and Load processes beginning with System Go-Live. The version number of the Data dictionary shall be prominently displayed on the title page, along with the date of release. Each update shall include a release note section that shall highlight any major changes and updates made since the previous full review of the Data dictionary. If no changes have been made, then the fact that no changes have been made shall be included in the release note section of the update.

The Vendor may issue addendums as required to the Data dictionary between complete updates.

## 15.0 Regional and National Interoperability

This section contains requirements related to WSDOT's participation in the California Toll Operators Committee (CTOC) regional interoperability initiative. In addition to the requirements in this section, interfaces to support CTOC interoperability shall meet the requirements in Section 16.0: Integration with WSDOT and Partner Systems. Likewise, this section contains information regarding WSDOT's participation in National Interoperability for Tolling.

### 15.1 Regional Interoperability Definitions

The requirements listed below use the following definitions.

1. Enforcement - In the event of a Violator's nonpayment of a Toll, enforcement is the process by which the Acquiring agency ultimately collects or attempts to collect Tolls and any fines or penalties;
2. Acquiring Agency – The Toll Agency that charges a Toll for use of the Toll Facility at which a Transaction occurs;
3. CTOC – An acronym for the California Toll Operators Committee, the committee designated by the State of California Department of Transportation (Caltrans) to be responsible for developing and adopting the functional specification and standards for an automotive vehicle identification System in the state of California;
4. CTOC Transaction – Transactions occurring at an Acquiring Agency associated with a Transponder based account at a Reciprocating Agency. CTOC Transactions have two (2) types: those based on association with an Issuing Agency by Tag ID (Transponder based Transactions) and those based on association with an Issuing Agency by Plate information (in CTOC terminology: plate based Transactions, in WSDOT terminology: image based Transactions);
5. Issuing Agency - The Toll Agency that establishes a customer account and issues the Transponder(s) for such customer account;

6. Patron - A patron is the user of a Toll Facility who has an account and a Transponder at a member Toll Facility;
7. Receiving Toll Agency – The Toll Agency that receives a Daily Report from another Toll Agency;
8. Reciprocating Agency – Any agency with which the Issuing Agency has a User Fee Processing Agreement;
9. Reporting Period - The twenty-four (24) consecutive hour period ending at the close of the reporting party's business day;
10. Tag ID – A number that, when combined with a facility code, uniquely identifies a Transponder;
11. Tag Type – A number that identifies the type of Transponder;
12. Technical Specifications - The current CTOC Technical Specifications for Interagency Electronic Data Interchange, which sets forth the Business Rules and technical specifications for interoperable electronic Toll collection as adopted by the CTOC;
13. Toll Facility – A Tolling location within a Toll Agency (e.g. Bay Bridge or South Bay Expressway);
14. Facility Code – A number within a range of numbers assigned by Caltrans to the Issuing Agency, which is programmed into the Transponder to indicate a Toll Facility and its Issuing Agency;
15. Transponder - The in-vehicle electronic Toll paying device that the AVI System detects and contains information to identify an associated Patron account; and
16. User Fee Processing Agreement - An agreement between two (2) Issuing Agencies governing their process for reporting, reconciling and settling funds.

## 15.2 **Regional Interoperability General Requirements**

WSDOT expects to be interoperable with all members of the CTOC by 2019 for Transponder based accounts. Interoperability with CTOC agencies requires the establishment of reciprocal agreements and the exchange of files and settlements with each CTOC Toll Agency individually. WSDOT will enter into Cooperative User Fee Agreements with all participating agencies. The CBOS and OBOS will perform all functions required for interoperability with all CTOC agencies as described below.

The Vendor shall be familiar with the most recently published CTOC Technical Specifications and agency User Fee Processing Agreements, to ensure that the CBOS and OBOS are capable of maintaining continuous full reciprocity with all CTOC member agencies. The CTOC Technical Specifications for Interagency Electronic Data Interchange will be modified from time to time as determined by the participating CTOC members. The CBOS shall support all of WSDOT's Business Rules regarding CTOC Toll Agencies, including but not limited to rules regarding CTOC Transactions, file exchanges and settlements. The CBOS shall support all Business Rules set forth in the CTOC Technical Specifications and agency User Fee Processing Agreements. WSDOT will provide the Vendor with copies of User Fee Processing Agreements. Appendix 16 contains a sample User Fee Processing Agreement and the most current version of the California Toll Operators Committee Technical Specification for Interagency Electronic Data Interchange

### 15.3 Scalability for Regional Interoperability

The CBOS shall support the addition of new Toll operators and new facilities. The CBOS shall have user screens that allow an authorized user to add new Reciprocating Agencies or other interoperable partners as they join CTOC. The CBOS shall have screens that allow an authorized user to add or change a Reciprocating Agency's Toll facility identification and Transponder information. The OBOS shall accept Transponder information from newly added Toll facilities and increased Transponder ranges.

### 15.4 Regional Interoperability File Definitions

The Vendor shall provide the Hardware and Software necessary to meet the CTOC Technical Specifications for the CBOS to exchange all required Data files with all Reciprocating Agencies. Those requirements include but are not limited to the following:

- The Vendor shall provide a publicly accessible File Transfer Protocol (FTP) server, with or without a DNS entry on the Internet, such that an FTP exchange can be accomplished with only the IP address;
- The Vendor shall provide a unique account and password to each Reciprocating Agency;
- The Vendor shall install a Policy Based Protection(PBP) encryption package and all files shall be encrypted before transmission to Reciprocating Agencies; and
- The CBOS shall exchange files using this equipment according to the CTOC Technical Specifications that defines the formats for all files that shall be exchanged with CTOC Toll Agencies.

The CBOS shall exchange files with Reciprocating Agencies at least daily. The CBOS shall have user screens that allow an Authorized User to change the time and frequency at which the CBOS sends files and expects to receive files. The CBOS shall send Tag Status Files and License Plate Status files containing all Transponder IDs and license plate numbers associated with valid accounts at WSDOT to all Reciprocating Agencies according to the CTOC Technical Specification. The Tag and License Plate Status files shall not contain information associated with nonrevenue accounts. The CBOS shall receive and process Tag and License Plate Status files from Reciprocating Agencies and shall work with the OBOS to ensure that WSDOT Roadway Toll Systems have the most recent Tag Status Files within one (1) hour of receiving them from Reciprocating Agencies.

The CBOS shall also exchange Toll Charges and Pay By Plate files with each Reciprocating Agency. These files will contain all CTOC Transactions for a predetermined time period associated with that Agency. Toll Charges files will contain Transponder based CTOC Transactions and Pay By Plate files will contain plate based CTOC Transactions. The CBOS shall provide user screens that allow an Authorized User to set the predetermined time period over which the CBOS will gather CTOC Transactions to include in a Toll Charges file to a Reciprocating Agency.

The CBOS shall monitor the sending and receiving of all files. The CBOS shall alert a designated user when a file has not been received according to Business Rules.

## 15.5 Regional Interoperability Transaction Processing

The CBOS shall process Transactions in the Toll Charges and Pay By Plate files from each Reciprocating Agency according to the posting rules specified in the CTOC Technical Specifications and WSDOT Business Rules. When WSDOT is the Issuing Agency, CBOS shall follow the two (2) basic Business Rules below:

- WSDOT will honor all CTOC Transactions associated with Transponders that were marked “valid” in the most recent Tag Status File sent from the WSDOT to the Acquiring Agency for the date/time of the Transaction, even if the account balance is negative at the time of posting;
- WSDOT will honor CTOC Transactions on license plates that were marked valid in the most recent License Plate Status file sent from WSDOT as much as possible; and
- If the account balance is negative when the CBOS attempts to post the plate based CTOC Transaction, the CBOS will sweep the account for a configurable number of days. If the account is negative throughout the sweep period, WSDOT will reject such Transactions.

The CBOS shall check Toll Charges and Pay By Plate files received from CTOC Reciprocating Agencies for duplicate Transactions prior to posting to customer accounts. For CTOC Transactions associated with Reciprocating Agencies, the CBOS shall remove duplicate Transactions according to agreed-upon Business Rules before creating and sending Toll Charges and Pay By Plate files to Reciprocating Agencies for settlement.

## 15.6 Customer Service Functionality for Regional Interoperability

The CBOS shall provide information on CSR screens to allow CSRs to respond to customer inquiries regarding WSDOT customer Transactions posting at Reciprocating Agencies and inquiries from Reciprocating Agency customers who used WSDOT Toll facilities. The CBOS shall support the use of CTOC related logos as defined by license or trademark agreements in customer correspondence or other materials as needed.

## 15.7 Regional Interoperability Settlement and Reports

The CBOS shall process, post and properly account for the payables and receivables associated with CTOC processing. Upon receipt of Toll Charges or Pay By Plate files from a Reciprocating Agency, the CBOS shall process those Transactions according to the requirements in the Transaction Processing subsection (Section 15.5). The CBOS shall send a Reconciled Toll or Reconciled Pay By Plate Charges file containing the results of this processing to each Reciprocating Agency as follows:

- Reconciled Toll Charges and Reconciled Pay By Plate files shall contain a reconciliation for each individual CTOC Transaction sent from the Acquiring Agency in accordance with the CTOC Technical Specification;
- The CBOS shall send each Reconciled Toll Charges and Reconciled Pay By Plate file by 8 a.m. on the business day following completion of processing;
- If reconciliation is not complete within 14 Calendar Days, the CBOS shall honor all CTOC Transactions within the original Toll Charges or Pay By Plate file. The CBOS shall report on such occurrences;

- The CBOS shall provide the ability to carry open reconciling items for a user-defined period of time; and
- The CBOS shall provide the ability to charge to Reciprocating Agencies a User Configurable processing fee of either a fixed amount or a percentage of the CTOC Transaction amount. This includes the capability to accommodate processing fees of 0.0% and \$0.00. Currently, the CTOC Technical Specification does not include a method for electronically exchanging such fees.

The CBOS shall report on CTOC, receivables, payables and revenue associated with Reciprocating Agencies by Reciprocating Agency and as a group. The CBOS will provide functionality to perform settlement with each Reciprocating Agency for credit card costs and any other Transaction fees that may be established for CTOC Transactions.

The CBOS shall track all CTOC Transactions sent to Reciprocating Agencies in Toll Charges or Pay By Plate files and track the resolution of all such Transactions. The CTOC settlement reports define a standard set of documents for supporting the transfer of funds between agencies served by different customer service centers. The documents can be used by agencies to reconcile prepaid Tolls and expected Toll revenue. The CBOS shall provide recommended reports and functionality to support reconciliation. Data from CTOC Transactions shall be retained in accordance with Data retention requirements.

## 15.8 Regional Interoperability Testing

The Vendor shall perform Reciprocity Testing. Reciprocity Testing shall be performed to verify that CBOS can successfully process, manage, and communicate Transaction and other Toll collection related Data (such as tag status files and license plate files) with each CTOC Toll Agency. This testing shall involve both communications to and from each Toll Agency's back offices or Customer Service Center. Reciprocity Testing shall also verify the CBOS conformance with the most recent CTOC Toll Specification.

## 15.9 National Interoperability

WSDOT is committed to achieving national interoperability (NIOP) in the future and is participating with the International Bridge Tunnel, Tunnel and Turnpike Association (IBTTA) in developing specifications for the national Transponder protocol, file exchanges and settlements. The National Interoperability Business Rules are included as Appendix 17. Although this SOW does not contain any specific NIOP requirements, the Vendor shall ensure that the BOS design does not preclude implementation of the NIOP business rules and bring any potential conflicts between NIOP business rules and BOS design to WSDOT's attention.

## 16.0 Integration with WSDOT and Partner Systems

### 16.1 General Requirements

Numerous interfaces with existing WSDOT and partner Systems must be implemented as part of the BOS Project. The Vendor will be responsible for the analysis, design, development, testing, deployment and ongoing support of the following interfaces:

- Any interfaces required by BOS are required to provide the integrated end-to-end functionality specified within the Business Requirements. As an example: if the operational back office consists of Vendor-developed components and the commercial back office consists of one or more third party commercial off-the-shelf products, all interfaces required between the third party solutions comprising the commercial back office and the operational back office to fully meet WSDOT's requirements are considered to be in scope;
- All interface or integration points identified in any functional requirements in these Business Requirements;
- Interfaces contained in the interface inventory table;
- Any temporary interfaces to/from legacy Systems required because of a phased deployment approach. Temporary interfaces are any interfaces required only during the phased deployment period until all components of the BOS System are fully operational in production; and
- Any additional interfaces determined during the Project implementation.

## 16.2 Interface Architecture Requirements

For development of the BOS interface architecture, the Vendor shall design, acquire, develop and implement all enterprise application integration requirements using a full featured industry standard set of enterprise application integration tools (enterprise service bus technology, extract / transform / load tools, etc.), to the extent possible. The Vendor will provide a detailed description of this enterprise application integration environment as part of its proposal. It shall demonstrate the overall approach, merits and limitations of the interface architecture that will be designed and implemented to leverage standard adapters and common interface formats inclusive of WSDOT and external partners transforming their extract/load files. In terms of design and developing new BOS interfaces, the Vendor shall adhere to the following specifications:

1. Interfaces shall support user configuration for Data exchange with various Systems and partners.
2. Interfaces shall support multiple integration formats using configurable middleware or standard templates.
3. Interfaces shall provide for dynamic (online), delayed (background), scheduled (batch), and ad hoc (online, background, or batch) integration with various Systems and partners based on User Configurable parameters.
4. Interfaces shall provide for User Configurable editing requirements as a part of Data exchange through the integration point (for example, the ability for a user to add or modify through a formatted user screen a valid list of values that the interface should edit for during processing).
5. Interfaces shall automatically validate and report the successful or unsuccessful delivery or receipt of Transactions with various Systems and partners.
6. Interfaces shall provide internal controls (reconciliation capabilities) to verify that documents, files, or Transactions sent or received contain control totals, counts and amounts that balance based on User Configurable parameters to be defined in the Interface Control Document.

7. Interfaces shall be developed in compliance with WSDOT's Enterprise Integration Architecture Standards that are designed to enable agency-to-agency Data sharing, System interfaces and Data integration. All developed System interfaces shall conform to the following State OCIO standards for service modeling, integration design, shared infrastructure and State architecture solution sets:
  - 183.10.20 SOA Planning Design Standards
  - 183.30.20 Service Modeling Standards
  - 183.30.30 Solution Integration Design StandardsThese policies may be found at: <https://ocio.wa.gov/policies/by-number>. Note that pre-existing interfaces such as internal interfaces between elements of the Vendor's COTS solution or pre-built custom components are excluded from this requirement.
8. Interfaces shall support encryption or other method to ensure secure transmission of Data to least at the level required by the Washington State Information Technology Security Standard – Policy No. 401-S4. This policy requires encryption such that:
  - a. All transmissions of Data during the exchange are secure;
  - b. If intercepted during transmission, the Data cannot be deciphered;
  - c. Confirmation is received when the intended recipient receives the Data;
  - d. The exchange of information shall occur between secure end points; and
  - e. Entities shall use industry standard algorithms or cryptographic modules such as those validated by the National Institute of Standards and Technology (NIST).
9. Interfaces shall use Application Programming Interfaces (APIs) that follow a service oriented model (examples include Representational State Transfer (REST) and Simple Object Access Protocol (SOAP)) except in situations where the interfacing System cannot support this interface approach.
10. Interfaces shall use XML formats for Data transfer between Systems and transform BOS XML outputs to address legacy Systems of external partners.
11. Interfaces shall provide and retain an audit trail of all activity, unique identifiers, including user and Systems interactions, date, and time stamps according to the retention rules established by WSDOT.
12. Interfaces may be architected to use exception or error handling files to facilitate any partial re-run of a set of interface Data; however, any changes made to an exception file by Vendor staff shall be audit trailed.
13. Standard back-up and recovery tools and procedures shall support all interfaces.
14. All interfaces shall be transferable to computers running the same operating System without any modification.

### 16.3 Interface Architecture Responsibilities

In terms of interface design, development, testing and implementation, the Vendor will be responsible for the following activities:

- Prepare functional design specifications;

- Prepare technical design specification for all loads into or extracts from BOS components;
- Prepare required extract/transform mapping rules;
- Perform detail design, code and unit test all load programs into or extracts from BOS components;
- Implement extract/transform mapping logic within the enterprise application toolset;
- Manage component acceptance testing, factory acceptance testing, integration and commissioning testing, security testing and performance testing of the interface architecture and support WSDOT in planning for and managing user acceptance testing;
- Remediate any issues found during all test phases in interface Software components developed by the Vendor;
- Support WSDOT in coordinating the efforts of external partners to migrate to the new interface environment by providing functional and technical details as well as project management advisory support to WSDOT to foster an orderly migration to the new operating environment;
- Coordinate/monitor/track completion of required WSDOT activities;
- Manage production cut-over and stabilization of the interface architecture within the production environment;
- Manage production execution of System interfaces; and
- Maintain as required Vendor-developed interface components and coordinate / monitor / track completion of maintenance to WSDOT or partner components.

WSDOT or other third parties under the direction of WSDOT will be responsible for the following interface development tasks including:

- Prepare technical design specification for all loads into or extracts from WSDOT Systems;
- Perform detail design, code and unit test all load programs into or extracts from WSDOT System components;
- Coordinate and serve as point of contact with any external partners in terms of ensuring the partner prepares the technical design specification and performs detail design, code and unit test of all load programs into or extracts from partner agency Systems within the timelines in the Approved Baseline Project Schedule;
- Remediate any issues found during all test phases in Software components developed by WSDOT or a third party under WSDOT's direction; and
- Coordinate required remediation to address issues in Software components developed by partners.

## 16.4 Interface Design, Development, Documentation and Testing

The Vendor shall prepare Interface Control Documents (ICD) for each interface for review and approval by WSDOT. In many cases, there is an existing approved ICD from the current System

that can be used as a starting point for creating an updated ICD for approval by WSDOT. The ICD shall depict the physical, functional, and performance interface characteristics between the BOS and the other Systems. Data flow diagrams, process flow diagrams and decision flows shall be clearly defined identifying the relevant System components. Any Hardware, equipment or communication required for the interface shall be identified. During the development of the ICD, the Vendor shall take the lead role in submitting the draft documents for review, managing the comments, maintaining version control, and finalizing the documents.

The WSDOT Roadside Interface Control Document has been provided in Appendix 14 as an example for the Vendor to utilize in preparing their proposal.

The ICD shall establish and maintain compatibility at the common boundary between the Systems and Data elements. The developed interfaces shall be in compliance with the latest approved ICD with existing third-party Systems. The ICD shall coordinate and control the interface and shall be used for the purpose of change control at the interface point. The physical interface connection and communications protocol shall be designed to support the timely exchange of Data as required under the Business Requirements. The ICD shall be tested by the Vendor with the cooperation of WSDOT and/or external entities and shall be part of the overall testing program as defined in the Business Requirements.

The Vendor shall conduct as-needed working sessions with WSDOT, other WSDOT vendors and external partners as required to develop the design for the interface including any required Hardware and communications between the BOS and the other Systems. The Vendor shall develop a draft ICD for review and comment by WSDOT and other external partners as appropriate. The Vendor shall respond to comments, conduct a comment resolution working session, and develop a draft final ICD for review and comment. Based on the comments to the draft final ICD, the Vendor shall develop a final ICD for approval by WSDOT.

The Vendor shall develop the required interfaces between the BOS and the other Systems according to the approved ICDs and any associated designs. The Vendor shall work with WSDOT and other external partners as required in an advisory and coordination role to develop or modify their System interfaces as appropriate, to meet the requirements of the approved ICDs.

The Vendor shall conduct periodic status meetings with WSDOT, other System suppliers and external partners to monitor progress and address any potential development issues. Any changes to the ICDs required to accommodate mutually acceptable changes will be incorporated into a set of As-Built ICDs to be provided after testing is complete.

As part of the overall Testing Plan and procedures for the BOS, the Vendor shall develop a Test Plan to validate interfaces between the BOS and the other Systems. The Vendor shall demonstrate that the requirements of the approved ICDs and any associated Hardware and communication designs have been achieved. The Vendor shall coordinate with WSDOT, other WSDOT suppliers and external partners as required to ensure that the procedures and schedules for testing are coordinated.

## **16.5 Interface Implementation**

As part of the overall BOS Go-Live Plan, the Vendor shall coordinate with WSDOT, other WSDOT suppliers and external partners to detail the steps that are required to implement the interfaces.

The Vendor shall outline its responsibilities, state any assumptions, and detail actions required by others for submission and approval by WSDOT. The Vendor shall coordinate with WSDOT, other WSDOT vendors and external partners as required to ensure that the procedures and schedules for BOS implementation are coordinated.

The Vendor, other WSDOT System suppliers, WSDOT and external partners will review and comment, as appropriate, on the separate plans provided by the Vendor, WSDOT, other WSDOT System suppliers and external partners. The Vendor shall lead working sessions, as needed, to develop, review, and finalize the coordinated plan. The Vendor, WSDOT, other WSDOT System suppliers, and external partners shall conduct a readiness review before the interfaces are implemented. The Vendor shall be responsible for scheduling, leading and managing conduct of this readiness review.

The Vendor shall coordinate with WSDOT, other WSDOT System suppliers, and external partners to actively monitor the interfaces to ensure compliance with the System design and performance requirements.

The Vendor shall update the ICDs and associated designs to reflect any changes made during the design and Implementation. WSDOT shall review and approve these As-Built ICD documents.

## 16.6 Interface Operations and Maintenance

The Vendor shall operate and maintain the automated interfaces within the BOS interface architecture according to the requirements defined in the Business Requirements. The Vendor shall coordinate with WSDOT, other WSDOT System vendors and external partners as required to actively monitor the interfaces to ensure compliance with the System design and performance requirements.

## 16.7 Interface Sizing and Estimating Requirements

This subsection provides an inventory of interfaces based upon analysis completed by WSDOT to date. Vendors are to note that this is only a partial list and represents WSDOT's minimum requirement set that will be analyzed, designed and implemented by the Vendor and is intended to provide Vendors with a general baseline of the scope and complexity of the interface architecture. In addition, the current System interfaces have limitations that needs to be addressed as part of the interface analysis, design and implementation.

The interface inventory provided in Table 5 is arranged by functional area. This interface inventory will be finalized during the Preliminary System Design Milestone of the Project.

Interface Identifier	Functional Area	Interfacing System	Inbound / Outbound	Information Flow / Description
INT001	Toll Transportation Facility Integration	Tacoma Narrows Bridge Toll Transactions (TransCore)	Bi-directional	<ul style="list-style-type: none"> <li>• Transponder/customer account status (outbound)</li> <li>• Toll Transactions (inbound)</li> <li>• Acknowledgement (outbound)</li> </ul>
INT002	Toll Transportation Facility Integration	Tacoma Narrows Bridge Image Processing (TransCore)	Inbound	<ul style="list-style-type: none"> <li>• License plate images</li> </ul>

Interface Identifier	Functional Area	Interfacing System	Inbound / Outbound	Information Flow / Description
INT003	Toll Transportation Facility Integration	SR 520 Toll Transactions (Kapsch)	Bi-directional	<ul style="list-style-type: none"> <li>• Transponder/customer account status (outbound)</li> <li>• Toll Transactions (inbound)</li> <li>• Acknowledgement (outbound)</li> </ul>
INT004	Toll Transportation Facility Integration	SR 520 Image Processing (Kapsch)	Inbound	<ul style="list-style-type: none"> <li>• License plate images</li> </ul>
INT005	Toll Transportation Facility Integration	I405 Express Lanes Toll Transactions (Kapsch)	Bi-directional	<ul style="list-style-type: none"> <li>• Transponder/customer account status (outbound)</li> <li>• Toll Transactions in form of completed Trips (inbound) – Phase 1</li> <li>• Toll Transactions for Trip Building in BOS (inbound) – Phase 2</li> <li>• Acknowledgement (outbound)</li> </ul>
INT006	Toll Transportation Facility Integration	I405 Express Lanes Image Processing (Kapsch)	Inbound	<ul style="list-style-type: none"> <li>• License plate images</li> </ul>
INT007	Toll Transportation Facility Integration	SR167 Express Lanes Toll Transactions (Kapsch)	Bi-directional	<ul style="list-style-type: none"> <li>• Transponder/customer account status (outbound)</li> <li>• Toll Transactions (inbound)</li> <li>• Acknowledgement (outbound)</li> </ul>
INT008	Toll Transportation Facility Integration	SR99 Toll Transactions (Kapsch)	Bi-directional	<ul style="list-style-type: none"> <li>• Transponder/customer Account Status (outbound)</li> <li>• Toll Transactions (inbound)</li> <li>• Acknowledgement (outbound)</li> </ul>
INT009	Toll Transportation Facility Integration	SR99 Image Processing (Kapsch)	Inbound	<ul style="list-style-type: none"> <li>• License plate images</li> </ul>
INT010	Toll Transportation Facility Counts	WSDOT Traffic Management System	Bi-directional	<ul style="list-style-type: none"> <li>• Request for traffic counts by facility (outbound)</li> <li>• Traffic count Data by facility (inbound)</li> </ul>

Interface Identifier	Functional Area	Interfacing System	Inbound / Outbound	Information Flow / Description
INT011	Washington State Ferry Integration	WSF Facilities (multiple)	Bi-directional	<ul style="list-style-type: none"> <li>Customer account status (outbound)</li> <li>WSF fare Transactions (inbound)</li> <li>Acknowledgement of payment (outbound)</li> </ul>
INT012	Registered Vehicle Owner Information (In-state)	Washington State Department of Licensing (DOL) Vehicle Registration System	Bi-directional	<ul style="list-style-type: none"> <li>License plate from image (outbound)</li> <li>Registered Owner information (inbound)</li> </ul>
INT013	Registered Vehicle Owner (Out-of-State from State with reciprocal agreement)	Law Enforcement System or third party Vendor	Bi-directional	<ul style="list-style-type: none"> <li>License plate from image (outbound)</li> <li>Registered Owner information (inbound)</li> </ul>
INT014	Registration Hold	DOL Hold Request System	Bi-directional	<ul style="list-style-type: none"> <li>Submit Request for Hold (outbound)</li> <li>Acknowledgement of request (inbound)</li> <li>Release hold (outbound)</li> <li>Acknowledge release of hold (inbound)</li> </ul>
INT015	Registered Vehicle Owner Information (Third Party sources)	Skip Trace Service and other third party sources	Bi-directional	<ul style="list-style-type: none"> <li>Available information on registered vehicle owner (outbound)</li> <li>Acknowledgement of request from third party source (inbound)</li> <li>Address and other information available from third party source (inbound)</li> </ul>
INT016	Commercial Accounts	Upload of vehicle and Transponder information in pre-defined format	Inbound	<ul style="list-style-type: none"> <li>Commercial account uploads vehicle and Transponder information</li> <li>Commercial account holder receives confirmation of posting of information</li> </ul>
INT017	Financial Institutions	Office of State Treasurer	Bi-directional	<ul style="list-style-type: none"> <li>ACH batch files</li> </ul>
INT018	Financial Institutions	Lockbox	Inbound	<ul style="list-style-type: none"> <li>Customer payments</li> </ul>
INT019	Financial Institutions	Credit Card Processor	Bi-directional	<ul style="list-style-type: none"> <li>Request for credit card verification (outbound)</li> </ul>

Interface Identifier	Functional Area	Interfacing System	Inbound / Outbound	Information Flow / Description
				<ul style="list-style-type: none"> <li>• Response from bank (inbound)</li> <li>• Credit card payment (outbound)</li> <li>• Confirmation/acknowledgement (inbound)</li> <li>• Credits, refund Transactions, returned items, and notifications of change (outbound)</li> </ul>
INT020	WSDOT Accounting and Financial Management	WSDOT TRAINS	Bi-directional	<ul style="list-style-type: none"> <li>• General Ledger Journal Voucher files for all System financial activities (outbound)</li> <li>• WSDOT GL files including warrant registry files, TRAINS adjustment files (inbound)</li> <li>• Generate payment voucher files for customer refunds (state warrants) (outbound)</li> </ul>
INT021	WSDOT Accounting and Financial Management	WSDOT TRAINS to Data Warehouse	Outbound	<ul style="list-style-type: none"> <li>• Extract of accounting Transactions to Data Warehouse environment</li> </ul>
INT022	Collections	Third party collection System(s) on State Contract	Bi-directional	<ul style="list-style-type: none"> <li>• Account information (outbound)</li> <li>• Confirmation of receipt of information (inbound)</li> <li>• Receipt of payment or other status update by collection agency (inbound)</li> <li>• WSDOT confirmation of receipt of payment or status update from collection agency (outbound)</li> <li>• Receipt of payment by WSDOT for an account in collections (outbound)</li> <li>• Collection agency acknowledgement of payment received by WSDOT (inbound)</li> </ul>
INT023	Print House	Department of Enterprise Services	Outbound	<ul style="list-style-type: none"> <li>• Invoice mailing</li> <li>• Statements</li> </ul>

Interface Identifier	Functional Area	Interfacing System	Inbound / Outbound	Information Flow / Description
				<ul style="list-style-type: none"> <li>• Notifications</li> </ul>
INT024	Sales Tax	Department of Revenue	Inbound	<ul style="list-style-type: none"> <li>• Sales tax lookup, shipping address based</li> </ul>
INT025	Interoperability	California Tolling Operations Committee (CTOC)	Bi-directional	<ul style="list-style-type: none"> <li>• Multiple bi-directional interfaces with various CTOC operators. Refer to Section 15 for additional information.</li> </ul>
INT026	Hearings	Third Party Hearing Scheduling and Management Application	Bi-directional	<ul style="list-style-type: none"> <li>• Hearing requests (outbound)</li> <li>• Hearing schedule date (inbound)</li> <li>• Customer information (outbound)</li> <li>• Case information (outbound)</li> <li>• Evidence packages (outbound)</li> <li>• Hearing outcomes and case disposition (inbound)</li> </ul>
INT027	Telephony	Third Party IVR System provided by CSC Operator	Bi-directional	<ul style="list-style-type: none"> <li>• Customer account information (outbound)</li> <li>• Toll bill or NOCP information (outbound)</li> <li>• Customer payment Transaction information (inbound)</li> <li>• Customer inquiry or activity audit trail record (inbound)</li> </ul>

**Table 5: Inventory of Anticipated BOS Interfaces**

For estimating the assumed/reserved Work effort hours for additional interfaces, the Vendor will use the complexity guidelines and number of programs provided in Table 6 below.

Complexity	Interface Complexity Estimating Descriptions	Complexity Indication
<b>Simple</b>	Simple	One table to one table map
<b>Average</b>	ODBC, JDBC, SQL-based, and common Database or Software EAI adapters/connectors	One table to multiple table map
<b>Complex</b>	Multi-format flat files, and other lesser known Data/Database and EBCDIC (mainframe) adapters/connectors	Multiple table to multiple table map
<b>Custom</b>	Adapter must be developed for a specific platform or specific Data storage mechanism (could be old Database platforms, binary Data, platforms, etc.)	Vendor to provide estimate and rationale

**Table 6: Interface Complexity Estimating Guidelines**

For estimating purposes, the Vendor will assume the breakout of assumed/reserved interfaces provided in Table 7.

Assumed/Reserved Number of Interfaces	
Complexity Level	Number of Interfaces
Simple Mapping with Simple Adapter/Connector	0
Average Mapping with Average Adapter/Connector	6
Complex Mapping with a Complex Adapter/Connector	4
Complex Mapping with a Custom Adapter/Connector	3
<b>Total</b>	<b>13</b>

**Table 7: Breakout of Assumed/Reserved Interfaces**

## 16.8 Interface Monitoring

The Vendor shall provide various dashboards and tools for monitoring the execution of System interfaces.

### 16.8.1 Interface Dashboard

The Vendor shall provide an interface dashboard to monitor the status of the various external interfaces. The interface dashboard shall provide a current snapshot of the status of each of the interfaces. The information provided on the interface dashboard shall include but not be limited to:

- Number of files or messages sent;
- Number of files or messages received;
- Number of files or messages successfully posted to the BOS;
- Number of files or messages which failed to post to the BOS;
- Links to the interface files and logs for easy viewing;
- Ability to view and/or setup the interface schedule; and
- A status history for each interface.

### 16.8.2 RTS/BOS Integration Dashboard

The Vendor shall provide a dashboard to monitor the Toll Transactions received and processed from the various RTS applications. This includes all the Transponder based and plate based Transactions received from the roadside Systems. This dashboard shall provide a current snapshot of the status lifecycle on the Transactions received from each RTS. This dashboard shall include but not be limited to:

- Number of Transactions received by their type;
- Number of Transactions successfully posted by their type;
- Number of Transactions failed to post initially by their type;

- Number of Transactions in various posting buckets;
- Links to the Transaction counts for viewing details; and
- Transaction history.

The Transaction dashboard shall also provide trend analysis using the historical Transaction Dataset received by the BOS from the roadside System. The BOS System shall use the Transaction dashboard to review the Transactions posting and to support follow up with the RTS vendor in the case of any issues.

## 17.0 Security and Access Control

Access control to the BOS and security of Data stored in the BOS is of utmost importance to assure that WSDOT has a reliable, uninterrupted revenue stream and a secure, auditable Tolling back office System. The Vendor shall be responsible for implementing a security design consistent with industry best practices and implementing appropriate physical security of its Host and Disaster Recovery facilities and all property within them. Access to computer equipment shall be restricted and only authorized personnel shall be allowed to enter the facilities. All aspects of the Vendor's BOS solution must comply with the State of Washington security policies as documented at: <https://www.ocio.wa.gov/policies/141-securing-information-technology-assets/14110-securing-information-technology-assets>.

To ensure integrity and auditability of this volume and value of financial Transactions, we require that the Vendor be PCI and PA-DSS Level 1 compliant. This mandatory certification requirement is detailed further in Section 17.18.

### 17.1 Confidentiality of Information

The Services and Work performed under the Contract are considered highly confidential. All employees of the Vendor shall not discuss their work with other unauthorized personnel, or any individuals not directly associated with the WSDOT BOS Project. WSDOT shall identify and designate primary points of contact for the Vendor for communications. Under most circumstances, the Vendor shall limit communication with WSDOT staff and only communicate with the designated points of contact.

### 17.2 Controlled Access at Vendor Facilities

Vendors shall fully comply with OCIO Policy 141.10, Section 3 (Physical and Environmental Protection). All Vendor personnel shall be subject to security and background checks in compliance to the satisfaction of WSDOT. The Vendor shall perform an employment security check of each potential employee prior to offering employment. In addition, the Vendor shall perform a periodic employment security check of each Vendor employee on an on-going basis. Drug testing shall be required under reasonable suspicion and are not required as a part of pre-hiring security checks.

The Vendor shall inform WSDOT of any issues found because of the background check. The Vendor shall obtain written approval from WSDOT for all service personnel. The Vendor shall ensure that each Vendor employee, both at its facilities and while on-site at WSDOT facilities, is issued an identification badge and that each employee shall wear the identification badges at all

times when performing work-related duties. The identification badge will identify the person as a Vendor employee. Use of such identification badges for purposes other than work associated with the Contract may result in termination of the employee from the Contract and potentially other legal or disciplinary action.

The Vendor shall ensure that each visitor, while on-site at any Vendor facility area related to the provision of BOS services, wears a badge that identifies the person as a visitor and is accompanied by an authorized Vendor employee.

### **17.3 On and Off-Boarding of Vendor Staff**

The Vendor shall, within one business day of an employee's commencement of services under the WSDOT BOS Contract, grant that employee the necessary access to all facilities, segregated areas, and Data Systems required to perform their assigned job duties under the Contract. The Vendor shall ensure that only personnel with a respective operational need (or as directed by WSDOT) have access to a specific facility, segregated area, System function and/or Data. The Vendor shall, within one hour of an employee's termination of employment or other off-boarding from the WSDOT BOS Contract, suspend that employee's access to all facilities, segregated areas, and Data Systems.

### **17.4 Off-Boarding of WSDOT and CSC Operator Staff**

The Vendor shall provide the capability to automatically interface with both the WSDOT and CSC Operator's employee off-boarding processes to deactivate the security access of a CSC Operator employee or WSDOT employee to the BOS System. The System shall notify the security administrator within the BOS and via email or remote logging to review the security access of any System user when a Transaction is initiated through the re-assignment or off-boarding processes that results in a change in the individual's position or position status (e.g. termination, change in role requiring different security, extended leave).

### **17.5 Access Control for BOS System – Vendor Staff**

The Vendor shall develop an access level matrix for its employees responsible for operating and maintaining the System and submit it to WSDOT for approval at least 30 Calendar Days prior to the scheduled Go-Live of Phase 1 and Phase 2.

### **17.6 General BOS Access Control Requirements**

Only authorized personnel shall have access to information on the BOS computers and network using a System with password or other industry standard authentication control. Passwords must comply with OCIO Policy 141.10, Section 6.2 (Password Requirements).

The System will utilize advance security options of operating System, network, Database, desktop, storage and security server (e.g., Multi-factor identification, User-ID/Password length, User-ID/Password Case sensitive, plus other advance security policies of third party vendors for operating System, server, Database, network, storage, and browser). Controlled user access including sign-on facilities, permission control, and different levels of access shall be provided for the files, directories, and application Software.

The System will require passwords to be changed at an interval defined by the System administrator or other Authorized Users. The System must incorporate an online function for review of the logs of invalid password attempts or security violations by the System administrator or other Authorized Users. The System will also have a provision to allow the System administrator or other Authorized Users to generate a formatted user-friendly report of invalid password attempts or security violations. Given the term of this Contract, the Vendor is encouraged to develop biometric or recognition control Systems for access and sign-on services. These shall not be implemented until approved by WSDOT after review of their capabilities and failure rates. The System shall support authorized changes to the access levels and personnel designated to those levels.

## 17.7 Role Based Security

There is a need for role-based security to provide granular access to the System based on function. The Vendor shall comply with all aspects of Policy 141.10, Section 7.0 (Application Security). The BOS shall provide granular management and administrator control over Transactions, forms access, field updates, row locking, interfacing events, Data queries and other types of authorizations using role-based security. WSDOT and/or CSC Operator staff will have the appropriate level of read/write access to the BOS as is required to perform their job responsibilities as defined in the role based security definitions. The System will provide an efficient, flexible way to control and administer access to all components of the BOS solution using role based security and access rights by position.

The BOS shall provide the capability for the System administrator or other Authorized Users to define users to the System including the following information about each user: unique user identification, first name, last name, agency/organization, agency/organization unit, email address, and effective date of user access to the System.

The BOS shall allow the System administrator or other Authorized Users to define user access groups based on job responsibilities to ensure separation of duties. It will allow the System administrator to grant user groups access to each System function and to establish the type of access to be allowed (add, change, inquire, retire, delete) and an effective start and end date for this access.

The System shall provide a workflow to allow authorized managers (WSDOT or CSC Operator) to request access for employees to specific System functions and obtain management approval based on enterprise and business unit rules for this access. Upon appropriate approvals, the request would then be forwarded to the System administrator or other authorized user for review and potential action.

## 17.8 Managing Multiple Roles within BOS

A single user-ID may be associated with multiple security roles within the BOS. In developing the BOS solution, the Vendor will provide that if two (2) distinct security roles are needed to perform a business function and both of these roles are held by the same user, the user must log on separately with their user-ID and password under each security role in order to perform the full business Transaction. The user must log on and log off from one role prior to logging on to the next role.

The System shall allow users to choose from multiple user groups/roles if the user is assigned more than one role. There will be a security administrator function that allows for separate controls

for view, add, change, inactivate update, approve, and query access purposes. The System will provide for access and control to all BOS functions with a single sign-on, as authenticated per security standards. In addition, there shall be a restriction to the display of System functions upon sign-in to the BOS to only the options and icon selections that the user has rights to (e.g., a user's logon would define the functionality required and present only that capability). This has the added benefit of simplifying the choice of available System functions and individual screens for the user.

## **17.9 Temporary Expanded Access**

There may be instances when someone is required to have access greater than their role provides for a temporary period. The proposed BOS solution shall provide functionality to allow the System administrator to grant individual users access to a System function that their user group is not entitled to access and to establish the type of access to be allowed (add, change, inquire, retire, delete) and the effective start and end date for this access.

Temporary access may only be granted for a limited period, with this time to be configurable within the System. There shall be a provision for an audit trail and exception report for any additional security access granted. In the case of temporary access, the access method (e.g. User ID/PW vs. Multi-factor authentication) must change if the type of information a user is being temporarily granted access to is of a higher Data classification or if their role (end-user vs. administrator) changes.

The BOS will allow the System administrator or other Authorized Users to assign users to one or more user groups including an effective date and optional end date for inclusion in each user group. The BOS will also allow the System administrator or other Authorized Users to remove users from one or more user groups including recording of an effective date for end of inclusion in each user group. In addition, the System shall provide the ability for the System administrator or an authorized user to delegate proxy roles to other users with an expiration date, and provide the ability to notify a user of the new proxy right.

## **17.10 Password Reset**

There shall be a provision to allow users to reset their own password after successfully entering their current password. If users forget their password, users shall be allowed to reset their password and authenticate themselves by successfully answering a challenge question randomly selected from among a list of challenge questions the user previously provided. There must be the capability for the System administrator or other authorized user to define a new user's password or reset a user's password with the System generating a unique, random temporary password.

## **17.11 Attempted Access Violations**

The System will log incidents of invalid password attempts capturing user identification entered, type of violation (invalid user id, invalid password or invalid id and password) and the date and time of the violation and the device on which the login attempt took place. The System will suspend access for a period configurable by the System administrator, following a user-defined number of invalid sign-on attempts. CBOS shall provide a password recovery tool which does not require contacting Vendor staff to reset a forgotten a password.

For those users successfully logged on, the System will log incidents of security violations within the System capturing user identification, System function for which unauthorized access was attempted, date and time of security violation, and the device on which the security violation took place. The System will provide the capability to monitor and control access to interfacing Systems, by restricting other Systems' access into the BOS by an additional layer of password security or other approved authentication methods.

## 17.12 User Log-off for Inactivity

An unattended open session is a security risk. Any BOS session shall be logged out after a configurable period of inactivity. This period of inactivity shall not exceed 30 minutes per OCIO Policy 141.10, Section 6.4 (6).

The System will disconnect or log out a user session when it exceeds the allowable period of inactivity. Since some cases of inactivity may be the result of a phone call or in-person conversation, the System should warn a user that they would be disconnected before automatically logging off the user.

The System will automatically deactivate a user account; based on non-use of the System over a defined period that may vary by module. The System shall provide for a default timeframe that is configurable by the System administrator and in compliance with OCIO Policy.

## 17.13 System Access Control Matrix

The BOS application will provide a System access control dashboard utility with a flexible and easy to use user interface (UI) to manage and administer the BOS System access control matrix for all applications. The System access matrix will be based on user groups having inquire, add, and/or modify access to different functions within the BOS. The System access control matrix dashboard will support the following functions at a minimum:

- Inquire, add or modify access will be provided at the screen level for the various user interfaces (UI) within the BOS application;
- Inquire, add or modify access will be based on the user group;
- All the users accessing the BOS applications will belong to at least one user group based on their job function;
- User can have the following access levels:
  - Inquire only,
  - Add and inquire, and
  - Add, inquire and modify;
- User level groups and access setup will be handled by a qualified and experienced System administrator only;
- All the users access should have integrated and comprehensive anti-spam and anti-virus protection;
- Any change in the user access permissions or user groups will be recorded and logged for System audit purposes; and

- Database access will be handled by Database administrator and will also be based on user groups and their functions.

Authorized WSDOT staff will have the right to review the System access control matrix at any time and shall have full access for any purpose including internal audit and general observation or monitoring.

### **17.14 Data Transmission Security**

The nature of the Data processed by the BOS requires that appropriate measures are taken to ensure that Data is protected as it is transmitted. The BOS must support the following encryption/secure transmission technologies:

- Digital certificates;
- Public key Infrastructure (PKI); and
- Secure hypertext transfer protocol (HTTPS).

The Vendor must comply with OCIO Policy 141.10, Section 4.4 (Secure Data Transfer). The BOS solution must provide support for secure communications, authorization, confidentiality and Data integrity (e.g. HTTPS, SSL) for internet-based Transactions and/or support for FIPS 140-2 Data encryption for System Transactions.

The Vendor must ensure that Web and Security servers are 64-bit compatible (No 32-bit pieces anywhere in application stack). The Vendor will ensure that content can be delivered via a web browser without requiring browser security settings to be lowered beyond typical industry standards in order for System functionality to function properly.

### **17.15 Hosting and Disaster Recovery Facility Controls**

An important aspect of security is to ensure only authorized access to the Vendor's hosting and disaster recovery facilities. The security control and access System shall operate 24 hours a day, seven (7) days a week, and shall consist of CCTV cameras to record and store video of access to the primary and disaster recovery hosting buildings, access doors and other Vendor provided cabinet locations as approved by WSDOT. Access to server rooms, enclosures and cabinets (door open alarms) shall be recorded automatically and logged in an automated access control management System from which the Vendor shall be able to produce reports of facility access by location, date and time upon request.

The Vendor shall utilize an access control System for each Vendor facility to control personnel access to the facility and segregated areas of the facility. Please note that hosting facilities are discussed in greater detail in Section 19 (Back Office Hosting).

### **17.16 Access Control for Reporting and Business intelligence**

Reporting and analysis are required functionality from the BOS as well as a business intelligence/Data Warehouse capability. The Vendor shall utilize high availability and advanced security features of the Database to the extent possible. The proposed solution must ensure that report and ad-hoc query results within the BOS Transactional System are subject to the System security model such that users cannot access Data through reports and queries for which they are not authorized to access in the operational System.

The BOS solution shall provide the capability to interface the BOS Transactional System with the business intelligence tools/environment to pass the BOS security model to the business intelligence environment to allow the business intelligence environment to enforce the same security rules in the Data Warehouse as in the BOS Transactional System. The objective is to ensure that a user does not have access to any information in the Data Warehouse for which they do not have authorization in the BOS Transactional System.

## 17.17 Security Plan

The Vendor shall submit a Security Plan in accordance with Section 30.2.6. Security and access control for the Project shall be compliant with the requirements of this RFP and the applicable Office of the Chief Information Officer for Washington State (OCIO), and WSDOT Policies and Standards provided on the respective web pages. (<https://ocio.wa.gov/policies> and <http://www.wsdot.wa.gov/Policy>).

## 17.18 PCI and PA-DSS Compliance

The Vendor's BOS solution including its hosting and disaster recovery environments and all System components shall be Payment Card Industry Data Security Standard (PCI-DSS) compliant (refer to <https://www.pcicomplianceguide.org>). The Vendor's payment processing Software and Systems shall be Payment Application Data Security Standard (PA-DSS) compliant to the latest version of the standards (as of the date of this RFP version PA-DSS 3.2 was released in April 2016.)

As a payment processing service provider, WSDOT requires that the Vendor is a Level 1 merchant and can provide certification of their current PCI compliance status including a passing vulnerability scan score (PCI Security Standards Council Requirement 11.2). A third-party Qualified Security Assessor (QSA) in a Report on Compliance (RoC) must have attested to the compliance. The Vendor must maintain a written Responsibility Matrix to allow for easy identification of customers' responsibilities. The Vendor must be a Qualified Integrator and Reseller (QIR) that is authorized by the PCI Security Standards Council to "implement, configure and/or support" PA-DSS payment applications.

The Vendor must demonstrate PCI compliance through passing a PCI audit from a qualified auditor selected and compensated by the Vendor and approved by WSDOT prior to obtaining permission from WSDOT for Phase 1 Go-Live. The Vendor must maintain its PCI compliance for the duration of the BOS Contract through successful completion of an annual PCI audit conducted by a qualified auditor selected and compensated by the Vendor and approved by WSDOT.

## 18.0 Hardware and Software Requirements

### 18.1 General Requirements

For these requirements, the term BOS refers to all Software running on the Vendor's servers supporting the CSC, all Data stored on the System, and all Hardware, as well as development, testing and training Systems. The Software includes, but is not limited to, operating Systems,

Databases, application Software, communication protocols, archiving routines and environments and third-party supporting Software.

The Vendor shall be responsible for all labor, materials, and support services required for the fabrication, packaging, delivery, installation, testing, and integration of the BOS servers, development and test servers, workstations, printers, wide area network components, local area network components, communications equipment, IVR System (if WSDOT elects this option) and other items to meet the requirements of the Contract. The System configuration shall have redundancy so that the BOS can be brought online and back into operation without Data loss. The Vendor shall supply, operate and maintain all BOS Hardware and equipment. The Vendor shall retain ownership of all BOS Hardware and equipment, except for any WSDOT provided Hardware and equipment.

The Vendor shall ensure the BOS is hosted in a fully secured Data center environment per the security requirements and security plan (refer to Section 16 and Section 30.2.6). The host System shall have a hot spare server configuration similar to an active/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 equipment supporting the BOS shall be powered through a UPS and shall be capable of uninterrupted operation for a period of at least 60 minutes on battery power. The Vendor shall ensure that the hosting site has a backup power generator capable of powering the BOS for up to eight (8) hours in the event of a longer duration power outage. The BOS shall be capable of seamlessly switching over from the UPS to the generator.

The Vendor shall test the generator by running it at full load at least once a week. The Vendor shall check the batteries in each UPS at least once per month.

## 18.2 Hardware Requirements

All Hardware and equipment supplied under this RFP, excluding consumable material (material that needs continuous replenishment), should be certified to have a minimum five-year service life. The Vendor shall prepare and obtain WSDOT approval of a technology refresh plan for all BOS components. In general, a Hardware refresh should be planned for process critical components every three (3) years. The Vendor shall ensure that their annual Operations and Maintenance cost includes sufficient funding to comply with this technology refresh requirement. There will not be a specific technology refresh item within the Operations and Maintenance cost.

All equipment, supplies and materials furnished under this RFP shall be new, off-the-shelf, field-proven and meet applicable ISO, IEEE and ANSI defined standards. Materials and products that have been previously used for development Work, purchased Systems or items that have been salvaged or rebuilt shall not be permitted to be used in connection with this RFP. To the extent possible, all equipment provided by the Vendor should be available from multiple sources. Proof of purchase in the form of dated invoice and shipping bills shall be retained and furnished to WSDOT upon request.

Hardware should be designed with the following specifications:

- There shall be a second source for manufacture for all parts and it shall be identified in the BOM (Section 18.6). All exceptions shall be noted and pre-approved in writing by WSDOT; and
- ISO standard I/O interface modules shall be used in the design and all serial, discrete and network interface boards shall have at minimum two (2) spare slots to support the addition of components.

### 18.3 Hardware Mean Time between Failure (MTBF) Requirements

The Vendor shall select equipment for the BOS that meets the minimum MTBF requirements outlined in Figure 3. For subsystems made up of multiple components for which no single MTBF can be obtained from a subsystem vendor, the Vendor shall be prepared to provide a subsystem reliability analysis using MTBF values for the individual components included in the subsystem.

Hardware	MTBF (Hours)
Back Office Servers	>50,000
Network Switches	>50,000
Network Routers	>50,000
Back Office Flat Screen Displays	>50,000
Back Office Printers	>10,000

**Figure 3: MTBF Requirements for Hardware Systems and Subsystems**

### 18.4 Diagnostics

All Vendor maintenance personnel are required to carry a cell phone and mobile device (laptop/tablet) with cellular based connectivity. Maintenance personnel shall have easy access to components for removal and testing. Equipment design and installation in racks or cabinets shall provide easy access to components for removal/replacement and testing by maintenance personnel. In addition, test points necessary to diagnose the equipment while in operation shall be easily accessible.

### 18.5 Customized Hardware

The Vendor shall provide documentation for any customized Hardware at a level of detail sufficient to allow a qualified third party technician to utilize the documentation if required to maintain, configure and test any customized back office components.

### 18.6 Bill of Materials (BOM)

The Vendor shall provide a BOM for all Hardware, COTS Software and equipment supplied under this RFP. Where possible, a second source shall be listed for all components. All COTS Hardware shall be described with regard to manufacturer, vendor contact information, model number and feature set. The BOM will be included with the System Detailed Design Document submittal. A BOM is not required for any elements of the solution which are Cloud-based.

### 18.7 Software Requirements

The operating Systems, Databases, COTS Software and Toll System Software provided by the Vendor shall support BOS processing per the Contract. The proposed operating Systems, Databases, and other proposed Software shall be currently supported versions with a future upgrade path. The BOS Software shall be capable of supporting interfaces with external Systems to obtain or transmit Data. The BOS Software shall also be designed to support WSDOT's planned future expansion plans (i.e. new Toll facilities such as Interstate 405 Bellevue to Renton, parking facilities, etc.) as outlined in this RFP.

Any application development performed for the BOS Project shall include information security throughout the application lifecycle and be done in compliance with OCIO Policy 141.10, Section 7.2 (Application Development).

### **18.7.1 Software - User Interface**

A browser based GUI design shall be utilized for all Software that requires a user interface. GUI design shall follow accepted industry human engineering design standards for ease of readability, performance, understandability, appropriate use of menu-driven operations, user customization, language support and intuitive operation. The proposed solution shall utilize a consistent user interface across all modules developed by the Vendor. A consistent user interface (at least within the COTS suite) is highly desirable for proposed COTS components within the solution.

Online help features shall be provided that assist users with Data entry. Drop-down menus shall be designed for ease of use with the most common options listed at the top. Automatic field level verification shall be provided to ensure that the Data entered falls within acceptable ranges.

WSDOT requires the client applications within BOS to easily adapt and be compatible to the latest web browser versions and updates. BOS will be compatible, at the minimum, to the latest release of the following web browser types and will maintain this compatibility for the duration of the Contract:

- Microsoft Internet Explorer (optional);
- Microsoft Edge;
- Mozilla Firefox;
- Google Chrome; and
- Apple Safari.

The Vendor will keep the BOS applications updated to the latest versions of the web browser types available on a periodic basis as part of the regular System maintenance schedule and when the newer web browser versions are available in the marketplace from Software providers. The BOS applications layout will follow the responsive web design approach for the web browser layout to be compatible on a mobile device for a user browsing the application from their mobile device.

### **18.7.2 Software - Expansion Capability**

As there may be a future need to add additional information for Data capture, the System should support the creation of new fields, tables, and objects by authorized technical staff. Authorized technical staff should then be able to include these new fields, tables, and objects in screens, reports, and analysis. The System must also support the inclusion of any user-defined or developed objects (user-defined tables, fields, and other objects, etc.) in the upgrade path.

The BOS shall be designed and sized to accommodate approximately 80 million annual Toll Trips records in its first year of operations and the System must be designed to be scalable to handle approximately 350 million annual Transaction records during the Contract term in order to be able to handle future Tolling projects. The System Database shall be design to handle the expansion in terms of maintaining and processing the Dataset both online and the backup site.

The following BOS components must be designed accordingly to handle the expansion of Dataset:

- All BOS application components;
- All BOS servers;
- All BOS Data storage;
- Network components; and
- Backup and Disaster Recovery site.

The Vendor will work with WSDOT to handle the gradual expansion of the Dataset based on the state policy guidelines followed by WSDOT IT for the use of the approved System components.

### **18.7.3 Software - Maintainability**

The BOS Software shall be parameter driven and configurable and shall be warranted to correct identified Software defects and be stable in a production back office operational environment for a minimum of ten years. The System must provide a means to identify user customizations and configurations to re-apply after an upgrade or new release of the Software. In addition, the Vendor must provide defect correction for any critical security vulnerabilities within five (5) Calendar Days of issue identification for Vendor-owned Software and within five (5) Calendar Days of receiving a fix for Third Party Software components.

### **18.7.4 HOT Updates - Code Updates Loading While System is Running**

The Vendor shall provide dynamic Software updates to the applications that are used by the CSRs and WSDOT Tolling customers. The BOS will have no downtime for regular Software updates through dynamic Software updates. This can be achieved by having redundant Systems running to handle the load and allowing seamless Software updates without affecting any downtime for the users. Likewise, applications not requiring user interactions like automated processes shall also be updated in the background to minimize System downtime.

### **18.7.5 API for Third Party Application Developers**

WSDOT will allow public Datasets available by law to be accessed via a set of application program interfaces (APIs) for use by third party developers to build customized applications for the WSDOT Tolling customers in compliance with PCI and PII regulations.

The Vendor shall provide a set of APIs with their usage documentation for third party developers to utilize at their option to build applications for WSDOT Tolling customers. The APIs can be grouped into the following functional areas:

- Customer Accounts Information;
- Customer Plate Information;
- Customer Transactions;
- Customer Transponders;
- Customer Violations; and
- Agencies Interfaces.

The third party developers can use the documentation and published APIs to build custom applications like mobile applications, reporting and analytic solutions. The APIs shall be fully tested prior to release and publication. The Vendor, at their option, may provide support for the API set beyond the published documentation.

### **18.7.6 Software – License**

With respect to Vendor Intellectual Property, Vendor shall grant to WSDOT a non-exclusive, perpetual, and irrevocable license to use Vendor Intellectual Property for the purposes stated in this RFP.

For any Third Party Software used by Vendor for the Project, Vendor shall provide WSDOT with all rights necessary to enable WSDOT to legally use said Third Party Software for the purposes and duration of the Contract which shall be transferrable to and assignable by WSDOT upon termination of the Contract, without additional compensation.

Further, WSDOT shall have the right to transfer any and all Software licenses, without additional compensation, to a successor in the event another entity is given the responsibility to maintain or otherwise operate Tolls in the State of Washington, provided that any such successor entity agrees to be bound by the terms of said license(s).

The Vendor shall furnish WSDOT with original License agreements it obtains from such third parties upon request but no later than within five (5) Calendar Days after Final System Acceptance. The Vendor shall also provide to WSDOT the computer programs, disks, and documentation for all Software and firmware it obtains from third parties.

Please refer to Section XV -- Intellectual Property in Appendix 3 – Contract for additional information.

### **18.7.7 Software – Technical Documentation**

Vendor shall provide technical System documentation including but not limited to:

- Program descriptions;
- COTS Software descriptions including Software provider/manufacturer, version number, feature set and number of user licenses provided;
- Screen definitions and descriptions;
- Database definitions, logical Data model, and record layouts;
- Audit trail management documentation;
- Security administration documentation;
- Installation documentation;
- Performance tuning documentation; and
- Workflow process and administration documentation.

## **18.8 Back Office Hardware**

The Vendor will furnish and install a complete BOS Hardware configuration including work stations and all required servers for administration, storage, back-up, Data Warehouse (if WSDOT

elects this optional component), reports server, network infrastructure and all other Hardware as needed to support the requirements of this RFP at various facilities; including the BOS primary hosting environment, BOS back-up site, the WSDOT CSC, WSDOT walk-in centers and other WSDOT facilities. The BOS server configuration shall include all required cabinets, enclosures, cabling, and ancillary equipment, as may be necessary to provide a complete and acceptable System that meets the requirements of this RFP.

In terms of outfitting the CSC, walk-in centers and other WSDOT facilities, Vendors shall be guided by the assumptions outlined in Table 8.

Facility	Location	Required Equipment
CSC – primary call center*	Location within Washington State TBD (currently in Seattle – University District)	<ul style="list-style-type: none"> <li>• Workstations and telephone for the 150 staff members working in the following areas:                             <ul style="list-style-type: none"> <li>• Customer service,</li> <li>• Transponder distribution,</li> <li>• Image Review,</li> <li>• Accounting, and</li> <li>• Project management</li> </ul> </li> <li>• Mailroom opener, postage machine</li> <li>• Four (4) high speed printers/copy machines</li> </ul> Required wireless and hardwired network connections and network connectivity
Walk-in Center*	Bellevue/Kirkland area	<ul style="list-style-type: none"> <li>• Workstations, telephone and credit card readers for 6 staff working in the following areas:                             <ul style="list-style-type: none"> <li>• Customer service,</li> <li>• Transponder distribution,</li> <li>• Project management</li> </ul> </li> <li>• Two (2) high speed printer/copy machines</li> <li>• Postage machine</li> <li>• Two (2) Self-service kiosk</li> </ul> Required wireless and hardwired network connections and network connectivity
Walk-in Center	Downtown Seattle	<ul style="list-style-type: none"> <li>• Workstations, telephone and credit card readers for 6 staff working in the following areas:                             <ul style="list-style-type: none"> <li>• Customer service,</li> <li>• Transponder distribution,</li> <li>• Project management</li> </ul> </li> <li>• Two (2) high speed printer/copy machines</li> <li>• Postage machine</li> </ul>

Facility	Location	Required Equipment
		<ul style="list-style-type: none"> <li>• Two (2) Self-service kiosk</li> </ul> Required wireless and hardwired network connections and network connectivity
Walk-in Center*	University District	<ul style="list-style-type: none"> <li>• Workstations, telephone and credit card readers for 6 staff working in the following areas:                             <ul style="list-style-type: none"> <li>• Customer service,</li> <li>• Transponder distribution,</li> <li>• Project management</li> </ul> </li> <li>• Two (2) high speed printer/copy machines</li> <li>• Postage machine</li> <li>• Two (2) Self-service kiosk</li> </ul> Required wireless and hardwired network connections and network connectivity
Walk-in Center*	Renton/SeaTac	<ul style="list-style-type: none"> <li>• Workstations, telephone and credit card readers for 6 staff working in the following areas:                             <ul style="list-style-type: none"> <li>• Customer service,</li> <li>• Transponder distribution,</li> <li>• Project management</li> </ul> </li> <li>• Two (2) high speed printer/copy machines</li> <li>• Postage machine</li> <li>• Two (2) Self-service kiosk</li> </ul> Required wireless and hardwired network connections and network connectivity
WSDOT Toll Division HQ	Metro Seattle area TBD	<ul style="list-style-type: none"> <li>• Workstations and telephone for the 25 staff members working in the following areas:                             <ul style="list-style-type: none"> <li>• Customer service,</li> <li>• Adjudication,</li> <li>• Accounting, and</li> <li>• Project management</li> </ul> </li> </ul> Two (2) high speed printer/copy machines

**Table 8 CSC, Walk-in Center and WSDOT Facility Hardware Requirements**

### 18.8.1 Hardware - Components

All BOS Hardware elements shall be the latest commercially available product configurations. BOS Hardware components shall be designed for 24x7 operations, and shall incorporate standard

commercial products currently in production and supported by manufacturers. The Vendor shall utilize proven configurations that support future upgrades to processors, memory, storage, operating System, and Database, and the Vendor shall provide a scalable solution that will be able to support anticipated future growth as defined in this RFP. It is desirable for the BOS server(s) and relevant peripheral Hardware to be supplied from the same manufacturer.

### **18.8.2 Hardware - Disaster Recovery Site**

The CSC Back-up Hosting or Disaster Recovery (DR) site will be hosted at a separate location provided by the Vendor. This location will be geographically separated from the BOS primary hosting site (at least 250 miles). The back-up or DR site will be approved by WSDOT prior to the execution of the Contract.

Like the other BOS Hardware requirements, the Vendor will furnish and install a complete BOS back-up site Hardware configuration including processing, administration, storage, back-up, Data Warehouse, reports server, network infrastructure and all other Hardware as needed to support the requirements of this RFP at a DR or back-up location.

The Vendor must develop and provide to WSDOT the disaster recovery procedures that will be implemented to ensure Data security during a disaster (Refer to Section 30.4.1 for a description of the required Disaster Recovery Plan.)

The disaster recovery site servers should sync with production servers real time or near real-time as agreed to by WSDOT. The disaster recovery procedures shall ensure that the BOS is brought back on-line and becomes fully operational following a disaster within four (4) hours of a decision to activate the disaster recovery site. The System design should ensure that no Data created in the Toll lanes is lost and/or corrupted, when the BOS is brought back to full operation.

### **18.8.3 Hardware – Backup Power (UPS / Generator)**

Both the BOS primary and back-up sites shall have an uninterruptable power supply (UPS) and shall be capable of uninterrupted operation for a period of at least 60 minutes on battery power. The UPS System must also contain a backup power generator capable of powering the BOS in the event of extended power outages. The generator should automatically power on and be available to switch in and begin providing power within 10 minutes of a power outage and run unattended for at least eight (8) hours.

## **18.9 Operating System**

The operating System for the BOS server(s) should consist of an industry standard 64 bit COTS multi-user, multi-tasking operating System. The operating System shall fully utilize the redundant central processing System server architecture and shall support all peripherals defined in the Business Requirements. The operating System shall also support the proposed communications architecture, redundant central processing System configuration, Database Software, and Vendor's application Software. The Vendor is responsible for obtaining all licenses as required. All necessary licenses will be obtained for all COTS operating System Software used by Vendor's BOS solution. The Vendor will retain authorized copies (backups) for all Software media to use for periodic System maintenance, upgrades, or restorations, as required. The proposed operating System should have manufacturer declared warranty and maintenance support services for a minimum of five (5) years.

The operating System shall be a proven reliable System, with a large installed base, used widely throughout the United States for enterprise-class 24x7 Database operations and shall be compatible with the Vendor's proposed Database and web-based development and operational tools. The Vendor shall remain current on all operating System patches. The Vendor shall apply all operating System Software patches within 15 Calendar Days of the release of the patch by the Software vendor unless an alternative timeline for applying the patches is otherwise agreed to by WSDOT. Any emergency patches for security issues shall be applied immediately upon receipt from the Software vendor.

## 18.10 Database Management System

WSDOT requires a high level of reliability, security, and System performance from the Database used for the storage of Transactional Data and all other Data, as applicable, for the WSDOT BOS. The Vendor shall implement the System with the latest version of Database Software that is field-proven, stable, and in production to operate in an enterprise class environment. The Database Software must be compatible with the operating System and application Software, and shall support redundant central processing System architectures. Appropriate licenses will be provided to WSDOT for all COTS Database Software along with original Software installation files and media. The proposed Database Software shall have warranty and maintenance support services for a minimum of five (5) years. The selected Database System shall have a published upgrade path and should support upgrades to operating System, application, memory, disk drives, and processors.

The Vendor will provide WSDOT with documentation on the Database management System including a Data dictionary, schemas and entity relationship diagrams in an agreed to, electronic format no later than 60 Calendar Days after the initial NTP under SOW 1.

## 18.11 Backup and Archive Capability

The Vendor will provide automated capability to back-up the BOS application System and Data daily using appropriately sized and configured tape and/or disk subsystems. Notification on the status of the backup process on completion or failure shall be automatically transmitted to the Vendor's Maintenance Online Monitoring System (MOMS) application.

Actual BOS Transactions (including violation images) will be retained in accordance with WSDOT retention policy, and then may be archived to a permanent long-term storage sub-System. Violations that are either status paid or considered closed, will be retained for a complete year and then archived; and violations that are considered open will be retained until they are written off. Summarized Transaction, revenue and violation Data will be retained on the BOS production server(s) or in a Data Warehouse for at least ten years so that performance reports can be generated for trend analysis. System logs shall be retained on the System for one month after which they are archived. All other Data shall be retained on the server for six (6) months after which they would be archived or moved to the Data Warehouse, as appropriate. When disk space utilization reaches a configurable high capacity, a message shall be transmitted to the Vendor's MOMS application. Any deletion of Data that has reached its expiration limit or which has been successfully archived should be automatic, without user intervention, and should generate a message to be transmitted to the MOMS.

The Vendor shall develop and submit a comprehensive backup plan for WSDOT review and approval prior to the start of User Acceptance Test. This plan shall address all aspects of the backup, restore and archive strategies and processes including but not limited to:

- Backup and recovery for all BOS application, Database, and/or storage Systems;
- Integration into the Vendor's MOMS application to include descriptions and notifications of the success and/or failure of backup Systems or jobs; and
- Details on Data archiving: disk to disk, disk to media and rotational schedule of media and offsite storage as well as the frequency of Data backup for all servers/Systems.

## 18.12 Performance Requirements

The Vendor will provide a BOS solution that is architected for high availability and System performance. The Vendor shall utilize load balancing to manage Transaction performance. The Vendor shall also enable support for 99.9% availability of the production environment for online inquiry and updates seven (7) days a week; including a defined maintenance window and other scheduled outages approved by the WSDOT. The specific solution performance requirements include:

- Support up to 150 users, including up to 75 concurrent users across all BOS functions (excluding customer website); Vendor must be able to provide WSDOT with documented evidence of the ability of its proposed solution to support these user volumes;
- Support up to 5,000 concurrent users of customer website;
- Provide the capability to fully process a Transaction within the application and Database environments within one second of receipt of the Transaction 90% of the time and all Transactions within five (5) seconds for 75 concurrent users for all BOS System functions (excluding the website);
- Provide the capability to fully process a Transaction within the application and Database environments within one second of receipt of the Transaction 90% of the time and all Transactions within five (5) seconds for 5,000 concurrent users for the customer website;
- Maintain application load time within five (5) seconds. Load time means time to show the application page with information to the application user;
- Maintain application save time within five (5) seconds. Save time means the time to save the new or existing information from the perspective of the application user (the time from hitting save until the browser window refreshes);
- Correctly process and post 99.9% of the Transactions received to the BOS within 24 hours of receiving them;
- Correctly process and post 99.9% of all the interface Datasets in a timely manner as per the interface definitions. This includes all the external and internal interfaces with the BOS;
- Provide Website availability of 99.9% or greater;
- Provide phone and IVR System availability of 99.9% or greater (if WSDOT elects this optional element);
- Support best practice load balancing approaches;

- Provide batch processing that does not adversely impact with on-line responsiveness or availability;
- Support implementation of application controlled parallel batch processing;
- Support user session isolation such that a failure in one session has no impact on other user sessions;
- Support access to Data for pre-defined reports, ad-hoc queries and business intelligence without impacting online Transaction performance;
- Utilize industry leading third party performance monitoring tools for real-time monitoring by administrators of response time, System use and capacity, concurrent users, and System errors;
- Support utilization of industry leading third party performance testing tools with the proposed solution to verify compliance with performance requirements;
- Integrate with DBMS tools which allow the Database administrator or authorized user to tune the System to improve performance;
- Allow user initiated reports and queries to be limited by elapsed time and the number of records retrieved, with limitations to be established through mutual agreement between WSDOT and the Vendor;
- Allow limits to be defined in the System for other types of query functions such as table joins, multiple sorts, etc., with limitations to be established through mutual agreement between WSDOT and the Vendor; and
- Allow for limits to be set on the number of tables to be linked in an ad-hoc query, with limitations to be established through mutual agreement between WSDOT and the Vendor.

### **18.13 Systems and Database Technical Support**

The Vendor will provide qualified Systems and Database management personnel to support the BOS operations as needed on a 24x7 basis to meet performance requirements as defined in Section.18.12 of this RFP. The scope of technical support is inclusive of the Hardware operating System(s), Database(s), application Software, network components, communications equipment, interactive voice response System, peripherals and other equipment provided by the Vendor as part of the BOS configuration. The Vendor shall provide a sufficient level of skilled and experienced staff to simultaneously perform Project System upgrades, handle emergency changes and address operational requests/investigations.

The Vendor's Systems and Database management personnel shall also maintain records of incoming help desk requests as they are received. Upon receiving a request for assistance, the Vendor staff member shall determine the nature of the problem or request and respond appropriately by either addressing the issue or referring it to the Vendor's maintenance staff. When not responding to requests from end users, the Vendor's Systems and Database management personnel shall perform routine duties to ensure that all components of the BOS are in good working order.

## 19.0 Back Office Hosting

### 19.1 General Requirements

The BOS hosting facilities must meet the high standards needed to provide the environment to house the technology elements of the BOS solution to ensure System reliability and provide a high level of service to customers of WSDOT Toll facilities and ferries.

WSDOT requires minimum downtime for the BOS in order for the Customer Service Center operations to run smoothly without any major outage and provide better customer service to WSDOT's customers.

The BOS must provide a real-time disaster recovery System to support seamless operations of Customer Service Center with minimum downtime. This can be achieved by providing redundant Systems both at main and disaster recovery site with near real time synchronization of the Dataset for the seamless transition between main and disaster recovery site.

The BOS architecture will support the continuous availability of the System and applications resource with almost minimal or no downtime. In case of any physical damage to the main site, the disaster recovery site will be operational within four (4) hours with minimal loss of Dataset. The switch from the main hosting site to the disaster recovery site System shall be easily configurable with quick turnaround to support operations. Once the main site is available, the switchback from disaster recovery site to main site should be seamless and easily managed via configuration changes.

The Vendor will make the System procedure available for the System maintenance staff to follow steps in transitioning the main site to disaster recovery site and switching it back when the main site is operational again. The actual disaster recovery process and procedure details will be provided in the Disaster Recovery Plan.

The Vendor will furnish and install a complete Back Office configuration including storage, back-up library, and other Hardware as needed to support the requirements of this RFP at a Back Office location or hosted location approved by WSDOT prior to the execution of the Contract.

The BOS will be operational 24 hours a day, seven (7) days a week, and 365 Calendar Days a year. Therefore, the BOS hosting solution must include redundant power supplies, redundant network connections, and UPS power backup System capable of sustaining equipment for 180 minutes and appropriate generator(s) to meet the performance and availability requirements as described in Section 18.12. Servers should be equipped with sensors to monitor temperature and a mechanism to perform an orderly shutdown when the temperature exceeds a certain user-defined temperature.

The BOS configuration shall include all cabinets and ancillary equipment needed to provide a complete and acceptable BOS that meets the requirements outlined in this RFP. WSDOT requires high availability Systems to reduce time and maximize performance.

The BOS, including all major Hardware elements, shall be of the latest design and shall incorporate standard commercial products currently in production as outlined in Section 18. The Vendor shall use proven server configurations that support future upgrades to processors, memory, storage, operating System, and Database.

The Vendor shall provide a scalable solution that will be able to support the future planned growth of the *Good to Go!* program as outlined in this RFP. It is highly desirable that the BOS and related

peripheral Hardware is supplied from the same manufacturer. The BOS equipment shall have warranty and maintenance support in accordance with the requirements set forth in this RFP.

There are no distance limitations for the hosting site(s). Within 30 Calendar Days of the initial NTP issued under SOW 1, the Vendor shall submit a detailed Back Office Hosting Plan to WSDOT for approval. The Back Office Hosting Plan shall describe how the proposed hosting solution will meet WSDOT's requirements for security, redundancy, availability, capacity and environmental controls. Performance and availability requirements are detailed in Section 18.12.

## 19.2 Back-up or Disaster Recovery Hosting Site

In addition to the "primary" BOS hosting site location, a full back-up or disaster recovery CSC hosting site shall be provided. This backup BOS shall be housed in a different region of the United States from the primary hosting site. This back-up site must be fully capable of acting as the primary production site in the case of an issue affecting the primary site. The facility where the backup BOS hosting site is located shall be equipped with appropriate power and network connectivity and shall meet environmental requirements to fully support the BOS and meet the performance requirements.

## 19.3 Hosting Site Capabilities

The appropriate networking infrastructure shall exist at and within each hosting facility (primary and back-up) to support WSDOT bandwidth and operational requirements for Transaction processing, CSC back office processing, and any interfaces that may be required. Each hosting facility shall contain two (2) wide area network connections from separate local loops and shall be configured with active to near active failover to ensure communication resiliency and uninterrupted service. The backup site must be capable of taking over operations from the primary System within 60 minutes of an outage of the primary hosting facility. The Vendor's design shall ensure that no Data created is lost when a Facility Host is brought back to full operation.

The BOS server configuration shall have redundancy wherein the BOS can be brought online and back into operations within four (4) hours of a server/System failure. The Vendor shall provide disaster recovery procedures, as part of their Disaster Recovery Plan (as further described in Section 30.4.1 of this RFP), that can be implemented to ensure Data security and business continuity during a disaster or other interruption in service. The Vendor's design shall ensure that no Data created in any WSDOT Tolling lanes/facilities is lost in the BOS when the BOS is brought back to full operation.

## 19.4 Communications

Reliable, secure high speed communications between the BOS server(s) and the WSDOT CSC are necessary to support the real-time nature of the System. Therefore, the communications infrastructure between both the primary and back-up BOS hosting locations, the WSDOT CSC, the location of the operational back-office and the Tolling facilities must be designed to provide the necessary bandwidth, redundancy and availability to meet WSDOT's requirements. In addition, communications between the BOS hosting sites and external interfaces (such as the Washington State DOL, and financial institutions) must be accommodated. The Vendor will be responsible for specifying the bandwidth requirements to support communications between BOS hosting locations, WSDOT Toll facilities, the WSDOT CSC and for supporting timely execution of all internal and external interfaces. In addition, the Vendor will be responsible for purchasing,

implementing, terminating and testing the communications equipment required to ensure that performance and availability requirements are met.

In the event that communications are down between the BOS and any WSDOT Toll facility, the BOS shall be capable of re-transmitting files to the lane controllers and/or Toll plaza(s) to bring them up-to-date.

The Vendor shall provide network monitoring Software to monitor the BOS System network status and communications, including the connection to/from the BOS hosting locations, the WSDOT CSC, WSDOT Toll facilities, other WSDOT facilities/Systems and other third party locations/Systems as required. All network alarms shall be reported to and logged in the Maintenance Online Monitoring System (MOMS).

## 19.5 Security

The Vendor will be responsible for the physical security of the BOS hosting facilities and all property within the facilities in accordance with security standards as defined in Section 17. A security access control System shall be utilized that will monitor and record all access to secure locations including, but not limited to, site access and computer room access. Access to computer equipment shall be restricted and only authorized personnel shall be allowed to enter the computer rooms.

Access to all Data stored at the BOS hosting facilities shall be limited to authorized personnel only, including: WSDOT staff, the Vendor and its authorized Subcontractors and the CSC Operator. All Data access shall be password controlled. User access security including sign-on facilities, permission control, and different levels of access shall be provided for the files, directories, and application Software as defined in Section 17.

## 20.0 Project Management

### 20.1 Overview

The Vendor is responsible for providing the overall project management to ensure the timely and satisfactory delivery of the BOS. Unless otherwise indicated, the specifications in this section shall apply to both the initial implementation of the BOS and the ongoing Maintenance and Operations phase.

The startup Deliverables for the BOS shall include the following project management documents, which are due within 30 Calendar Days of the initial NTP under SOW 1.

- Project Management Plan (Section 30.2.3);
- Project Schedule (Section 20.2); and
- Quality Management Plan (Section 30.2.5).

## 20.2 Project Schedule

The Vendor shall develop, submit to WSDOT for approval, and maintain a resource-loaded, Critical Path Method Project Schedule utilizing Microsoft Project. The Project Schedule shall be provided to WSDOT in Microsoft Project format for review. The Project Schedule shall include all tasks and activities required to implement the new BOS from the initial NTP under SOW 1 through the first six (6) months after System Go-Live. The Project Schedule must be developed so as to support meeting the Guaranteed Dates proposed by the Vendor as outlined in Appendix 3: Contract, Article VII: Guarantee Dates. An updated Project Schedule will then be prepared each year during ongoing Operations and Maintenance. The Project Schedule for each year of Operations and Maintenance shall be submitted to WSDOT for review and approval at least 45 Calendar Days prior to the scheduled start date of that year of the Operations and Maintenance phase.

The Project Schedule is defined as the Initial Project Schedule submitted with the Vendor PMP, the Approved Baseline Project Schedule, and the most recently approved revised cost and resource-loaded Project Schedule, which has been updated by the most recently approved monthly schedule update, as applicable. The Project Schedule shall be used by the Vendor and WSDOT for planning and monitoring the progress of the Project.

The Project Schedule shall divide the BOS Project into various Milestones with various tasks and activities within each Milestone, with appropriate logic ties to show the Vendor's overall approach to the planning, scheduling, and execution of the Project. All activities shall be represented by cost and resource-loaded project activities. The duration and logical relationships of the project activities (or summaries at a phase level) shall be based on the actual duration and relationships anticipated.

The Project Schedule shall clearly identify when Deliverables shall be provided to WSDOT for review, the duration of the WSDOT review, comment review meetings, and when the final version of the plans or Deliverables will be provided to WSDOT for approval. WSDOT will require a minimum of ten (10) Business Days for the review of all Deliverables. WSDOT will require at least two (2) rounds of review, draft and final, for each Deliverable prior to approval unless otherwise directed by WSDOT.

No unspecified Milestones, constraints, program float suppression techniques, or use of program activity durations, logic ties, and/or sequences deemed unreasonable by WSDOT, shall be used in the Project Schedule. Each Project Schedule submittal shall clearly and individually define the progression of the Project within the applicable time frame by using separate project activities, including but not limited to:

- All Project components, including management, administration, and quality management activities;
- Project Milestones; and
- Required coordination with all external entities and activities required to be performed by these entities to complete Project tasks.

The Vendor shall use standard and consistent project activity identification numbers and textual descriptions in all Project Schedule submittals in a manner acceptable to WSDOT. Each Project Schedule submittal shall be clearly identified.

All Work shall be undertaken and completed in accordance with the most recent Project Schedule as approved by WSDOT.

### **20.2.1 Initial Project Schedule**

The initial Project Schedule shall be submitted with 30 Calendar Days of the initial NTP under SOW 1 and shall show, in detail, the Vendor's Work activities for the first 90 Calendar Days after the initial NTP under SOW 1, and all remaining phases of the Project shall be represented by phase level summary activities such that they cumulatively indicate all activities required to complete the Project. The Project Schedule shall be updated and provided to WSDOT in soft copy format at least bi-weekly thereafter.

### **20.2.2 Approved Baseline Project Schedule**

The approved baseline Project Schedule shall be submitted prior to any Project phase or Milestones when the Vendor is able to provide appropriate schedule details for project phases and/or Milestones previously submitted as summary level activities only. Once approved by WSDOT, the Vendor will baseline the newly detailed portion of the Project Schedule. Any changes to the approved baseline must be agreed to by WSDOT. Each Project phase or Milestone must be baselined at least ten (10) Calendar Days prior to the start of the Project phase or Milestone.

### **20.2.3 Revised Project Schedule**

As it becomes necessary to modify the Project Schedule to reflect changes to the work sequences or to further subdivide and resource-load the necessary labor, equipment, and materials, the Vendor shall request changes to the Project Schedule by submitting the changes, in writing, to WSDOT for approval pursuant to the approved change control procedures.

## **20.3 Issue Management**

The PMP shall include a description of how the Vendor will work with the WSDOT to identify, discuss and resolve BOS Project issues. The issue management process shall be used to establish a structured means to track issues and to ensure timely resolution of questions and issues. As part of the issue management process, the Vendor shall include details of the escalation process as well as the makeup and use of a Dispute Resolution Board (DRB).

## **20.4 Risk Management**

The PMP shall describe the qualitative risk management process that the Vendor will implement to identify, track and mitigate areas of Project risk. The Vendor shall develop and implement a Risk Register that is maintained on a regular basis. Factors that should be tracked over the course of the Project include, but are not limited to, a detailed description of the events subject to risk, risk response type, as well as their probability of occurrence, high/low/most likely cost impact, min/max/most likely schedule impact, and any risk mitigation strategies for each identified risk. The Risk Register shall be provided to WSDOT for review on at least a bi-weekly basis.

## **20.5 Project Kick-off**

The Vendor shall facilitate a kick-off meeting with WSDOT within ten (10) days after the initial NTP under SOW 1. The Vendor shall develop, in cooperation with WSDOT, a kick-off meeting agenda, which shall include a review of the Project scope, the delivery approach, an overview of

any planned workshops and working sessions, the budget and the Initial Project Schedule. It shall also include identification of any documents or materials that the Vendor needs from WSDOT. The kick-off meeting shall be held at WSDOT's facilities in Seattle unless otherwise directed by WSDOT. The Vendor shall provide meeting notes of the kick-off meeting, summarizing the discussion and any action items, within five (5) Business Days for review and approval by WSDOT.

## **20.6 Workshops and Working Sessions**

The Vendor shall conduct formal workshops and informal working sessions, as needed, with WSDOT and other stakeholders and Subject Matter Experts (SMEs) to gather information, resolve issues, clarify Business Rules, obtain required input for configuring the System and design interfaces or any other System modifications required for the implementation and operation of the BOS.

The Vendor shall provide agendas and supporting material for each workshop and working session. The Vendor shall provide supporting material in advance for all formal workshops and as required for working sessions. WSDOT will work with the Vendor to identify and schedule required participants in the meetings.

At the discretion of the Vendor, the Vendor may opt to organize several separate workshops and working sessions to be conducted in parallel, such as separate sessions for Software, Hardware, communications, etc.

## **20.7 Weekly Status Meetings**

The Vendor shall meet, in person, with WSDOT or its designee weekly during periods when the Project is underway. These meetings will be held to discuss Project progress, identified issues, and planned activity for all phases of the Project. In addition, the weekly status meetings should include agenda items covering quality, risk, and change management. The Vendor and WSDOT will jointly develop the agenda for these meetings.

## **20.8 Agendas and Meeting Notes**

The Vendor shall keep notes of all Project-related meetings and distribute copies of the draft meeting notes to WSDOT participants within two (2) Business Days after the meeting date, and final meeting notes three (3) Business Days after WSDOT has submitted any comments to the draft meeting notes.

The Vendor shall be responsible for the distribution of final WSDOT-approved meeting notes to the attendees and any other interested stakeholders.

At a minimum, all meeting notes shall contain a complete list of attendees (including their affiliations and telephone numbers), descriptions of issues discussed, any decisions made, direction given, remaining open issues and assigned action items (including identification of the party responsible for follow up and the target date for resolution).

Internal meetings between the Vendor's team members as well as any workshops or working sessions are excluded from this Requirement.

## 20.9 Monthly Progress Reports

Commencing in the first full month after issuance of the initial NTP under SOW 1, the Vendor shall submit a monthly progress report for WSDOT's review, and ultimate approval. The monthly progress report shall be based on the Vendor's currently approved baseline Project Schedule with updated percent completes and start and finish dates necessary for executing the remainder of the Project. The Monthly Progress Report shall be submitted within ten (10) Calendar Days of the start of each month for the prior month. The Monthly Progress Report shall be submitted with or prior to the Vendor's invoice for that month and shall support and tie out with any Deliverables being invoiced that month.

The monthly progress reports shall, at a minimum, include the following current BOS Project information:

1. Progress for the current period for all Project activities;
2. Identification of issues, resolution strategy, deadline, and responsible party;
3. Schedule recovery strategies planned for Work that is behind schedule;
4. Deliverables scheduled to be submitted for the forthcoming period; and
5. Sixty-day look-ahead report on all WSDOT reviews and approvals required.

The monthly progress reports shall reflect updated progress to the status date, forecast finish dates for Project activities in progress, and forecast dates for remaining Project activities and should match the associated approved baseline Project Schedule. It shall otherwise contain no changes in Project activity durations, logic ties, or constraints without approval from WSDOT.

An electronic copy of the approved baseline Project Schedule used as a basis for the monthly progress report shall be submitted to WSDOT with the monthly progress report.

WSDOT will review the monthly progress report and current Project Schedule for conformance with the Contract. The Vendor shall correct any deficiencies and resubmit its monthly progress report for approval by WSDOT. WSDOT will withhold Vendor progress payments until the monthly progress reports are approved covering the time payment is being requested.

WSDOT will use these updates to manage its own resources, to be responsive to the Vendor, and to measure the Vendor's performance with respect to its plan for accomplishing the required BOS Project activities.

The monthly progress reports shall cease following Final System Acceptance unless otherwise required by WSDOT.

## 20.10 Deliverable Reviews

WSDOT will review and approve Deliverables required under the Contract. The Vendor shall submit draft Deliverables for comment by WSDOT. WSDOT will require a minimum of ten (10) Business Days to review any draft Deliverable. Specific Deliverable review times for each type of Deliverable will be finalized as part of developing the approved Project Schedule. WSDOT will provide the Vendor with a consolidated set of comments on the Deliverable using an Excel-based comment resolution form. The Vendor shall respond in writing using the same form to all WSDOT comments. A comment resolution meeting may be conducted to clarify and resolve any remaining questions and issues concerning the comments made by WSDOT prior to submitting the revised Deliverable.

Based on WSDOT comments and the results of the comment resolution meeting, the Vendor shall prepare a final version of the Deliverable for WSDOT concurrence that the draft comments were adequately incorporated. New comments will not be made by WSDOT on the final version unless new content is added after the draft version was reviewed. WSDOT may further clarify or request updates to comments previously made and incorporated. WSDOT will require five (5) Business Days to review a final Deliverable.

Once any final comments are addressed, the Vendor shall submit the Deliverable for approval by WSDOT. WSDOT will require three (3) Business Days for approval of any Deliverable.

## 21.0 Quality Management

### 21.1 Quality Management Program

The Vendor shall effectively manage its operation to provide quality services to WSDOT and its Toll customers. Quality shall be inherent in all Work to be performed for WSDOT. The Vendor shall establish both a quality control and quality assurance program and document this program in its Quality Management Plan.

Please note that in addition to the Vendor's quality control and quality assurance program, WSDOT has retained the services of a Quality Assurance Practitioner and an independent verification and validation (IV&V) consultant. The Quality Assurance Practitioner will be responsible for providing an independent assessment of Project status against the approved scope, schedule and budget and monitoring Project risk in accordance with OCIO independent quality assurance standards (<https://ocio.wa.gov/policies/132-project-quality-assurance>). The IV&V consultant will review Project Deliverables and provide an independent assessment of the quality and completeness of the Project Deliverables in terms of the specifications in this RFP and the Vendor's approved Deliverables Expectations Document (DED) for each Deliverable.

The Vendor's quality assurance and quality control program shall be designed to interface with WSDOT's independent Quality Assurance Practitioner and IV&V consultant.

The Vendor shall maintain its own internal quality management staff, so that such individuals have the authority to effect changes in design, development, testing, and/or release management procedures, in the event of any failure to comply with the stated requirements of the Contract.

The Vendor shall designate a Quality Assurance Manager who will be part of the day-to-day Project team and who will be responsible for implementing the quality management program. The Quality Assurance Manager shall be independent of production activities. This Quality Assurance Manager shall have the authority to raise Project issues not being addressed by the Vendor's Project Manager or Project team directly to the Vendor's Senior Project Executive and/or the Vendor's Quality Assurance Executive. The Quality Assurance Manager shall not be absent from the Project team during implementation for more than ten (10) business days without an alternate Quality Assurance Manager being designated to perform the assigned responsibilities during the absence of the primary Quality Assurance Manager.

The Vendor may use subcontracted services for the quality management role. The quality management of the Project shall ensure that the Project is completed in accordance with the requirements of the Contract, and it shall confirm that the Vendor is achieving the obligations and commitments stated in its response.

All Deliverables should be peer reviewed by another team member and then reviewed by the appropriate Vendor SME or the Vendor's Project Manager prior to submission to WSDOT as a draft Deliverable as part of the Vendor's quality control process.

The Vendor shall implement a process for conducting periodic formal quality assurance reviews of Project performance against scope, schedule and budget. These quality assurance reviews shall be conducted at appropriate Project stage/gates as identified in the Vendor's Project Schedule (for example at the mid-point of each phase of the Project and then 60 Calendar Days prior to each planned Go-Live). The Vendor's Quality Assurance Executive who should not otherwise be involved in the delivery of the Project, and shall be independent in terms of reporting relationship from the Vendor's Project Manager and the Vendor senior executive responsible for project delivery shall conduct these quality assurance reviews. The Vendor's Quality Assurance Executive will coordinate with the WSDOT Project Manager and the WSDOT Quality Assurance Practitioner in terms of conducting these reviews and reporting to WSDOT management on the results.

Within 30 Calendar Days of the initial NTP under SOW 1, the Vendor shall prepare, submit to WSDOT for approval, and adhere to a Quality Management Plan that will guide the implementation of the Vendor's quality program throughout the life of the Project. The Quality Management Plan will include at a minimum the elements outlined in Section 30.2.5.

## **21.2 Partnering Program**

### **21.2.1 General Requirements**

WSDOT and the Vendor shall use partnering principles on this Project implemented through a formal partnering program between both parties. In addition, the Vendor and the CSC Operator shall implement a formal partnering program independent of WSDOT, but in coordination with WSDOT. Partnering principles benefit all parties both as part of project management during the design and implementation period, and throughout the operations and maintenance period.

The Vendor, in conjunction with WSDOT, shall establish and continually manage a Partnering Program that promotes a mutually beneficial relationship between the Vendor and WSDOT. The Vendor shall collaborate with the CSC Operator and shall establish a Partnering Program between the Vendor and CSC Operator. The Vendor, in conjunction with the CSC Operator, shall establish and continually manage a Partnering Program that promotes a mutually beneficial relationship between the Vendor, CSC Operator, and WSDOT (as needed).

### **21.2.2 Partnering Between Vendor and WSDOT**

The Vendor shall prepare a Partnering Plan within ten (10) Calendar Days of the initial NTP under SOW 1. The Partnering Plan shall include a schedule for ongoing meetings, issue resolution tracking, partnering ratings, etc. The Partnering Plan shall address the Partnering Program between the Vendor and WSDOT.

The Partnering Program shall include an Initial Partnering Workshop, which is a one (1) day facilitated workshop scheduled by the Vendor in cooperation with WSDOT. The Vendor shall provide at their expense an independent, third party facilitator. The Vendor shall develop a plan for and schedule an Initial Partnering Workshop between WSDOT and the Vendor within 20 Calendar Days after the initial NTP under SOW 1.

The Vendor shall develop the content of the Initial Partnering Workshops in cooperation with WSDOT. Attendees shall include all key WSDOT staff, WSDOT General Toll Consultant staff, Vendor Key Personnel and representatives from any major Subcontractors scheduled to work on the Project.

The Vendor and WSDOT shall have another Partnering Workshop at the start of the Operations and Maintenance phase. The intent of this approach is to the “restart” the Partnering Program at the beginning of the Operations and Maintenance period because of the anticipated turnover in Vendor and WSDOT staff at this major demarcation point in the Project.

### **21.2.3 Partnering between Vendor and CSC Operator**

The Vendor shall update the Partnering Plan upon award of the CSC Operator Contract to address the Partnering Program between the Vendor and the CSC Operator. The Vendors Partnering Plan shall include a schedule for ongoing meetings, issue resolution tracking, partnering ratings, etc. The Partnering Plan shall be presented to WSDOT for review and approval.

The Vendors Partnering Program shall include an Initial Partnering Workshop, which is a one day facilitated workshop scheduled by the Vendor and the CSC Operator jointly in cooperation with WSDOT. The Vendor shall provide at their expense an independent, third party facilitator. The Vendor in collaboration with the CSC Operator shall develop a plan for and schedule the Initial Partnering Workshop between the Vendor, the CSC Operator and WSDOT. The workshop will be conducted within four (4) weeks after Contract award and the initial NTP for the CSC Operator.

The Vendor and the CSC Operator shall jointly develop the content of the Initial Partnering Workshop. Attendees shall include all key staff from WSDOT, WSDOT’s General Toll Consultant, the Vendor and the CSC Operator, as well as, representatives from any major Subcontractors scheduled to work on the Project. The Vendor, the CSC Operator or WSDOT may recommend additional participants.

All costs of providing the Initial Partnering Workshop (and any necessary follow-up workshops) shall be shared equally between the Vendor and CSC Operator.

Prior to finalizing the location, date and time, the Vendor shall confirm with WSDOT that the location, date, and time are acceptable. The location shall be a place off WSDOT property but within the Seattle metropolitan area, suitable for the workshop. Prior to the Vendor making any commitment, WSDOT shall either affirm the location, date, and time, or suggest alternatives for the Vendor to follow-up on.

In addition to the Initial Vendors Partnering workshop, the Vendor shall provide the CSC Operator with a demonstration of the BOS application to provide the CSC Operator’s key personnel with an introduction to the planned BOS application (refer to Section 22.13).

The Vendor, the CSC Operator and WSDOT shall have another Partnering Workshop at the start of the Operations and Maintenance phase. The intent of this approach is the “restart” the Partnering Program at the beginning of the Operations and Maintenance period because of the anticipated turnover in Vendor and WSDOT staff at this major demarcation point in the Project.

## 22.0 Organizational Change Management

### 22.1 Organizational Change Management Overview

The BOS Project will bring significant change to the way WSDOT and its CSC Operator will conduct its operational back office and commercial back office processes. These changes will only be as effective as WSDOT's and its CSC Operator's ability to adopt them. These changes must be carefully managed and delivered to System users at all levels; to realize the planned Project benefits.

The Vendor will be required to plan, design, deliver and implement an organizational change management (OCM) program, lead OCM functions and deliver the OCM needs of WSDOT both during the implementation Project and during the on-going Systems operations period. Vendor responsibilities will include, but not be limited to, the development and management of a communication plan and its components, identifying and tracking user readiness, assessing needs, developing and delivering training, and supporting initial System usage and fostering institutionalization of the new System(s). The Vendor must guide the effort and provide resources to sustain the changes introduced with the Project.

### 22.2 OCM Requirements

The OCM delivery must include experienced organizational change management practitioners on the ground from kickoff through post-implementation, to help inform WSDOT end-users and the CSC Operator of the coming changes associated with the System, and subsequently gain end-user buy-in and adoption around the changes, and finally to ensure that users are prepared, trained and practiced on the use of the new BOS. Therefore, WSDOT requires that formalized OCM activities be conducted throughout the Project lifecycle. These activities must begin early and continue throughout the Project.

The Vendor will maintain an OCM approach that is geared to WSDOT staff and supervisors who oversee the operational back office and commercial back office processes, and the CSC Operator which staff the operational back office and commercial back office processes. In addition, OCM activities will need to address any changes that the BOS Project will have in terms of impacts on external stakeholders who utilize the Systems including Tolling customers, who are familiar for example with the current *Good to Go!* website. While aspects of the change approach may be customized for each impacted stakeholder, the overall approach will be a comprehensive one that will include readiness assessment, communication, and training activities.

At a minimum, the Vendor will plan, design, deliver and implement an OCM program that is intended to ensure that:

- Users are ready for the change;
- Users can adapt to the impending changes;
- Users acquire the knowledge and skills to be productive at Go-Live and after Go-Live;
- Users understand and accept any process changes;
- Users are prepared to do business in the new application environment;
- WSDOT and the CSC Operator adopts the changes into its business model; and

- The overall WSDOT business model is compatible with and leverages existing WSDOT processes.

## 22.3 Change Management Team

The Vendor will be required to assist WSDOT with creation and establishment of a change management team and jointly staff this team with experienced staff members who will bring best practices to the BOS Project's change management plans and products. The Vendor's Change Management Team staffing will include a Change Management Lead who will be a consistent presence on the Project throughout the life of the Project (may be part-time but shall be staffed in the Change Management Lead role on a regular basis for the duration of the Project), and staff who will perform functions as required in the role of Enterprise Readiness Lead, Communications Lead, and Training Lead; as these roles are required during the execution of the Project and the Change Management Plan. Staff serving as Enterprise Readiness Lead, Communications Lead, and Training Lead may also be part-time but the staffing of these positions shall remain consistent throughout the duration of the Project, or for the part of the Project for which the role is required.

## 22.4 OCM Sizing Considerations

Table 9 provides a summary of the operational considerations for scoping, sizing and planning the overall OCM effort and training the WSDOT and CSC Operator staff. The individual counts among the OBOS and CBOS are unique individuals. These individuals are double counted in terms of the IVR and Other categories. The Vendor shall ensure that it provides sufficient licenses for all components of the BOS application to support the number of System users identified in Table 9.

Function	Anticipated Staffing Levels
<b>CSC Operator</b>	
CSC Primary Call Center	<ul style="list-style-type: none"> <li>• 72 call center representatives</li> <li>• 12 lead representatives</li> <li>• 6 supervisory representatives</li> <li>• 15 back office representatives</li> <li>• 10 Transponder clerks</li> <li>• 25 image review clerks</li> <li>• 5 accounting clerks</li> <li>• 6 managers</li> <li>• 2 administrative assistants</li> </ul>
Staff per Walk-in Centers – Total of Four (4) Centers	Two (2) managers Four (4) CSR representatives
<b>WSDOT</b>	
WSDOT Toll Division Headquarters	22 WSDOT staff or WSDOT Contractors Three (3) Administrative law judges
Other WSDOT Divisions	15 additional WSDOT staff or WSDOT Contractors

**Table 9: Estimated User Counts by Function**

## 22.5 Change Management Planning Requirements

The Vendor will develop a BOS Project Organizational Change Management Plan that includes, at a minimum, the following components as more thoroughly described in this section:

- Communications;
- Readiness;
- Training; and
- Pre- and post-go-live support.

The Vendor will develop and initiate the Organizational Change Management Plan within 90 Calendar Days of the initial NTP under SOW 1 and, with the approval of WSDOT, will revise the plan, as necessary, at the beginning of Phase 2 and at the start of each Milestone within Phase 1 and Phase 2 if required. This approach will ensure agreement on the Organizational Change Management Plan as soon as possible as the Project moves into the next phase.

## 22.6 Change Management Communications Requirements

The level of visibility and attention that the BOS Project receives is anticipated to increase substantially as it progresses through the project phases. Expectation management is essential to help ensure that the various WSDOT and CSC Operator user constituencies are prepared for and understand go-live capabilities and the timeline for future improvements.

The Vendor shall:

- Create, maintain and update a BOS Project Communication Plan for the approval of WSDOT and facilitate any meetings necessary to keep the communications plan up-to-date;
- Be responsible for the creation of communication materials with content approved by WSDOT;
- Create presentations and materials for the use of WSDOT in meetings with agency leaders and staff members and agency stakeholders;
- Define a strategy for communicating with the CSC Operator and the CSC Operator staff about BOS implementation activities and then continue this communication program during Operations and Maintenance with a focus on planned enhancements and other System-related activities;
- Develop messages to help key staff, sponsors and supporters influence behaviors and alignment throughout the organizational groups affected by the Project;
- Support specific communication activities, workshops, and employee forums to build awareness and create support for the Project;
- Help communicate to all Project participants an up-to-date view of the status, progress, objectives and success criteria for the overall Project;
- Attend meetings as required by WSDOT;
- When necessary, create communications to prepare WSDOT stakeholders who will be affected by the Project;

- Create communications that lead to the preparation of impacted outside groups and third-parties who will be affected in the way they operate due to the Project;
- Create targeted communications and awareness aids to facilitate activities identified to effectively manage changes associated with the implementation;
- Provide insight into success stories and highlight Milestones achieved coinciding with go-live and early experiences with the Project's implementation;
- Develop and execute a communications approach and plan for Post Go-Live stakeholder communication; and
- As necessary, support WSDOT with necessary content to be used by WSDOT in developing marketing materials and global communications.

Although media relations are the responsibility of WSDOT, the Vendor shall participate in media interviews or other media information support activities at WSDOT's request. When participating in media inquiries and interviews, the Vendor shall provide timely information that complies with WSDOT messaging and other standards, including requirements for advance Project information, Project progress and accountability, and timely response to media inquiries.

The Vendor shall coordinate all media requests with WSDOT prior to interviews. WSDOT will be the primary media spokesperson. The Vendor shall provide WSDOT with information and access to key Project staff for media interviews, as requested.

At WSDOT's request, the Vendor shall conduct tours of the BOS Project site for media, local or state government officials, or WSDOT management. The Vendor shall provide information and materials that meet local broadcast, electronic, and print media requirements and deadlines. The WSDOT Project Manager must review and approve all information prior to release to the news media.

## **22.7 Readiness for Change Assessment Requirements**

At least 60 Calendar Days prior to each scheduled System Go-Live date, the Vendor will develop and implement a Readiness Plan. Readiness for the BOS Project has four (4) major components: readiness to support CSC operations; readiness to support WSDOT management and oversight functions; readiness of any external stakeholders (other State agencies and third parties); and readiness of WSDOT Tolling customers.

The Readiness Plan will:

- Provide best practices related to change management in achieving the goals and executing the activities described herein;
- Provide subject matter expertise, including but not limited to examples of similar experiences and efforts, key success factors to these experiences, and risk mitigation strategies;
- Provide tools and templates to expedite and facilitate the efforts;
- Ensure the successful rollout of the BOS;
- Propose the appropriate team to support WSDOT and CSC Operator readiness as part of initial implementation and any subsequent deployment phase(s); and
- Assess the WSDOT staff's and CSC Operator's staff's readiness to operate the System and associated processes.

## 22.8 Change Gap Analysis Requirements

The Vendor will collaborate with WSDOT to:

- Evaluate and recommend any necessary updates to policies, procedures, forms, manuals and existing communications, including updates to the WSDOT internal and external web sites;
- Communicate changes to end-user functions;
- Identify any changes to business processes because of the transition to the new BOS;
- Identify any affected WSDOT staff positions/roles and provide recommendations to WSDOT in terms of any workforce implications;
- Make recommendations to WSDOT in terms of re-engineering the retained business processes based on Vendor best-practices as appropriate to meet the Business Requirements; and
- As appropriate, propose new organization design based on Vendor best-practices to meet the Business Requirements.

## 22.9 WSDOT Project Staff Change Requirements

As part of this requirement, the Vendor will support WSDOT staff to:

- Identify any impacts to WSDOT functions and CSC Operator functions which may be impacted by any agreed to Project phasing, if any;
- Identify WSDOT and CSC Operator staff readiness tasks that will need to be completed prior to Go-Live and develop a plan for rolling out and managing those tasks; and
- Provide advisory support and guidance to assist WSDOT staff and CSC Operator staff in successfully completing any required readiness tasks.

## 22.10 External Stakeholder Readiness for Change Requirements

As part of this activity area, the Vendor will support WSDOT to prepare external stakeholders including the CSC Operator for Go-Live including:

- Identify stakeholders affected by any agreed to Project phasing;
- Identify stakeholder readiness tasks that will need to be completed prior to Go-live and develop a plan for rolling out and managing those tasks;
- Provide advisory support and guidance to WSDOT staff in leading and supporting WSDOT's external stakeholders in successfully completing required readiness tasks.

## 22.11 Training Design, Delivery and Support Requirements

The Vendor will be responsible for designing and developing training for all elements of their BOS application solution. Training for the BOS Project is comprised of three (3) distinct training efforts: training for WSDOT staff members, managers and supervisors who use and oversee the Systems; training for CSC Operator staff, managers and supervisors who utilize the BOS to

perform CSC functions; and training for other WSDOT stakeholders and external stakeholders who may be impacted by the Project. These three (3) training efforts are collectively divided into six (6) key delivery areas that are further described in the subsections below:

- Initial WSDOT Core Team Training on the BOS components;
- System demonstration for CSC Operator;
- Training Development;
- Training Delivery;
- Training Logistics;
- Training Environments;
- Training Data Sets; and
- Post-Training Responsibilities.

### **22.12 Initial WSDOT Core Team Training on BOS Components**

The Vendor will provide, as part of the start of the System Design phase, training to the WSDOT core Project team (including WSDOT staff, designated WSDOT General Toll Consultant staff and depending on timing of selection CSC Operator staff) on the elements of the Vendor's BOS solution. This core team training will include hands-on training on any off-the-shelf or pre-built components of the solution. The goal of this training will be to educate the WSDOT core Project team on the capabilities and functionality available within the BOS to enable the WSDOT team members to be valuable contributors to all subsequent Project activities.

The Vendor will develop a proposed agenda and schedule for these training sessions within 15 Calendar Days of the initial NTP under SOW 1 and will submit this agenda to WSDOT for review and approval.

### **22.13 System Demonstration for CSC Operator**

Within 30 Calendar Days of NTP being issued to the CSC Operator (to be procured and Contracted for through a separate procurement), the Vendor shall coordinate with the CSC Operator to provide a demonstration of the Vendor's BOS application. Assuming no prior experience with the Vendor's BOS solution, this demonstration will serve to baseline the CSC Operator's understanding of the new BOS application and help prepare key CSC Operator staff to participate in various Project activities.

### **22.14 Establish Training Development Needs**

The Vendor will develop the following training work products:

- The Vendor will research and produce for WSDOT review and approval a Training Needs Analysis for each target audience affected by the Project. The analysis will highlight the business processes that are changing, identify Systems capabilities / functionalities that the target audience will need to be trained on, establish who will be affected by the change, and identify the desired level of knowledge / skills expected after the training;

- The Vendor will develop and then execute following WSDOT approval a Training Strategy that includes the approach that will be taken to develop the training materials along with the timing required for development, resources needed and dependencies / considerations including but not limited to the items and Deliverables that follow, and results in the production of training materials to meet the needs identified in the Training Needs Analysis;
- The Vendor will deliver for WSDOT review and approval a comprehensive training approach and detailed timeline including the following items and Deliverables at least nine (9) months prior to the Go-Live date that includes the following Deliverables:
  - Training approach;
  - Curriculum design;
  - Annotated outlines;
  - Course designs; and
  - Plans for comprehensive training pilot;
- The comprehensive training approach will be constructed in a manner to:
  - Outline the Vendor’s governing principles and methodology for instructional design, including the methodology for determining training course delivery method(s) as well as selecting training development tools and Software;
  - Include the templates and style guides that will be utilized for training material development and the methodology for conducting task-to-role-to-course mapping;
  - Develop curriculum designs including a course listing with course descriptions and the rationalization for the division of materials between courses;
  - Develop estimates for course length and timing and a task-to-course mapping; and
  - Create an annotated outline for each course, including designs for hands-on exercises, scenarios, and role-to-course mapping;
- Lead a comprehensive training pilot including a complete walk-through of each training course (once per course) for WSDOT and key CSC Operator staff. This pilot will serve as a dress rehearsal to verify all significant training issues have been identified and resolved prior to this point. The pilot must be conducted early enough in the timeline to allow the full integration of WSDOT feedback;
- Conduct the train-the-trainer sessions to prepare WSDOT and CSC Operator staff to teach each training course;
- Develop training courseware, including job aids, roles and responsibilities, common error identification and remediation, and other operational functions as required to support the Project;
- Develop scenarios within the Vendor’s proposed solution that are “real life” and applicable to WSDOT and CSC Operator staff employees to support training;
- Build the necessary understanding of the needs and requirements of the end-user populations;

- Develop end-to-end process training materials identified in the Training Needs Analysis for all processes within the scope of the Project, including those that impact WSDOT and CSC Operator users including case study examples and hands-on exercises using WSDOT Data;
- Develop training materials to support the successful transition of existing and new WSDOT employees, and CSC Operator employees into the new BOS and all communications and training materials necessary to enable these users including:
  - Formal training materials for WSDOT and CSC Operator end-users which must include all types of training detailed in the Training Needs Analysis Deliverable and may include materials for instructor led training courses, web-based trainings (WBTs), and job aides;
  - General guides containing FAQ, one-page “how to” and help pages for the WSDOT CSC website on utilizing the new System for required functions; and
  - Targeted presentations that highlight specific required support processes, workflows, job aids and updates arising from the System implementation;
- Identify the required performance skills and any prerequisites necessary to utilize and understand the training and develop any training materials necessary to address skill gaps;
- Design and build training exercises to allow trainees to apply what they have learned;
- Provide draft materials to WSDOT with sufficient lead time prior to the conduct of the training pilots in order to provide WSDOT at least 20 Calendar Days for review and then time for the Vendor to incorporate WSDOT’s comments and other feedback;
- Revise training materials based on early experiences and feedback from training delivery personnel to enhance and streamline ongoing training materials;
- Maintain all training materials and update if required based on System enhancements during on-going operations; and
- Establish and follow procedures for ensuring that the training materials posted to the WSDOT web site are accurate and up-to-date.

## 22.15 Support Training Delivery

WSDOT and the CSC Operator will have primary responsibility for training delivery using a Train-the-Trainer Model. WSDOT and/or the CSC Operator will have responsibility for arranging for training facilities, scheduling training classes and managing/tracking training enrollment and completion.

The Vendor will assist and support WSDOT and the CSC Operator in training delivery for the BOS Project. As part of this activity area, the Vendor will:

- Provide an end-user training program that is scalable to the number and frequency of users and processes to be supported by the BOS solution;
- Design training reviews for end-user training and implement a method for evaluating the effectiveness of training that accurately measures whether real learning has occurred and how it can be demonstrated;

- Establish a plan for tracking and reporting on training attendance and effectiveness measures;
- Develop an approach for delivering daily communication with WSDOT or CSC Operator trainers on any training updates;
- Develop an approach and plan for end-user support after they have attended training but before go-live;
- Establish a plan to manage the escalation of questions from training sessions and the communication of answers back out to trainers; and
- Develop an approach and plan for communicating with and training WSDOT and CSC Operator staff on the implemented modules and new business processes.

## 22.16 Design, Implement and Manage Training Environments

The Vendor will design, implement and manage training environments sufficient to support the overall training effort required under this Contract. Training environments shall be established during the Project and maintained during Operations and Maintenance. The Vendor shall:

- Propose training environment solutions (including Hardware requirements) deemed most appropriate to meet the environment needs outlined above, assuming a six-month duration for training per Go-Live;
- Provision with instructor and student workstations and network connectivity two (2) training rooms provided by WSDOT for training delivery capable of instruction for 15 students per training room;
- Provide at least three (3) training environments: one environment for training development, one environment for training delivery, and one practice environment;
- Ensure that the training environments are established and in line with the various applicable requirements and objectives outlined in this RFP;
- Ensure that training environments are operationally in line with the Training Strategy;
- Ensure support by the technical team for the training environments during training development and delivery, including executing backups and refreshes as necessary;
- Establish and maintain all necessary user IDs and passwords;
- Create and execute approach for managing migrations during the training development and delivery period; and
- Perform a complete code sync after each wave of end-user training is completed.

## 22.17 Establish and Manage Training Data Sets Requirements

It is the Vendor's responsibility to establish and maintain Data sets within each environment that are sufficient to support the training development and delivery requirements outlined herein. As part of this activity the Vendor will:

- Document Data set organization, integration across modules, location of source information, and any other information required to understand how Data sets were built; and

- Comply with all appropriate Data sub-setting and masking requirements as directed by WSDOT.

## 22.18 Post-Training – Vendor Responsibilities

After the final phase of end-user training is completed, the Vendor will:

- Revise all training materials in a final form to the satisfaction of WSDOT, providing revisions do not alter the approved training design;
- Transition the materials to on-going operations status where Vendor will continue to maintain and update the materials as appropriate to reflect any System upgrades or enhancements;
- Establish procedures and documentation for ensuring that the training team is informed of all updates to production after go-live and the training environments are included on the relevant migration paths;
- Merge the Data within the existing training environments with the Data in the Project training environments; and
- Facilitate a post-training analysis to gather and document lessons learned and update communication and training plans accordingly.

## 22.19 User Post Go-Live Support Requirements

Following training sessions, the Vendor will make available the content developed for courses to WSDOT and the CSC Operator for electronic access, allowing end-users to use the materials for performance support after the System is live.

The Vendor will create a Post Go-Live Support Plan and obtain WSDOT approval of this plan no later than 60 Calendar Days before the first scheduled Go-Live date. The Post Go-Live Support Plan shall:

- Identify the tasks and roles required to support the application during the "go-live" and post "go-live" periods;
- Outline the escalation process, prioritization and issue resolution;
- Identify people who will be assigned to the support roles, and where they are located;
- Set expectations for people who perform the support roles; and
- Appoint a contact person that the key WSDOT and CSC Operator users must consult when escalating issues.

The Post-Go-Live Support Plan will identify the series of tasks to be performed in the appropriate sequence to ensure production readiness and support WSDOT and the CSC Operator in post-go live issues. This plan will include the following:

- The approach for business continuity during and after BOS cutover;
- The Vendor's plan to manage each implementation (if phased);

- Plan to execute required Data conversions or migrations including, but not limited to, baseline configuration tables and parameters, and ancillary supporting Data as required by the System to function successfully in the production environment;
- Conduct production pilot(s) (including “day in the life” simulations) and fine tune solution as agreed appropriate;
- Compile and maintain solution issue lists;
- End to end final validation of the operational architecture for each solution area; and
- Conduct quality and progress reviews with appropriate WSDOT personnel.

## 23.0 Data Migration from RITE System

### 23.1 Overview

The Vendor will provide full and complete migration of Data from the existing Tolling BOS (Electronic Transaction Consultants Corporation’s RITE System) and its various component parts to the new BOS. Full and complete migration means all Data, including but not limited to:

- Account Dataset;
- Financial Dataset;
- Toll Transactions and Trips Dataset including in-process (unbilled) Transactions;
- Toll bills, NOCPs and other customer notices/notifications;
- Transponder inventory;
- All archived Datasets; and
- Other Datasets as determined during Data conversion planning.

The current BOS Data is fully owned by WSDOT and can be migrated to the new BOS. In terms of planning for Data migration, relevant metrics as of November 2016 include:

- Customer accounts = 700,000;
- Active passes = 1.2 million; and
- Estimated annual Transaction volume = 4.2 million Transactions per month, or approximately 50 million Transactions per year.

Completion of all Data migration will mean that all Data targeted for migration has been successfully transferred to the new System, has succeeded in all validation requirements, and is being processed by the new System without fault, failure, or discrepancy. The Vendor will provide a Data Migration Plan document as a first step towards Data migration that will highlight the details and plan for the legacy Data to be migrated.

The current WSDOT BOS provider will be retained by WSDOT to provide Data migration support needed to transition legacy Datasets to the new BOS. The Vendor needs to coordinate with the existing Vendor directly under WSDOT supervision to complete the Data migration in a timely manner as per the agreed to Project implementation schedule.

During design, development and implementation of the new BOS, the Vendor shall seek to limit to the extent possible any changes to the existing BOS application required to support Data extract/Data migration from the existing System. The Vendor's approach to migrating Data and operations to the new BOS shall have as an objective to be as seamless to the WSDOT Tolling customer as possible and to have minimal impact on WSDOT's roadside Toll System providers.

## 23.2 Data Migration Plan

The Data Migration Plan for the new BOS will provide a detailed and comprehensive approach to completing the Data migration process starting from initial analysis and design activities to final Data validation and live System processing and operations. The Data Migration Plan will also define the Datasets to be migrated from the legacy System and how it will be used in the new System.

The Data Migration Plan shall include but not be limited to:

- Overview of the Project, a high-level description of the target System, and the impact of the migration to the success of the Project;
- A clearly defined scope of efforts including expectations, assumptions, resource needs (internal and external), objectives, and production results;
- Definition of Data to be migrated;
- The criteria for deeming migration successful. This will include elements such as testing, validation, and that all migrated Data fully complies and supports the target System's functionality;
- Internal controls associated with the migration process (these controls shall be reviewed and approval by WSDOT Accounting, WSDOT Internal Audit and, at WSDOT's option, its external auditor);
- Areas and aspects which are deemed out of scope or not necessary as part of the Data migration process;
- Identification of any potential risk factors and or mitigation efforts in achieving successful migration as per the success criteria;
- Data migration schedule; and
- Data migration management and delivery details as follows:
  - Data migration team,
  - Data migration approach,
  - Data migration required Deliverables,
  - Data migration tasks including:
    - Requirement analysis,
    - Specifications development,
    - Development and unit testing,
    - Migration testing and validation, and
    - Actual migration implementation.

The following sub-sections provide further expectation on the Data migration management and delivery.

### **23.3 Data Migration Team**

The Vendor will identify the key personnel in the Data Migration Plan that will be part of the Data migration effort. The following roles will be fulfilled by Data migration team personnel at a minimum:

- Business requirements and Data analyst;
- Migration architect;
- Migration manager;
- Migration developer;
- Systems engineer;
- Quality Assurance Manager; and
- Release manager.

The Vendor may satisfy multiple roles utilizing a single person; however, it must be clearly represented that there is no conflict in responsibility.

In addition to the Vendor roles, the plan shall also define the expected roles, personnel, or staff required from the legacy System provider and WSDOT, including the expected time commitments anticipated over the life of the Data migration efforts for planning purposes.

### **23.4 Data Migration Approach**

The Vendor will provide a narrative approach to represent how the migration team will complete the Data migration project. This narrative will explain, in detail, the various steps, including methodology, standards, and processes required to deliver a successful Data migration.

Comprehensive Data quality analysis and profiling will be performed in the legacy System to fully gauge the level of Data cleansing and transformation that will be required to affect a solid, high-quality migration. The approach will also contain a detailed timeline of each event or task required to complete the Data migration including any dependencies (both internal and external) that may affect progress.

### **23.5 Data Migration Required Deliverables**

The Data Migration Plan will also identify and define any Deliverables that are needed as part of the Data migration effort. These may include such items as:

- Data profiling analysis;
- Data migration design requirements;
- Data mapping and transformation specifications;
- Data validation plan;
- Data migration test plan and procedures; and

- Risk assessment matrix.

## 23.6 Data Migration Tasks

This subsection outlines required Data migration tasks.

### 23.6.1 Requirements Analysis

The Vendor will conduct a requirements analysis as part of the delivery process. The requirements analysis will require a full snapshot of current legacy Data. The Vendor will work with the legacy System provider to get a copy of the legacy Data in a dedicated separate environment away from the existing production environment for independent analysis.

As part of the requirements analysis effort, the following elements will be identified and finalized:

- Obtain an understanding of the legacy Data structure and Data dictionary;
- Identify Data sets to be migrated;
- Identify Data elements needed for migration with exceptions;
- Identify gaps and transformations to meet new Business Rules and policies;
- Identify Data quality issues that may impact migration or functionality in the target System; and
- Identify interface needs and potential impacts.

### 23.6.2 Specifications Development

Based on the requirements analysis, the Vendor will develop detailed specifications for executing the Data migration process. The following items should be part of the specification development at a minimum:

- Specifications mapping:
  - Identify which legacy Data to migrate,
  - Map legacy Data to target System tables and columns,
  - Identify subsidiary ledgers with financial Data,
  - Map the chart of accounts from legacy System to new System,
  - Define of all Data transformations to support the mapping requirements, especially with respect to domain sets, and
  - Identify all Data quality improvements to support target System functionality;
- Any new BOS System configuration requirements;
- Identification of Data elements, which may not be migrated;
- Transponder inventory migration;
- Conversion/migration internal controls;
- Identification of potential security impacts; and

- Approaches for protecting personally identifiable information (PII).

### 23.6.3 Development and Unit Testing

The Vendor will use the snapshot of the legacy Database to develop and unit test the migration processes. The Vendor will perform the migration efforts in accordance with the standard process of Extract, Transform, and Load (ETL). All Data migration processes will be based upon automated ETL processing or repeatable executable scripts. None of the processes will use ad hoc scripts or direct updates. Both the legacy and new System environments will also be isolated from any application development or testing to ensure the integrity of the Data, test results, and processes.

Once unit testing and development are completed, the Vendor will certify that the test procedures used are sufficient for formal migration and validation. The Vendor will also identify any discrepancies and will fix the test procedures accordingly if necessary. Legacy and BOS reports and BOS application screenshots will be provided by the Vendor to certify the unit test and will be reviewed and approved by WSDOT before the formal migration validation occurs.

### 23.6.4 Migration Testing and Validation

Once the Vendor has certified the unit test, WSDOT has reviewed and approved the results, a formal migration testing, and validation phase will begin for Data migration. The formal migration testing and validation will have the following tests:

- Trial Migration Test; and
- Full Migration Test.

The intent of the Trial Migration Test will be to identify any anomalies, inconsistencies, or other problems with the adequacy of the Data migration and test procedures. Trial Migration testing will be performed using a subset of Data from legacy Database as provided by and agreed to with the current CSC Vendor, but with validation focusing on a predetermined subset of Data for efficient detail comparison. In the event of any script or test procedure issues, the Vendor shall address these items and retest.

Once Trial Migration testing has been performed successfully as determined by WSDOT, the Vendor will then begin Full Migration testing. Under this test, the same full legacy Database snapshot will be used as with the Trial Migration Test. A key objective of this test will be observing and recording the speed of execution, exercising the complete set of validation tasks, and identifying any remaining debugging efforts. The Full Migration Test will also be reviewed by WSDOT Accounting, WSDOT Internal Audit and, at WSDOT's options, its external auditors to validate the financial controls within the migration process.

### 23.6.5 Actual Production Data Migration

Once the formal testing is successfully completed, the Vendor will plan for the actual migration to the production environment. The actual migration will have the following steps:

- Full Data migration at a point prior to Go-Live agreed to with WSDOT in the approved Data Migration Plan; and
- Incremental Data migration from the point of full Data migration until Go-Live (may have more than one incremental Data migration based on the Project timeline).

The Vendor will provide a checklist and use it to Systematically verify that each identified task is ready for migration. The Vendor will list, document and track all the issues if any encountered during the actual migration. Once the migration is complete, the Vendor will work on resolving the issue found during the actual migration. If any major issue is identified, the Vendor will immediately report the issue to WSDOT. The Vendor, in consultation with WSDOT and the current CSC Systems provider and with the approval of WSDOT, may stop the Data migration cycle pending resolution of the issue. Once the issue is resolved the Vendor may start the Data migration effort again.

## **23.7 Other System Migration Considerations**

The current System is a hosted solution that is managed and maintained by the current vendor including the existing Customer Service Center (CSC) locations and staff. The Vendor will be responsible for migration of all the existing BOS Dataset(s) while working to achieve a smooth and seamless transition of CSC operations for WSDOT *Good To Go!* customers.

The Vendor will work with WSDOT and the existing Vendor to migrate the System Datasets and will provide a detailed migration plan for WSDOT review and approval.

All of the current CSC BOS including servers, workstations and other infrastructure such as the IVR System, mailing Systems, printers, security Systems, communication equipment and other peripherals used at the current customer service (CSC) center locations are provided by the current Vendor.

The new Vendor shall provide a System transition plan for the System implementation. The System transition shall have minimal impact on the existing *Good to Go!* accounts customer service operations.

## **24.0 Testing Program**

### **24.1 Introduction**

The requirements described in this section detail the testing of the BOS. Should the System be implemented in phases, testing of the System shall be conducted in phases according to the specifications in this section to validate the System integrity, reliability, functionality and compliance to the requirements of the Contract and WSDOT Business Rules for each phase and for total System implementation.

The Vendor shall develop a Master Test Plan and complete tests to demonstrate that all equipment, materials, and Systems furnished, installed and established under the BOS Project function in the manner intended and in full compliance with the requirements of the Contract.

WSDOT and their representatives will review and approve formal test plans and schedules proposed by the Vendor, and will witness and determine the acceptability of the test results. The Vendor shall provide all test support personnel, test sites and environments in accordance with the Master Test Plan. In addition, the Vendor shall conduct all tests in accordance with the Project Schedule and the approved test plans and procedures. Approval of any aspect of testing shall not relieve the Vendor of their responsibility to meet all requirements of the Contract.

During the development of the BOS System Software, the Vendor shall conduct a comprehensive program of internal testing and walk-throughs to ensure that the BOS meets the functional

specifications set forth in the Business Requirements, and that defects are detected and removed prior to formal demonstration testing witnessed by WSDOT. Progress on these tests shall be reported during Project status meetings.

After the completion of each formal test, the Vendor shall submit a test report to WSDOT for review and approval. This test report will document test results, list any anomalies identified (with the associated severity level), describe the corrective action required, and document any re-tests necessary to successfully complete the test. The Vendor shall be responsible for completing all corrective actions identified on a timely basis. WSDOT may withhold approval of any test until the required corrective actions have been satisfactorily completed.

In addition to the internal testing conducted by the Vendor to verify that the System meets BOS Project requirements, the Vendor shall demonstrate to WSDOT that all components of the BOS meet functional, technical, operational, and performance requirements by executing the following formal actions and tests which are further described in the subsections that follow. This testing process applies to all Software, Hardware and other equipment included within the scope of the BOS including, but not limited to, the operational back office, commercial back office, BOS hosting environment, BOS back-up hosting the environment/disaster recovery site, reporting environment, Data Warehouse environment, communications Systems, interactive voice response System, and workstations, printers, and other peripherals.

## 24.2 General Requirements

The testing process will consist of several phases which are defined below in the order of required execution:

1. **Master Test Planning and Preparation:** The Vendor shall identify and document in a Master Test Plan the modules, procedures, schedules and the equipment and facilities required for testing. The Master Test Plan shall be a road map for accomplishing the tests, including phase testing should a phased approach be used, and Milestones. All the test phases shall be incorporated into the overall schedule of the Master Test Plan. The Master Test Plan shall also identify the reports to be furnished at the end of each test, the rectification process for issues and anomalies, and the timelines for the rectification. The Master Test Plan shall include proposed test acceptance criteria and be approved by WSDOT.
2. **Component Acceptance Testing:** The Vendor shall perform acceptance testing for all WSDOT provided infrastructure components. The testing plan shall include the date of the test; all test and observation personnel present; all Data/device elements being tested, and recordings of any/all Data and/or device readings that are observed.
3. **Unit Testing:** The Vendor shall perform unit testing for any Vendor developed Software components per generally accepted industry standards.
4. **Factory Acceptance Testing:** The Vendor shall demonstrate the BOS in a Vendor-supplied off-site or laboratory facility in advance of any commissioning. The Test Report shall document the process to resolve any outstanding issues.
5. **Hardware Production Testing:** Any Hardware provided by the Vendor shall be unit tested to ensure it complies with the requirements of the System. The Vendor shall notify WSDOT of the results of the testing and post the completed unit test documentation in the project collaboration environment for review by WSDOT at its option.

6. **Integration and Commissioning Testing:** The Vendor shall demonstrate that the entire BOS is ready for operations commencement. The tests shall demonstrate the integration of various subsystems including Hardware and Software. This test shall include all Vendor proprietary Hardware and Software and any Hardware and Software acquired from third-party entities. The testing shall demonstrate all aspects of the System. The Test Report shall be furnished at the end of this stage to summarize the process to resolve any outstanding issues.
7. **Security Testing:** Security Testing is designed to demonstrate that the BOS including all required components and services is meeting all security requirements in the Contract. Security Testing shall include, at a minimum, the initial PCI compliance audit and verification of meeting all OCIO security, operational, and performance requirements to fully support CSC Operations. The Test Report shall be furnished at the end of this stage to summarize the process to resolve any outstanding issues.
8. **Performance Testing:** Performance Testing is designed to demonstrate that the BOS including all required components and services is meeting all System performance requirements in the Contract. Performance Testing will be executed to the extent possible using automated performance modeling and testing tools. The Test Report shall be furnished at the end of this stage to summarize the process to resolve any outstanding issues.
9. **Regression Testing:** Regression Testing is designed to demonstrate during a phased implementation and for Systems enhancements implemented during Operations that the new phase, component or System did not have break or otherwise have an unintended impact on any existing System components. To support execution of regression testing, the Vendor shall utilize to the extent practical an automated testing tool in the preparation of its various tests that can then be re-executed as part of Regression Testing. The Test Report shall be furnished at the end of this stage to summarize the process to resolve any outstanding issues.
10. **User Acceptance Testing:** User Acceptance Testing is a WSDOT planned and managed test to demonstrate that the BOS, including all required components and services, is meeting its operational and performance requirements to fully support CSC Operations. User Acceptance Testing includes a WSDOT managed regression test element for phased implementations or System enhancements during Operations. WSDOT will plan and manage this test, with consultative assistance from the Vendor in terms of planning the test. The Vendor will provide the User Acceptance Testing environment, support test execution, document test results and remediate any issues identified during testing. The Test Report shall be furnished at the end this stage to summarize the process to resolve any outstanding issues.
11. **Operations Testing:** The Vendor shall operate the BOS in a pilot mode against live Data from the lane facilities for a period of at least 30 Calendar Days prior to Phase 1 Go-Live and Phase 2 Go-Live.
12. **Deficiencies Liability Period (DLP):** After completion of the integration and commissioning test, User Acceptance Testing and operations testing, and before BOS Operations Commencement, WSDOT may agree to allow the Vendor to address selected outstanding issues or deficiencies that are not critical to the day-to-day BOS Operations to be addressed during the Deficiencies Liability Period. Such issues can be rectified during the Deficiencies Liability Period, if it has no impact on day-to-day WSDOT CSC Operations. The identification of these issues shall be at the sole discretion of WSDOT.

During the development of the BOS, the Vendor may conduct such additional tests or demonstrations beyond those identified in this RFP as it deems appropriate to meet their Quality Management Plan. As appropriate, the Vendor may request the presence of WSDOT for such test or demonstrations. These tests or demonstrations shall not relieve the Vendor from any formal testing obligations to prove conformance to the RFP requirements.

The Vendor shall prepare test Data as part of the testing process. The test Data shall be sufficient to support the full range of approved test procedures and fully demonstrate the compliance with the Contract requirements. The test Data shall encompass various Data sets to support the range of test cases, included valid, invalid/illegal, boundary conditions, and performance/load stress testing.

The Vendor shall provide all equipment, tools/ instruments, facilities, and labor necessary for testing.

As described above, for any activity required for rectification and subsequent tests or demonstrations, the related costs shall be borne by the Vendor.

### **24.3 Master Test Plan**

The Vendor shall prepare a Master Test Plan (refer to Section 30.2.8) for testing of the BOS to demonstrate and verify that the installed System meets all the requirements under the Contract. The scope of the Master Test Plan shall include all required test phases including: Component Acceptance Testing, Unit Testing, Factory Acceptance Testing, Hardware Production Testing, Interoperability testing (when required), Integration and Commissioning Testing, Security Testing, Performance Testing, Regression Testing (when required) and User Acceptance Testing. The Master Test Plan shall clearly state the objectives, test scenarios, and success criteria of each level of testing. A separate Test Plan shall be prepared for the migration of Customer Data from the existing WSDOT customer service System.

The Master Test Plan shall clearly define the requirements for success for each step in the testing process. The Master Test Plan shall also address the overall schedule of testing, sequencing and interdependency of tests, test simulators, sources and generation of test Data, reporting procedures, and the process for failure tracking, analysis, and resolution.

The Vendor shall submit the Master Test Plan for review and approval by WSDOT.

### **24.4 Test Procedures**

Upon written approval from WSDOT, the Master Test Plan shall be used by the Vendor to compile the detailed test procedures of each required test. These detailed test procedures shall subsequently be submitted to WSDOT for review and approval. A separate set of test procedures shall be prepared for the migration of Customer Data from the existing WSDOT customer service System.

The Vendor shall not begin any test activities prior to receiving approval of the Master Test Plan from WSDOT.

The test procedures shall include Use Cases to demonstrate how the System meets the requirements of the Contract. Uses cases will include, but are not limited to, the incorporation of the Business Rules, work flow processing rules, financial reporting, reconciliation, System to System interfaces, Data migration, failure modes, and others as required.

The following elements shall be included in the test procedures but are not limited to:

1. Test number;
2. Description of Requirement;
3. Resources and equipment needed;
4. Prerequisites for each test;
5. Initial status and conditions;
6. Triggering action;
7. Expected process;
8. Expected result (end state); and
9. Measurable criteria for considering the test a success.

The Vendor shall prepare test procedures that outline the steps for each function or group of functions and provide the ability to record the outcome of each step, the entry and exit criteria, the required test equipment, instruments, facilities and labor necessary, and the expected results.

The Vendor shall prepare the criteria for entry and exit for each test and shall take into account that any deficiencies identified during the tests shall not trigger any loss in revenue or information to WSDOT or related partners and shall not result in the need for extra Work or extra cost to WSDOT.

The Vendor shall submit all test procedures to WSDOT for review and approval, at least four (4) weeks in advance of the scheduled start date of the test. Any revised test procedures shall be approved by WSDOT one week in advance of the commencement of a test.

The Vendor shall provide all tests procedures in editable electronic form.

The Vendor shall provide a notice of at least three (3) weeks before the commencement of any test.

The Vendor shall conduct all formal tests in the presence of WSDOT or their representative.

## **24.5 Test Reports**

The Vendor shall prepare Test Reports for all test phases within five (5) Calendar Days of completing the corresponding test. A separate test report shall be prepared for the migration of Customer Data from the existing WSDOT customer service System.

The Test Reports shall contain the results of the test procedures performed and shall provide an analysis of failures and of problems observed, along with an approach to correct failures and problems. The Test Reports shall include the current Deficiency Log.

WSDOT will respond to the Test Reports with an assessment of the pass/fail aspects of the tests, and an overall determination of whether each test was a pass or fail. If WSDOT determines that any of the tests were not successful, WSDOT will provide a list of requirements that the Vendor shall meet prior to receiving approval of the Test Reports and proceeding to the next step in testing.

## 24.6 Deficiencies

A Deficiency is defined as a failure in the BOS or associated Services to perform in accordance with the Requirements of the Contract. A Deficiency may be discovered during testing or WSDOT oversight observations.

Where a Deficiency is detected, the Vendor shall report the nature of the Deficiency in detail. Deficiencies shall be prioritized at the sole discretion of WSDOT. Priority Levels may range from 1 to 3, with priority 1 deficiencies being those that would cause a cessation of operations for any major service component or loss of revenue. Priority 2 deficiencies would impede, but not stop operations or cause lost revenue. Priority 3 deficiencies would be minor or administrative in nature. For priority 3 deficiencies, the testing can continue. For priority 1 and 2 deficiencies, the issue shall be rectified before testing can continue.

Once the identified Deficiency is rectified by the Vendor, WSDOT will decide what portion of the test or tests shall be re-run. Any time or direct expenses required to re-run the tests and any related expenses arising from identification and correction of the Deficiency shall be borne by the Vendor.

The Vendor shall maintain a detailed Deficiency Log and tracking System beginning at the commencement of System development through to completion of the Contract. The Deficiency Log shall include all BOS Software, Hardware, and integration. The Deficiency Log shall also record the approach to rectify the Deficiency, corrective action taken and the date and time of such action.

The Deficiency Log can either be a COTS solution or an in-house application developed by the Vendor. The Deficiency Log shall provide the following capabilities at a minimum:

- Detailed bug reporting facility;
- Assignment of bugs/issues;
- Workflow routing of Deficiencies/proposed solutions for review;
- History of changes;
- Comment logs;
- Capability to attach files to a Deficiency report;
- Capability to generate various reports on the status of testing and Deficiencies; and
- Ability to easily view and retrieve information on Deficiencies.

The Vendor shall provide WSDOT with online access to the Deficiency Log. The Vendor shall also provide WSDOT with the capability to generate reports from the System.

## 24.7 Unit Testing

The Vendor shall perform Unit Testing of any custom developed components with the BOS. Unit testing shall be performed in conformance with industry best practices. For each programming object subject to unit testing, the Vendor shall develop and document a unit test plan with test conditions and expected results. The Vendor shall then perform the unit test, record the results of the unit testing against the unit test plan and perform and record the results of any required re-tests. These unit test packages shall be maintained on the project collaboration website and available for WSDOT review at all times.

## 24.8 Factory Acceptance Testing

The Vendor shall perform Factory Acceptance Testing (FAT) following approval of the Master Test Plan and Factory Acceptance Test procedures. A separate test migration process shall be conducted for the migration of Customer Data from the existing WSDOT customer service System.

The Vendor shall complete FAT to ensure that all the required functionality of the BOS Hardware and Software has been met with a focus on the incorporation of the Business Rules, work flow processing rules, Data migration, System to System interfaces, and any required System enhancements.

WSDOT will reserve the right to approve the BOS at this stage in advance of beginning Integration and Commissioning Testing.

## 24.9 Integration and Commissioning Testing

The Vendor shall perform Integration and Commissioning Testing following Factory Acceptance Testing to validate that the BOS and the migration of customer Toll accounts from the existing WSDOT customer service System is ready for BOS Operations commencement.

The Integration and Commissioning Testing shall demonstrate that the fully installed System performs as required under the Contract. The Integration and Commissioning Testing shall test all BOS functionality, and the equipment, Software and internal and external communications interfaces under field conditions. Regional Interoperability testing shall be conducted as part of this stage of testing.

Successful demonstration of a System function at FAT does not exclude that function from Integration and Commissioning Testing.

The Vendor shall anticipate that Integration and Commissioning Testing shall be scheduled for an appropriate period to ensure that the full range of BOS functionality is demonstrated.

Integration and Commissioning Testing shall commence with a series of baseline test procedures to demonstrate core functionality in an unambiguous fashion. The test shall be completed from the central System Software out to interfaces and demonstrate all work flows and Business Rules.

Testing will be directly monitored by WSDOT personnel or its representatives. WSDOT personnel or its representatives may assume direct roles as System testers to validate test processes and results.

WSDOT reserves the right, at its sole discretion, to determine if the BOS is ready for the next steps in the Testing process including: Security Testing, Performance Testing, any required Regression Testing and User Acceptance Testing.

## 24.10 Security Testing

Security Testing is intended to ensure that adequate security and controls are in place for the new System. Security Testing ensures that users who are not properly authorized will not have access to System features or functions that they are not authorized to. It will also ensure that users will not have the ability to change or modify Data that they may be authorized to view but are not authorized to change.

The Vendor will have responsibility for planning and executing Security Testing, with collaboration from WSDOT and OCIO security administrators. Completion of the initial PCI audit, the SOC1 and SOC2 Type 2 audit to ensure appropriate financial controls shall be a part of Security Testing. In addition, completion of an OCIO security audit by an independent auditor Contracted and compensated by the Vendor and approved by WSDOT shall be part of the Security Testing prior to the initial Go-Live. This audit shall comply with OCIO Policy 141.10 Section 1.6 (Audit).

Security Testing will be directly monitored by WSDOT personnel or its representatives. WSDOT personnel or its representatives may assume direct roles as System testers to validate test processes and results.

WSDOT reserves the right, at its sole discretion, to determine if the BOS is ready for the next steps in the Testing process based on the completion/results of Security Testing.

## **24.11 Performance Testing**

The Vendor shall conduct Performance Testing on the fully configured and tested BOS in a production-like environment (or an environment capable of simulating production-like Data volumes and Transaction volumes) prior to commencing live operations and perform any tuning to the System required to meet System performance requirements. To the extent possible, Performance Testing shall be performed utilizing automated scripting and testing tools.

Performance Testing will be directly monitored by WSDOT personnel or its representatives. WSDOT personnel or its representatives may assume direct roles as System testers to validate test processes and results.

WSDOT reserves the right, at its sole discretion, to determine if the BOS is ready for the next steps in the Testing process based on the completion/results of Performance Testing.

## **24.12 Regression Testing**

As standard practice in a phased implementation or when repairing deficiencies and releasing System fixes, the Vendor shall prepare and run Regression Testing scripts to test each build that is delivered to the test environment to ensure that no regression problems have surfaced. Any regression issues shall be documented as Deficiencies and resolved accordingly.

In a phased implementation or for the release of Systems enhancements during Operations, a distinct Regression Testing phase will be performed in which a set of core System functions as identified in the Master Test Plan will be executed to ensure that the new System functionality did not break or adversely impact existing Production System functionality. Additional test cases beyond the core System functions may also be added to the Regression Testing phase by the Vendor or at WSDOT's request based on the nature of the new System functionality being deployed.

Regression Testing will be directly monitored by WSDOT personnel or its representatives. WSDOT personnel or its representatives may assume direct roles as System testers to validate test processes and results.

WSDOT reserves the right, at its sole discretion, to determine if the BOS is ready for User Acceptance Testing based on the completion/results of Regression Testing.

### **24.13 User Acceptance Testing**

User Acceptance Testing shall be planned and executed by WSDOT or its representatives, with support from the Vendor. The purpose of User Acceptance Testing is to demonstrate and validate that the Vendor provided BOS meets the Requirements of the Contract in a Production like environment prior to WSDOT giving Final approval for Go-Live of the BOS.

User Acceptance Testing shall include all BOS Hardware and Software components including but not limited to: operational back office, commercial back office, financial and accounting requirements, WSF integration, CTOC interoperability, reporting environment, Data Warehouse, CSC hosting environment, CSC back-up/disaster recovery site, communications Systems, interactive voice response System, CSC workstations, peripherals and other equipment. User Acceptance Testing shall also include testing the full migration of Data from the existing WSDOT Customer Service Center system to the new BOS. User Acceptance Testing will also include the performance of various Transactions in the new System on the migrated Data (Customer Data, Transponder inventory, etc.).

User Acceptance Testing shall also include any required Regression Testing (for phased implementations and System enhancements during Operations) determined to be required by WSDOT, as well as any Security or Performance Testing activities determined to be required by WSDOT.

Additional User Acceptance Testing shall be performed for a period of 75 Calendar Days after Go-Live to ensure that the BOS performs as required under the full range of conditions.

User Acceptance Testing will be planned and executed by WSDOT personnel or its representatives. The Vendor will provide the User Acceptance Test environment, support testing activities, document any deficiencies identified by WSDOT and remediate any identified deficiencies.

User Acceptance Testing shall be initiated once all the System elements planned for a particular Go-Live have been installed and configured and all previous tests have been successfully completed.

### **24.14 Operations Testing**

Operations Testing shall be performed prior to both the Phase 1 Go-Live and the Phase 2 Go-Live. Operations Testing shall include parallel testing of the new BOS System with live Data from all the lane Systems (including the new State Route 99 tunnel) for a minimum of 30 Calendar Days. The Operations Testing environment will include integration with the existing Electronic Transaction Consultants Corporation's RITE System to obtain updates to customer information (new account set-ups, funds applied to a customer's account, posting of customer payments, etc.)

The Vendor shall work collaboratively with WSDOT to plan, design and conduct the Operations Testing activity. The Vendor shall provide the Operations Testing environment, support the execution of testing activities, document any deficiencies and remediate any identified deficiencies. The Vendor shall develop tools/reports to support comparisons with the existing BOS production environment and the identification of potential issues from Operations Testing for additional research.

Deficiencies from Operations Testing shall be classified as if they were occurring during Production operations. All high and medium priority deficiencies shall be resolved prior to requesting WSDOT approval of the Operations Test.

Operations Testing shall be the final test to be completed before both the Phase 1 Go-Live and Phase 2 Go-Live. Operations Testing shall only be initiated once all the BOS elements scheduled to Go-Live within a particular phase have been installed and configured and all previous tests have been successfully completed. Operations Testing must be completed at least 15 Calendar Days prior to the scheduled Go-Live date for each phase.

WSDOT reserves the right, at its sole discretion, to determine if BOS meets the requirements of the Contract.

## 25.0 Operations and Maintenance Services

This section outlines the requirements for Operations and Maintenance Services. The Vendor shall be responsible for providing Operations and Maintenance Services for the BOS application for four (4) years beginning with Phase 1 Acceptance, with a WSDOT Option to extend Operations and Maintenance Services for up to an additional six (6) years.

The Vendor shall provide a fixed price on an annual basis for Operations and Maintenance Services which is then invoiceable monthly in twelve equal installments. Pricing for Operations and Maintenance Service shall be provided in Appendix 5: Price Proposal in current year (June 2017) dollars. For purposes of preparing its Price Proposal, the Vendor may request an escalation of up to 3% per year beginning with Year 1 of Operations and Maintenance Services. The actual escalation allowed by WSDOT will be either 3% or the Consumer Price Index, whichever is less.

### 25.1 General Requirements

The Vendor shall provide Hardware, Software and network Operation and Maintenance Services to support and maintain the BOS System provided by and installed by the Vendor including any LAN and WAN network equipment also. The Vendor will provide all preventive, unscheduled and corrective maintenance without any degradation in performance and service of the System.

The Vendor will perform maintenance activities without affecting or with minimal effect on the customer service operations whenever possible. If any interruption is required, the Vendor will require prior approval from WSDOT and will follow the rules and protocol set forth by WSDOT.

The Vendor will ensure that all System administration and preventive maintenance functions like Software and firmware upgrades, server patch updates are performed at regular and scheduled periods for optimal System performance.

### 25.2 Back Office Equipment Maintenance

Required CBOS Systems and equipment preventive, unscheduled or corrective maintenance will include, but not be limited to the following:

- BOS Host Systems inclusive of Hardware, Software and any interfaces;
- Redundant (backup) BOS Host Systems inclusive of Hardware, Software and any interfaces;
- Website and Email Servers inclusive of Hardware, Software and any interfaces;
- IVR System inclusive of Hardware, Software and any interfaces;

- All workstations and laptops provided inclusive of Hardware, Software and any interfaces;
- Database System and administration;
- Network equipment, firmware and other communication devices;
- All third party Hardware and Software including OCR image review equipment, mailing room and document imaging System;
- Enclosures, Racks, Cables and other accessories;
- UPS System inclusive of Hardware, Software and any interfaces;
- CBOS applications used for CSC operations; and
- System, Hardware and Software configurations.

The Vendor will also provide the System security level access, Software tools, training and any other materials required to maintain the System as per the Contract requirements.

### 25.3 Network Systems Maintenance

The CBOS network Systems preventive, unscheduled or corrective maintenance will include, but not be limited to the following:

- All the System network, servers, and its components including network switches, router, firewalls and other equipment installed and/or used exclusively by the Vendor connected with WSDOT infrastructure;
- LAN and WAN connectivity including Hardware, electrical and wiring connections between the BOS, Walk-in Centers (WIC), Roadside TCS, disaster recovery (backup BOS) site, external interfaces, WSDOT facilities;
- Any remote connectivity via internet;
- Connecting wires, fiber optic wires, cable terminations and splices used for the network communication equipment;
- AC/DC power cables and connectors for LAN equipment; and
- UPS equipment.

The Vendor will ensure that the network maintenance activities will not interfere with other users of the WSDOT infrastructure. Any network outages, latency, maintenance related activity, connectivity, changes or deactivation of devices will be notified to and coordinated with WSDOT IT for resolution. Vendor will monitor all network System maintenance, on a continuous and regular basis.

### 25.4 Maintenance Online Management System (MOMS)

The Vendor will provide a fully integrated Maintenance Online Management System (MOMS) solution that will support all the maintenance operations for all the Hardware and Software provided by Vendor. The MOMS solution will monitor alerts and generates tickets in real-time to the extent practical for all processes, including but not limited to:

- Hardware issues;

- Software issues or failures;
- Database issues;
- Communications issues;
- File transmission issues;
- Data exceptions;
- Low storage space (set thresholds);
- CPU utilization (set thresholds);
- Issues with jobs, processes or Data flows;
- CPU load (set thresholds); and
- Disk mounts and disk IOs.

The MOMS solution will have the ability to receive and monitor status messages of all System Hardware and Software and capability for assigning priorities and actions to events including automatically notifying Vendor maintenance personnel via reports, text and email. The MOMS solution will have ability to generate and assign issue tickets to maintenance personnel automatically and/or also allow authorized user to enter the issue details manually to generate issue ticket. The MOMS solution will automatically track the issue ticket resolution details including the acknowledgement from maintenance personnel to the time it took to resolve the issue.

Critical alarms like Hardware device failure, System, and application process failure will generate issue tickets automatically and will page the on-call maintenance personnel for immediate attention and resolution. All preventive maintenance will be scheduled through the MOMS and automatic work orders shall be generated at the scheduled times. The inventory portion of the MOMS will track equipment and spare parts and should generate automated messages when warranties are nearing expiration or when levels of spares reach a configurable minimum threshold. The MOMS solution will provide access to System events and error logs for maintenance personnel to investigate the issues further. All authorized personnel from Vendor and WSDOT staff will have access to MOMS solutions for monitoring, resolution and reporting purposes. The MOMS solutions shall include configurable WSDOT alert notices for critical alarms

The MOMS solution will provide operational, management and performance reports that include but are not limited to:

- Issue ticket order status and tracking;
- Equipment inventory, availability and tracking;
- Preventive, predictive and corrective maintenance;
- Summarized and detailed alarm history;
- Maintenance paging and response history;
- Response and repair times for each of the priorities;
- Equipment use and repair history;
- Equipment versions, Software versions, firmware versions and serial numbers for all equipment;

- Incident logs and lost revenue estimates;
- Performance reports detailing compliance to the performance requirements;
- Exceptions report summarizing all unusual or significant occurrences during the period;
- Trend analysis for repetitive failure;
- Status of spare parts inventory; and
- Personnel report detailing positions, staff hours worked and performance.

The MOMS solution will be configurable to handle the specific alarms priority and requirements for Project implementation.

## 25.5 Key Performance Indicator Dashboard

The Vendor shall design, develop, implement and maintain a Key Performance Indicator (KPI) Dashboard. The KPI Dashboard will be web-based and will provide WSDOT with the ability to monitor the Contract KPIs and the KPIs for the CSC Operator on as near a real-time basis as is possible based on the nature of each individual metric. The dashboard will display the KPI status for the current month as the default status with the ability for an authorized WSDOT user to select any other user defined period. The dashboard will display each metric with green, yellow or red indicators based on user-defined tolerances for each individual KPI.

The KPIs for the Vendor to be monitored are contained in Appendix 3: Contract, Exhibit J: Performance Measures, Liquidated Damages and Incentives.

## 25.6 Maintenance Requirements

The Vendor will provide maintenance services 24 hours a day, 7 days a week, and 365 days in the year. The Vendor will also provide help desk function with a dial-in number for maintenance during the normal business hours to record any System outages or other issue reported by users. Maintenance services can be provided on-site or off-site as long as the performance requirements are met. However, at a minimum the Vendor Operations and Maintenance Lead must be co-located on-site with the CSC Operator and space will be provided for other Vendor resources as appropriate.

## 25.7 Notification and Recording of Maintenance Activities

The Vendor will provide following options for notification of any System malfunction:

- Written (Email or Paper) notification of the issue by user or WSDOT staff;
- Verbal notification of the issue by user or WSDOT staff; and
- System generated notification via MOMS.

All notifications details will be recorded in the MOMS System and issue ticket will be generated. MOMS will be the primary repository for logging any maintenance activity using issue tickets from initial identification to the issue resolution. The issue ticket will record the following information at a minimum:

- Unique tracking number;
- Time, date, location and device identification;
- Error details including any error codes for the issue;
- Details on corrective actions taken or planned;
- ID and name of the maintenance technician(s) assigned;
- Issue status updates with time and date records; and
- Final resolution for the issue and follow up actions required.

Real time access to MOMS will be provided to monitor any new notifications and/or record status and resolution on the current ones. Any maintenance activities that will directly impact Customer Service Center operations must be reported to the WSDOT Toll Division Director of Operations in the timeframe agreed upon by WSDOT and the Vendor.

## **25.8 Routine Maintenance**

The Vendor will develop and follow a scheduled routine maintenance process including all preventive and corrective maintenance activities in accordance with the schedule documented in the Maintenance Plan for the inspections, repairs, upgrades and replacement of parts and components as needed to keep the System running effectively and efficiently at optimal performance.

The Maintenance Plan will provide details on each routine maintenance activity including its scope, frequency and anticipated duration for completion. MOMS will be configured for all the routine maintenance activities and will automatically generate alert messages with the issue ticket for tracking and resolution. Failure to perform these activities in accordance with the approved maintenance schedule may result in penalties.

## **25.9 Incident Management**

The Vendor will utilize MOMS to track and report any System incidents. All the unscheduled maintenance repairs, when reported, will be assessed and classified as either Severity Level 1 – High; Severity Level 2- Medium; or Severity Level 3 – Low; or an Enhancement. WSDOT, in its sole judgement, will be responsible for the classification of System incidents.

### **25.9.1 Severity Level 1 - High**

A Severity Level 1 incident is a critical incident which immediately and materially preventing WSDOT from performing business operations. There is no solution, or the solution is extremely complex. The Vendor must acknowledge the incident and begin problem diagnostics on the incident within 30 minutes of the incident being reported to the Vendor.

The Vendor shall resolve all Severity Level 1 incidents within eight (8) hours of incident identification by either resolving the incident, or implementing a solution which allows the incident to be re-classified as a Severity Level 2 or Severity Level 3 priority incident.

### **25.9.2 Severity Level 2 - Medium**

A Severity Level 2 incident is an incident which presents a material impact to WSDOT business operations. However, there is a solution allowing business operations to proceed in the interim. The Vendor shall acknowledge the incident within 30 minutes and begin problem diagnostics on the incident within three (3) hours of the incident being reported to the Vendor.

The Vendor shall resolve all Severity Level 2 incidents within 24 hours of incident identification.

### **25.9.3 Severity Level 3 - Low**

A Severity Level 3 incident means the System does not work according to approved design, but the incident is having a limited immediate impact on WSDOT business operations. The Vendor shall acknowledge the incident within 30 minutes and begin problem diagnostics on the incident within one (1) business day of the incident being reported to the Vendor.

The Vendor shall resolve all Severity Level 3 incidents within five (5) Business Days of incident identification.

### **25.9.4 Release Management for System Incidents**

Independent of the incident resolution requirements outlined in Section 25.9, WSDOT, at its option, may allow the Vendor to package one or more Software fixes into a single production release to manage the number of releases to the production environment.

## **25.10 Equipment and Spares Inventory Management**

The Vendor will record and track all inventory of equipment and spares using either the MOMS or another application that interfaces with the MOMS. The Vendor will be solely responsible for maintaining adequate inventory of equipment, spares and consumables to meet availability, performance and operational requirements. The Vendor will provide environmentally controlled storage space for all equipment, spares, and/or consumables that require such. The Vendor will provide a safe and secure storage location for all spares and will bear all risk for loss or damage.

The Vendor will maintain accurate records of all equipment and parts as they enter and leave the inventory. Records should include part numbers, serial numbers, times and dates of changes to location, warranty information and a brief description of the part itself. A part is replaced and found to be in warranty, the part will be sent to manufacturer for replacement. When the replaced part is found to be out of warranty, the Vendor will try to repair it and if repair is not possible then will re-order to fulfill the spare inventory. All repairs activities and actions on the spare parts will be recorded and tracked for audit purpose.

## **25.11 Software Maintenance Services**

The Vendor will provide maintenance for all the Software Systems and applications that are implemented as part of the BOS. The Software maintenance Services will include but not be limited to:

- Operating Systems;
- Firmware;

- Databases;
- All application Software;
- All Third Party Software;
- Configuration management; and
- Software version control.

The Software maintenance services will include the regular schedule upgrades, emergency patches and bug fixes to keep the System and operations running per Contract requirements.

Software maintenance activities shall incorporate information security best practices and be performed in compliance with OCIO Policy 141.10, Section 7.3 (Application Maintenance).

## **25.12 Test Environment**

The Vendor will maintain a test environment for the use of WSDOT during Operations and Maintenance to validate System capabilities, check out potential issues, etc. This test environment will be available to WSDOT as needed. The Vendor shall refresh the test environment from the production environment at least every 60 Calendar Days or more frequently if requested by WSDOT. To avoid overwriting any testing in process, the Vendor shall coordinate the scheduling of refreshes with WSDOT.

## **25.13 Maintenance Staffing**

The Vendor will provide the level of maintenance staffing required to meet the performance requirements and service level agreements under this RFP. The Vendor will identify its planned maintenance team as part of the Maintenance Plan. Staff identified in the Maintenance Plan shall include all Vendor staff who will be involved in the maintenance of the System including, but not limited to network and Systems engineers, Database and Systems administrators, technical staff, supervisors, and managerial staff. Spare parts inventory will also be managed by the maintenance staff personnel.

## **25.14 Maintenance Training**

The Vendor will provide a comprehensive maintenance training program including classroom and hands on experience necessary to ensure that qualified maintenance personnel are available to perform all maintenance-related activities. In addition, all maintenance personnel will be trained in proper use of MOMS, safety procedures, and quality control to manage the System effectively.

Manufacturer offered training courses will also be provided by Vendor to its maintenance staff to keep them up to date with the latest upgrades and updates to the System. Training records will be kept for the maintenance staff for tracking and audit purposes. Knowledgebase access will be provided to maintenance staff to keep them abreast with latest know how to support the System at its optimal performance level. Any major changes in the equipment or the Software application will require maintenance staff to be retrained in advance to support and manage the new changes.

## 25.15 Annual Audit Requirements

### 25.15.1 PCI, SOC1, SOC2 and OCIO Audits

The Vendor shall engage, subject to the approval of WSDOT, and compensate independent audit firms to conduct on an annual basis the following audits:

- PCI audit as further specified in Section 17.18;
- SOC1 and SOC2 audits to ensure appropriate internal financial controls and security processes and procedures; and
- State of Washington OCIO audit to confirm compliance with all OCIO security policies, procedures and requirements as defined in OCIO Policy 141.10.

The PCI audit, the SOC1 and SOC2 audit and the OCIO audit shall also be performed prior to the Phase 1 Go-Live in order to enable the Vendor to demonstrate compliance with the requirements of the Contract prior to allowing the Vendor to Go-Live with Phase 1 of the BOS Project.

The audit report and any other findings and results of the audits will be provided to WSDOT. In the event that any deficiencies are identified in the audit report, the Vendor will develop within ten (10) Calendar Days of the receipt of the report and submit to WSDOT an action plan for remediating the identified issues with target dates for resolution. The Vendor will then remediate the issue within the timeframes established in the approved action plan. Any target dates in the action plan shall be consistent with the requirements in this Appendix 2 – for example if an issue meets the definition of a Severity 1 error as specified in Section 25.9.1, the issue shall be remediated within the required timeframe for a Severity 1 error.

### 25.15.2 System Performance Audit

The Vendor will engage at their expense an independent audit firm subject to the approval of WSDOT to conduct annual audits to verify the performance and accuracy of the BOS application is being met, as per the requirements of this RFP. The Vendor will submit an audit report which includes at a minimum the following information:

- If all Transactions are received from roadside successfully and processed;
- If all images are received from roadside successfully and processed;
- If all the interfaces working correctly as per the ICD;
- If image review process working properly;
- If Trip Building has been performed consistent with the KPIs and in compliance with the Trip Building section of the Annual Audit Plan; and
- System Maintenance is being performed as planned and consistent with the KPIs.

The System audit report will list any anomalies or issues found and resolved during the period including any loss of revenue and operations. The report will be reviewed by WSDOT and discussed with the Vendor to plan and mitigate any recurring issue found in the annual System audit. The Vendor shall select a statistically valid sample size, as defined in the Annual Audit Plan, to support its System performance audit (Refer to Appendix 3: Contract, Exhibit J: Performance Measures, Liquidated Damages and Incentives).

### **25.15.3 Other Required Audit Support**

The Vendor will also be required to support WSDOT in providing information for and responding to other audits conducted by WSDOT Internal Audit, the State Auditor's Office, WSDOT external auditors and any other audits which may be commissioned by the Office of Financial Management, the State Auditor's Office or the Washington Legislature.

### **25.16 Incident and Revenue Loss Management**

The Vendor will immediately report to WSDOT any incident or identified any discrepancy that will potentially result in a loss of revenue or customer service that could impact System performance or availability. The Vendor will then correct the issue in the agreed upon timeframe with WSDOT to minimize the impact on running of the System or customer service. In case of such loss of revenue, the Vendor will be responsible for the loss and will compensate WSDOT for the loss of revenue.

### **25.17 Cooperation with Others**

The Vendor will cooperate and work with WSDOT, other state agencies, and other third party providers as required to ensure that CBOS System maintenance functions are handled effectively, efficiently, and according to all laws, rules, regulations, and specifications of any applicable vendors, governmental agencies and other maintenance providers.

### **25.18 Emergency Response Management**

In case of any emergencies, the Vendor will fully cooperate and work with the emergency response management team that includes WSDOT staff, law enforcement agencies, roadside Toll collection System Vendors and other local and state government agencies.

### **25.19 System Maintenance and Version Tracking**

The Vendor shall use the version tracking tool for the System provided and maintained by the Vendor. The version tracking tool will be used for providing System and Software maintenance services by the Vendor. The version control and tracking tool will be easy to deploy and use and shall have detailed documentation to support the tool. The standard version control System will be used for managing and maintaining the System and implementing application changes to the BOS solution. The Vendor will deploy, use and maintain the version tracking tool and will provide access to WSDOT for review and oversight including approval of the changes planned for the BOS solution.

## 26.0 Project Organization and Staffing

### 26.1 Project Organization Chart

The Vendor shall provide as part of its Technical Proposal a Project team organizational chart with clear delineation of roles for management, functional, technical and organizational change management tasks.

### 26.2 Vendor Key Personnel – Implementation Phases 1 and 2

The Vendor shall complete the resume template in Appendix 18 for each of the following positions which constitute the Vendor Key Personnel during the Implementation phase of the BOS Project. There is a limit of six (6) pages per individual. The Vendor should show how the experience of each proposed staff member makes them uniquely qualified to perform their assigned responsibilities on the Project.

In preparing the response to this section, Vendors should leverage material submitted in their RFQ response highlighting any additions or changes to assist WSDOT in its review of this information. Vendors have been prequalified based on their responses to the RFQ. Consequently, WSDOT is not expecting there to be any material changes to the information provided in the RFQ unless the change enhances the ability of the Vendor to respond to WSDOT's requirements as outlined in this RFP. If the Vendor's proposed personnel are adjusted from the staff presented in the RFQ, WSDOT will expect the newly proposed staff to have qualifications equal to or better than the qualifications of the staff proposed in the RFQ.

- A. **Project Executive** – Vendor representative with ultimate responsibility for the Project, who is authorized to sign Contracts, make decisions and otherwise act on behalf of the Vendor.
- B. **Quality Assurance Executive** – Vendor executive responsible for performing periodic Quality Assurance reviews. This role must be independent of the Project Manager and Project Executive. The Quality Assurance Executive shall have at least ten (10) years of experience managing enterprise Systems implementation projects, with a preference for prior experience leading a Tolling Systems implementation.
- C. **Project Manager** – Responsible for providing day-to-day management and leadership of the Project. Responsible for accomplishing the Project objectives, and managing Project scope, schedule, budget and quality. The Vendor's Project Manager will be the primary interface point between the Vendor and WSDOT. The Vendor's proposed Project Manager shall have successfully managed a minimum of three (3) business transformation/modernization/Systems integration type projects of a similar nature and scope to the one described in this RFP with a preference for prior experience managing Tolling Systems implementation projects. The Project Manager is expected to be a substantially dedicated on-site resource for the duration of the Development and Implementation phases of the BOS Project.
- D. **Quality Assurance Manager** – Responsible for developing, documenting, implementing, and assuring compliance with consistent quality standards, procedures, and specifications during project design and implementation. The Vendor's proposed Quality Assurance Manager shall have at least three (3) years of experience in leading quality assurance efforts on enterprise projects similar in size and scope to the BOS Project.

- E. **Lead System Architect** – Responsible for the underlying architecture of the BOS Software program, as well as for overseeing the Work being done by any other Software engineers working on the BOS Project. The Lead Systems Architect shall have at least seven (7) years of experience as a Technical Lead on enterprise Systems projects similar in size and scope to the BOS Project. The Lead Systems Architect should also have at least two (2) years of prior experience in a Technical Lead for the design and implementation of the core technologies in the Vendor's proposed BOS solution.
- F. **Operational Back Office Lead** - Responsible for planning, designing, developing, and implementing the OBOS functionality. The position emphasizes experience with multiple implementations of Tolling operational Systems capabilities, with a preference for prior experience with the Vendor's proposed OBOS solution set. The Operational Back Office Lead shall have at least three (3) years prior experience in leading design and development of OBOS like Tolling System functionality.
- G. **Customer Relationship Management Lead** - Responsible for planning, designing, developing, and implementing account management and other customer relationship management functionality. The position emphasizes experience with multiple implementations of customer relationship management Systems with a preference for prior experience with the Vendor's proposed CBOS solution set. The Customer Relationship Management Lead shall have at least three (3) years prior experience in leading design and development of customer relationship management Systems, with at least one (1) year of experience with the Vendor's proposed CBOS solution set.
- H. **Accounting System Lead** – Responsible for planning, designing, developing, and implementing complex accounting and other financial functions. The position emphasizes experience with multiple implementations of financial management Systems, with a preference for prior implementation experience with the Vendor's proposed accounting System solution. The Accounting System Lead shall have at least five (5) years of experience leading configuration, design and implementation of enterprise level financial and accounting Systems, with a preference for performing as the Accounting Lead for at least one (1) prior implementation of the Vendor's proposed accounting solution.
- I. **Customer Website Development Lead** - Responsible for planning, design, developing and implementing the Good to Go! website. The position requires five (5) years of experience in user centered design.
- J. **Organizational Change Management Lead** - Responsible for leading all aspects of the organizational change management program including training, communications and enterprise readiness. The Organizational Change Management Lead shall have at least three (3) years of experience leading organizational change management activities on an enterprise level project similar in size and scope to the WSDOT BOS Project.
- K. **System Interface Developer** – Responsible for planning, designing, developing, and implementing complex integrations with other WSDOT and partner Systems. The position requires five (5) years of experience designing and developing Data integrations for large-scale enterprise level Systems.
- L. **Testing Manager** – Responsible for developing and leading all System implementation related testing, including all defect remediation support. The position requires at least three (3) years of experience planning for and managing testing efforts for enterprise Systems implementation projects similar in size and scope to the proposed BOS Project.

A single individual may perform multiple roles, subject to the approval of WSDOT, if the Vendor can demonstrate that this dual role will not impact the ability to complete the Project within the timeframes outlined in the RFP.

Vendor Key Personnel shall be assigned to the Project for the duration of Development and Implementation phase and dedicated to the Project at the appropriate level of involvement based on their role/function as agreed to by WSDOT in the Vendor's approved Project Schedule.

### 26.3 Vendor Key Personnel – Operations and Maintenance Phase

Within 180 Calendar Days of the scheduled Go-Live for Phase 1, the Vendor shall submit to WSDOT for review and approval the names and resumes using the template in Appendix 18 of the individuals who shall serve as Key Personnel during the Operations and Maintenance Phase. The Vendor Key Personnel during the Operations and Maintenance Phase shall include:

- A. **Project Executive** – Vendor representative with ultimate responsibility for the Project, who is authorized to sign Contracts, make decisions and otherwise act on behalf of the Vendor.
- B. **BOS Support Team Project Leader** – Responsible for providing day-to-day management and leadership of the Operations and Maintenance Phase. Responsible for prioritizing support activities to ensure Operations and Maintenance services are performed per the specifications in Section 25 and that all KPIs are met. The BOS Support Team Project Leader will be the primary interface between the Vendor, WSDOT and the CSC Operator. The BOS Support Team Project Leader should be knowledgeable of the Vendor's BOS solution from participating in a significant role during the Implementation phases. The BOS Support Team Project Leader is expected to be a substantially dedicated to the BOS Operations and Maintenance Project and shall be stationed on-site at either a WSDOT facility or the CSC.
- C. **Functional Lead** - Responsible for managing and maintaining the functional configuration of the BOS solution and for working closely with WSDOT and CSC Operator staff to identify and resolve any identified System defects within the response times identified in Section 25.9. The Functional Lead shall define Business Requirements and prepare functional designs for any requested enhancements. The Functional Lead should be very familiar with the WSDOT business environment and the functional capabilities of the Vendor's BOS application as a result of performing a significant role during the Implementation phases. The Functional Lead is expected to be a substantially dedicated resource and shall be stationed on-site at the CSC.
- D. **Lead Developer** – Responsible for maintaining the application Software programs within the BOS solution. The Lead Developer shall work closely with WSDOT and CSC Operator staff to identify and resolve any identified System defects within the response times identified in Section 25.9. The Lead Developer performs or manages other developers in performing the technical design, development and testing of any requested application program enhancements. The Lead Developer should be very familiar with the BOS application a result of performing a significant role during the Implementation phases. The Lead Developer may be part-time but must be a continuous presence on the Project and assigned to the Project at a level required to fully meet all KPIs. The Lead Developer may be located off-site within the United States.
- E. **Systems Engineer** - Responsible for the overall BOS technical architecture and the various technology components within the BOS solution. The Systems Engineer is the

lead technical resource dedicated to the BOS Operations and Maintenance phase. The Systems Engineer shall be responsible for remediating any technology related defects in the timeframes outlined in Section 25.9, obtaining assistance from additional Vendor technical staff as required. The Systems Engineer may be part-time but must be a continuous presence on the Project and assigned to the Project at a level required to fully meet all KPIs. The Systems Engineer may be located off-site within the United States.

## **26.4 Substitution of Vendor Key Project Personnel**

Individuals proposed and accepted by WSDOT as Key Project Personnel are expected to remain dedicated throughout the entire major phase of Work or the completion of their assigned tasks within the major phase of Work as per the approved Project Schedule. No substitutions of Vendor Key Project Personnel will be permitted unless such substitutions are necessitated by an individual's sudden illness, death, resignation from the Vendor or its Subcontractor or as otherwise approved by WSDOT. In any of these events, substitutions will be allowed only when WSDOT specifically agrees to the substitution in writing. Vendor is required to promptly notify WSDOT of the unavailability of a Vendor Key Project Personnel for any period longer than fifteen (15) Calendar Days.

All proposed substitutes of Vendor Key Project Personnel must have qualifications at least equal to that of the person initially approved by WSDOT. The resume of the currently assigned Key Project Personnel shall become the minimum requirement for qualifications for successor personnel. All proposed substitutes must have educational qualifications and work experience equal to or better than the individual being replaced. It is Vendor's responsibility to establish the substitute personnel meets these minimum qualifications.

The process to substitute a Vendor Key Project Personnel is detailed in RFP, Appendix 3 – Contract, Section 10.1.3.

## **27.0 Go-Live and Acceptance of the System and Services**

### **27.1 Approval for System Go-Live**

For the BOS solution to be transitioned to a production status for either Go-Live point, the following requirements shall be achieved:

- Successful completion and approval by WSDOT of all relevant Vendor-led test phases (unit testing, integration and commissioning testing, security testing, performance testing and regression testing if required);
- Successful completion by WSDOT and approval by the WSDOT Steering Committee of User Acceptance Testing;
- Successful completion and approval by WSDOT of Operations Testing (for initial Go-Live);
- Successful completion of end-user training and approval of the completion of training by the WSDOT Steering Committee;
- Successful completion and approval by WSDOT of a minimum of two (2) practice/mock Data conversions;

- No Severity-1 issues/deficiencies;
- No Severity-2 issues/deficiencies, or if there is a Severity-2 issue, there is a documented solution and a plan for remediating the issue which has been approved by the WSDOT Project Steering Committee;
- Submittal and WSDOT Acceptance of business continuity plans;
- Successful completion of the PCI audit;
- Successful completion of SOC1 and SOC2 audit;
- Successful completion of the OCIO audit, OCIO System design review; and
- Submission of Accessibility certification and Security certification for customer website.

WSDOT and the Vendor shall develop an updated Program Schedule to address any unresolved Severity-3 Deficiencies.

## **27.2 Phase 1 Acceptance**

The Vendor may request Phase 1 Acceptance of the BOS Project upon achieving the following requirements:

- 60 Calendar Days of continuous production operations of the BOS Phase 1 functionality without a Severity-1 incident; and
- Successful completion of a Systems review by WSDOT's external auditor to confirm the internal controls of the new BOS System, the financial integrity of the Data migration process and the go-forward auditability of the BOS System to comply with State Route 520 Bridge bond covenants.

If a Severity-1 incident occurs, the clock for determining Phase 1 Acceptance is re-set to zero and the sixty-day period of continuous operation without a Severity-1 incident begins again.

The Vendor shall submit a Phase Acceptance Letter with appropriate supporting documentation. WSDOT shall provide the Vendor with written notification of Acceptance. Upon Acceptance, WSDOT will release 50% of the Retainage associated with the Deliverables of Phase 1.

## **27.3 Phase 2 Acceptance**

The Vendor may request Phase 2 Acceptance of the BOS from WSDOT after the Phase 2 go-live following 60 Calendar Days of continuous operations without a Severity-1 incident. If a Severity-1 incident occurs, the clock for determining Phase 2 Acceptance is re-set to zero and the 60 Calendar Day period of continuous operation without a Severity-1 incident begins again.

The Vendor shall submit a Phase 2 Acceptance Letter with appropriate supporting documentation. WSDOT shall provide the Vendor with written notification of Acceptance. Upon Acceptance, WSDOT will release 50% of the Retainage associated with Phase 2 Deliverables.

## 27.4 Final System Acceptance

The Vendor may request Final System Acceptance for Phase 1 and Phase 2 following 6 months of continuous production operations after the Phase 2 Go-Live within compliance of the KPIs. If KPIs are not met for a particular month, the clock for determining release of Retainage is re-set to zero and the 6-month period of continuous production operation within compliance with the KPIs begins again.

The Vendor shall submit a Final System Acceptance Letter with appropriate supporting documentation. WSDOT shall provide the Vendor with written notification of Acceptance. Upon Acceptance, WSDOT will release the remaining Retainage associated with the implementation Project. WSDOT will also release the Vendor's performance bond.

## 27.5 Acceptance of Modifications

The Vendor may request Acceptance for a Modification executed as part of this Contract following 60 Calendar Days of continuous production operations without a Severity-1 incident associated with the scope of the functionality within the Modification. If a Severity-1 incident occurs, the clock for determining Modification Acceptance is re-set to zero and the sixty-day period of continuous operation without a Severity-1 incident begins again.

The Vendor shall submit a Phase Acceptance Letter for the Modification with appropriate supporting documentation. WSDOT shall provide the Vendor with written notification of Acceptance. Upon Acceptance, WSDOT will release 100% of the Retainage associated with the Deliverables of that Modification.

## 28.0 Project Office Space

The Vendor shall procure, provision, and ready for move-in, Project Office Space for the duration of the Implementation Phase of the Project (through Final System Acceptance) within 60 Calendar Days following initial NTP under SOW 1. The following is a list of requirements for this Project Office Space environment.

1. In addition to Vendor resources, the Project Office Space shall include work spaces for up to 12 WSDOT staff or WSDOT representatives including General Toll Consultant staff, IV&V consultants and the independent QA consultant. The office space shall also accommodate at least three (3) guest cubicles/work stations for key stakeholders and part-time Project staff that will be at the Project team office on a periodic basis.
2. The Vendor shall provide a minimum work space of 125 square feet per resource.
3. The Project Office Space shall be located within the Seattle Metro area with a strong preference for locations that are within walking distance of transit (bus, light rail, commuter rail) facilities.
4. Vendor shall ensure that the office space meets Americans with Disability Act (ADA) standards and all applicable Washington State and local regulations for work place accommodations and safety; including but not limited to, an adequate number of bathrooms, elevator access, etc.

5. The Project Office Space shall include at least one training room capable of supporting instruction for 12 students; including instructor workstations, student workstations and network connectivity;
6. The Project Office Space shall include adequate conference room space to accommodate at least two (2) work groups of eight (8) to 10 individuals meeting at the same time. Each conference room needs to include projector screens or specially painted and reflected walls suitable for using projectors; a large whiteboard or smartboard and a polycom or similar clear voice speaker phone with microphones.
7. Office furniture shall include office chairs and desks and task lighting for each work station. There shall be a conference room table and chairs in each conference room which is suitable for the conference room size.
8. A work station with network connection shall be provided for each non-guest work space.
9. The Project Office Space shall include at least two (2) high speed shared/network color printers including the printer maintenance and ink replacement.
10. The Project Office Space shall have a robust wireless connection for WSDOT and Vendor computers that has a strong signal to all office spaces, conference rooms and all spaces considered work areas. Additionally, hardline outlets shall be available and working. For estimating purposes, consider one outlet for each work station, 3-4 for conference rooms with port replicators and hard network lines for all printers.
11. Consideration should be made for a break room that is large enough for the maximum staff levels to include at a minimum a full-size refrigerator, microwave and water cooler with hot and cold water dispenser using a water filter.
12. Daily janitorial services shall be provided.

WSDOT shall be a key stakeholder in evaluating and reviewing any proposed office space under consideration for use as at the project team office space. WSDOT shall be invited to participate in a walkthrough of the space and be allowed to review and approve the Contract language in any lease etc. prior to the Vendor committing to any lease for office space.

## **29.0 Potential Future Contract Modifications**

This section provides information on four (4) potential future Contract modifications. Vendors shall provide initial pricing for these potential modifications (along with the WSF integration outlined in Section 10) in their Price Proposal. These Prices will be utilized as the basis for negotiating a Contract modification in the event WSDOT elects to go forward with any of the potential modifications during the Contract term. Vendors shall provide pricing in current year (June 2017) dollars. Escalation factors will be applied at the time a specific modification is negotiated. In addition to the specific modifications outlined below, the Vendor shall provide a labor rate schedule with hourly rates for various positions in current year (June 30 2017) dollars. This labor rate schedule will be used as the basis for costing other potential Contract modifications which may arise during the course of the Contract term.

### **29.1 Enhancements to State Route 167 Toll Facility**

The State Route 167 high occupancy Toll (HOT) lanes are high occupancy vehicle (HOV) lanes open to solo drivers who choose to pay a Toll. Carpools of two (2) or more, vanpools and buses

use the lanes Toll-free. Toll rates adjust to ensure traffic in the HOT lane is free flowing even when the regular lanes are congested.

In 2023, WSDOT plans to convert State Route 167 to a postpaid facility, emulating the current Interstate 405 Express Toll Lanes business model. WSDOT will add gantries and photo-billing equipment unifying the concept of operations for the Interstate 405/State Route 167 Express Toll Lanes. There are 14 Toll points, six (6) northbound and eight (8) southbound. The existing chart of accounts for State Route 167 will be maintained.

The Vendor will be responsible for designing, developing, testing and implementing integration of image-based Transactions between the BOS application and the RTS application for the State Route 167 Toll facility. The OBOS will receive image Transactions from the State Route 167 RTS application and will package these Transactions into Trips for posting to customer accounts within the CBOS.

## **29.2 Interstate 405 Express Toll Lanes Bellevue to Renton**

Currently drivers traveling on I-405 between State Route 167 in Renton and Northeast 6th Street in downtown Bellevue face one the most gridlocked routes in the state, particularly during peak travel times. The Interstate 405 Renton to Bellevue Widening and Express Toll Lanes project will improve traffic flow and safety. The Renton to Bellevue project was funded in the 2015 Connecting Washington transportation package. The project will add new capacity to create a two-lane express Toll lane System between State Route 167 in Renton and Northeast 6th Street in Bellevue. The completed lanes will connect to the existing Interstate 405 express Toll lanes from Bellevue to Lynwood.

The Toll facility will consist of 11 miles of a dual lane System, although 10-14 of the Toll points would be single lane. There will be a total of 20-24 Toll points in the Interstate 405 Bellevue to Renton project, depending on whether or not the 112<sup>th</sup> Avenue direct access is included in the final project. The current assumption is that the existing Interstate 405 Fund and chart of accounts will be utilized.

The Vendor will be responsible for designing, developing, testing and implementing integration between the BOS application and the RTS application for the new Interstate 405 Toll facility. The OBOS will receive Transactions from the I-405 Bellevue to Renton RTS application and will package these Transactions into Trips for posting to customer accounts within the CBOS.

## **29.3 Onboarding of Unidentified Future Toll Facility – Fixed or Variable Pricing**

The Vendor shall provide an effort and cost estimate for the onboarding of an unidentified future Toll facility with fixed or variable pricing and a single Toll point in each direction. This cost estimate shall be utilized as the basis for negotiating the future integration of similarly scope Toll facilities.

The Vendor will be responsible for designing, developing, testing and implementing integration between the BOS application and the RTS application for the new facility. The OBOS will receive Transactions from the RTS application for posting to customer accounts within the CBOS. It is anticipated that a new Fund and chart of account entry will be required.

## 29.4 Onboarding of Unidentified Future Toll Facility – Multiple Toll Points and Dynamic Pricing

The Vendor shall provide an effort and cost estimate for the onboarding of an unidentified future Express Toll Lane facility which requires Trip Building with dynamic pricing and multiple Toll points in each direction. This cost estimate shall be utilized as the basis for negotiating the future integration of similarly scope Toll facilities.

The Vendor will be responsible for designing, developing, testing and implementing integration between the BOS application and the RTS application for the new Toll facility. The OBOS will receive Transactions from the RTS application and will package these Transactions into Trips for posting to customer accounts within the CBOS. It is anticipated that a new Fund and chart of account entry will be required.

## 30.0 Deliverables

This section outlines the scope and content of Deliverables required to be provided under the BOS Contract. These Deliverables represent specific items for which the Vendor will be compensated per the Price Proposal in Appendix 5. The fact that an item has not been defined as a Deliverable does not relieve the Vendor of the responsibility to perform the Services identified in this RFP or to provide Deliverables or other work products required to fully complete the required Services within its agreed to Contract Price.

WSDOT will pay for 75% of the value of each Deliverable less Retainage upon Acceptance of the Deliverable (with some exceptions outlined in Appendix 5 which will be paid at 100% upon Acceptance). WSDOT will pay the remaining 25% of the value of each Deliverable less Retainage upon completion and WSDOT approval of each Milestone in which the Deliverable is contained.

General requirements which apply to all Deliverables are presented, followed by information on Project Deliverables and documentation by Project Milestone. Milestones represents a logical grouping of Work within Phase 1 and Phase 2. Completion of constitutes a Milestone Date.

### 30.1 General Requirements

The following requirements apply to all Deliverables and documentation required under the BOS Contract.

1. At all times, WSDOT authorized personnel shall have unrestricted access to CSC Facilities and Data, including records, accounts, logs, reports, and documentation maintained by the Vendor.
2. The Vendor shall keep track of all documentation submitted to WSDOT or representatives including the document identification, name and description of the document, version number, release date, distribution list, approval date, and document's electronic file name. The Vendor shall record any revisions made to the original documents and retain copies of said documents with additional written comments as original records.
3. The Vendor shall use a standard file management, naming convention and sequencing structure to keep track of all electronic files. The Vendor shall specify these standards in the Project Management Plan for review and approval by WSDOT.

4. The Vendor shall establish a web-based project collaboration environment. The Vendor shall be responsible for ensuring that the documents are distributed electronically and can be accessible through an electronic document storage facility available through this collaboration environment. All information (documents and communications) related to the Project shall be kept on a secure, dedicated web-based collaboration site held by the Vendor and accessible by individuals authorized by WSDOT via the Internet. The Vendor shall be responsible for administering the web-based collaboration site and providing access to parties approved by WSDOT.
5. The Vendor will prepare Deliverable Expectation Documents (DEDs) for each unique Deliverable or Deliverable type required under this RFP. The DED shall provide an outline of the anticipated contents of a Deliverable. The DED will be prepared as a draft and provided to WSDOT for its review and approval prior to starting work on a Deliverable. A workshop will be held with WSDOT to review, discuss and walkthrough each DED during WSDOT's review period for the DED.
6. The Vendor shall maintain at the WSDOT CSC Facility for the duration of the Contract, at a minimum, one complete set of all documentation and Deliverables including, but not limited to:
  - a. The Contract as awarded for the Project;
  - b. All Project Deliverables;
  - c. Three years of invoices and Performance Measure reporting;
  - d. Minutes of meetings with WSDOT;
  - e. Government approvals;
  - f. Records supporting or related to required certifications;
  - g. Change orders and claims;
  - h. Insurance policies, correspondence, and terms;
  - i. Business and operating licenses;
  - j. Any communications service agreements;
  - k. Application and operating System Software technical documentation;
  - l. Interface control documents;
  - m. Standard operating procedures for CSC BOS operations; and
  - n. Other documentation such as PCI/PII certifications, System audits, etc.
7. The Vendor shall maintain complete business records of all WSDOT customer Toll accounts and associated Transactions, retaining such records in accordance with WSDOT and State of Washington general records retention schedules. Please refer to:  
[https://www.sos.wa.gov/assets/archives/RecordsManagement/Department-of-Transportation-Records-Retention-Schedule-v.1.4-\(September-2014\).pdf](https://www.sos.wa.gov/assets/archives/RecordsManagement/Department-of-Transportation-Records-Retention-Schedule-v.1.4-(September-2014).pdf);
8. Archived reports shall be retained in an electronic format for the duration of the Contract and provided to WSDOT at the termination of the Contract.
9. Archived documents shall be accessible at all times for printing.
10. A hard copy of reports shall be retained for a period of at least one year.

11. All Customer communications, including scanned documents, shall be electronically stored in the archival System as per the WSDOT record retention policy.
12. All email communications shall be stored in the document archive.
13. The Vendor shall provide an electronic means for WSDOT to request any archived documents.

## **30.2 Project Initiation Phase**

This subsection outlines the required Deliverables during the Project Initiation Milestone of the BOS Project.

### **30.2.1 WSDOT Partnering Plan**

The Vendor shall prepare a WSDOT Partnering Plan and submit to WSDOT within ten (10) Calendar Days of the initial NTP under SOW 1. The WSDOT Partnering Plan shall include a schedule for ongoing meetings, issue resolution tracking, partnering ratings, etc. The Partnering Plan shall address the Partnering Program between the Vendor and WSDOT. The approved Partnering Plan shall be included as part of the Project Management Plan.

### **30.2.2 Initial Project Schedule**

The initial Project Schedule shall be submitted with the Project Management Plan within 30 Calendar Days of the initial NTP under SOW 1 and shall show, in detail, the Vendor's Work activities for the first 90 Calendar Days after the initial NTP under SOW 1, and all remaining phases of the Project shall be represented by phase level summary activities such that they cumulatively indicate all activities required to complete the Project. The Project Schedule shall be updated and provided to WSDOT in soft copy format at least bi-weekly thereafter, at a minimum.

### **30.2.3 Project Management Plan**

The Vendor shall prepare within 30 Calendar Days of the initial NTP under SOW 1 and submit to WSDOT for approval a Project Management Plan (PMP), which shall describe the Vendor's Project team organization and reporting relationships, key Project staff and team member contact information, the Vendor's project delivery approach, Project risks and the Vendor's plan for managing those risks, as well as the Vendor's procedures for implementing, managing and controlling the overall Project. The Project Management Plan shall cover both the implementation Project and on-going support; with updates to the plan as required at the start of the ongoing Operations and Maintenance phase.

The Project Management Plan shall address at a minimum:

- Program description;
- Program objectives;
- Criteria for success;
- Assumptions and constraints;
- Roles and responsibilities;
- WSDOT approvals;

- Work plan;
- Schedule management;
- Scope/change management;
- Cost/budget management;
- Human relations management;
- Document management;
- Stakeholder management;
- Program communications management;
- Risk and issue management;
- Vendor and WSDOT Partnering Plan;
- Vendor and CSC Operator Partnering Plan; and
- Procurement management.

Additional specific requirements to be included in the Project Management Plan are:

- The Vendor shall provide and maintain an overall organizational chart of the key Project staff contributing to the management of the BOS. This shall include the person responsible or leading the various subcomponents of the Project.
- The organizational chart shall include the name of the person, role within the Project, title of the person within their company, years of experience and description of tasks to be undertaken within the Project. The Vendor shall also identify if the person will be a primary contact to WSDOT or any third-party entity for the designated task(s).
- The Vendor shall submit and maintain a key Project staff directory that includes the following information:
  - Name;
  - Title (with respect to the Project);
  - Office address;
  - E-mail address;
  - Office telephone number(s);
  - Fax number; and
  - Cellular phone number.

The key program staff directory shall be updated as needed throughout the course of the Project.

The Vendor shall describe the Project implementation scheme, requirements and schedule, including the approach to securing personnel, facilities, Hardware and Software.

The Vendor shall identify and describe potential Project risks and outstanding issues and their associated impact on Project delivery, including financial and schedule impacts throughout the duration of the Contract. The Vendor shall identify a mitigation approach for each risk or issue.

As the Project progresses, additional risk assessment reports shall be developed by the Vendor and submitted to WSDOT for review and approval on a weekly basis, as part of the Project progress meetings.

#### **30.2.4 Web-based Collaboration Environment**

Within 30 Calendar Days of the initial NTP under SOW 1, the Vendor shall establish and provide WSDOT access to a web-based collaboration environment. This web-based collaboration environment shall provide industry standard team collaboration and document control capabilities. This web-based collaboration environment will be continuously updated with all Project Deliverables, documentation and working papers. The web-based collaboration environment shall be utilized to maintain the issues log and risk register and to provide document control functions for the BOS Project. WSDOT and any third parties as authorized by WSDOT shall have access to this environment at all times except for regularly scheduled maintenance and upgrade windows as approved by WSDOT.

#### **30.2.5 Quality Management Plan**

The Vendor shall prepare, submit to WSDOT for approval, and adhere to a Quality Management Plan that details the scope, requirements, performance measures, criteria, processes, and procedures necessary to deliver and maintain a quality Project satisfying all requirements of the Contract. The Quality Management Plan shall outline at a minimum:

- Process for developing and obtaining WSDOT review and approval of Deliverable expectation documents (DEDs);
- Deliverable development and review process; including peer review process and internal Vendor reviews by responsible Vendor Project leads and Project Manager prior to submission to WSDOT;
- Quality program processes for testing activities;
- Quality program processes for design changes;
- Quality program processes for non-conformances;
- Quality program processes for document and Data control;
- Identification of planned quality assurance review points; and
- Conduct of quality assurance review process including process for coordination and collaboration with the WSDOT Quality Assurance Practitioner.

#### **30.2.6 Security Plan**

The Vendor will provide a Security Plan, which will be submitted to WSDOT for review, comment and approval within 30 Calendar Days of the initial NTP under SOW 1. The Security Plan shall detail the policies, procedures, System capabilities, work steps and other actions to be implemented to meet the BOS security requirements as documented in Section 17. The Vendor shall describe in detail the personnel, facility, Transaction Data, and communications security provisions that will be utilized for the Work associated with this Contract and demonstrate through this Security Plan compliance at a minimum with all aspects of OCIO Policy 141.10. Areas which shall be covered in the Security Plan include, but are not limited to the following:

- BOS System security and access control;
- Cabinet and housing access in the hosting and disaster recovery facilities;
- On-boarding policy and procedures regarding background checks for Vendor employees and Subcontractors;
- Off-boarding policy and procedures regarding access deactivation for Vendor employees and Subcontractors;
- Off-boarding policy and procedures regarding access deactivation for WSDOT and CSC Operator employees;
- Facility access and surveillance for Vendor facilities involved in the performance of the Contract including the hosting and disaster recovery facilities and any other Vendor or Subcontract facilities utilized in the performance of the Work under the BOS Contract;
- Facility secure zones access;
- BOS System Software control including User ID and password protections and System access control;
- Database security;
- Report tool access and distribution;
- Data Warehouse and business intelligence environment access and control;
- Password and access control / authentication control;
- Adherence to Payment Card Industry (PCI) Data Security Standards and Payment Application Data Security Standards (PCI-DSS & PA-DSS);
- Data privacy;
- Data communications security;
- Firewalls, virus and spyware protection; and
- Internet and BOS website security.

### **30.2.7 Subcontractor Management Plan**

The Vendor shall prepare within 30 Calendar Days of the initial NTP under SOW 1 and submit to WSDOT for approval a Subcontractor management plan. The Subcontractor management plan shall outline the roles and responsibilities of any Subcontractors, the reporting relationships of each Subcontractor to the Vendor and the processes to be established by the Vendor to ensure that each Subcontractor performs its assigned responsibilities according to the specifications outlined in this RFP and within the timelines in the approved Project Schedule.

### **30.2.8 Master Test Plan**

Within 60 Calendar Days of the initial NTP under SOW 1, the Vendor will submit a Master Test Plan, as required in Section 24.3, to WSDOT for review, comment and approval. The updated Master Test Plan shall provide a description of the standards for developing individual test plans and procedures for the formal testing. These standards shall address test procedure format, severity levels and Acceptance criteria for each test phase. In addition, the Master Test Plan shall

describe the entry criteria that must be met before a formal test can be started and the exit criteria that must be met before each formal test can be considered complete.

### **30.2.9 Work Place Safety Plan**

The Vendor will develop a Work Place Safety Plan for the Project Office Space which shall be submitted within 30 Calendar Days of the initial NTP under SOW 1. The Work Safety Plan shall be consistent with industry best practices and compliant with applicable Occupational Safety Health Administration (OSHA) requirements.

### **30.2.10 Project Office Space**

Within 60 Calendar Days of the initial NTP under SOW 1, the Vendor shall provide access to Project Office Space for the Vendor and WSDOT team as per the specifications in Section 28.0.

### **30.2.11 CSC Operator Partnering Plan**

Within 45 Calendar Days of NTP for the CSC Operator Contract, the Vendor will collaborate with the CSC Operator to develop and prepare and submit a CSC Operator Partnering Plan. The CSC Operator Partnering Plan shall include a schedule for ongoing meetings, issue resolution tracking, partnering ratings, etc. The CSC Operator Partnering Plan shall be presented to WSDOT for review and approval.

## **30.3 Preliminary Design Phase**

This subsection outlines the required Deliverables during the Preliminary Design Milestone of the BOS Project. These Deliverables will apply to the development of the BOS application and may also apply to the development of the Data Warehouse if WSDOT elects to exercise this option.

### **30.3.1 Software Development Plan (SDP)**

The Vendor will provide a Software Development Plan (SDP) document that will include baseline for the Software development resources, tools, methodology used for customizing the BOS application changes as per WSDOT's requirements. The SDP will provide details on the Software development life-cycle (SDLC) methodology that will be used for the changes including technical implementation approach, Software development tracking, configuration and change management approach, risk analysis and other factors required for the Software development and customization of the application.

The SDP will also provide details on the Software development team structure and how they will be involved in the Project under various functions like Software analysts, architects, developers, QA testers, Systems engineers and administrators, configuration and release management, maintenance and Software project management.

The Software Development Plan (SDP) will include the following at a minimum:

- Software development life-cycle (SDLC) approach and standards to CBOS application tools, architecture, business processes and Data structures;
- Software development team structure and responsibilities;

- Software development methodology like Use Cases, modeling and other development tools;
- Source code management including details of the baseline used for customization of the application;
- Configuration and Release Management approach including releases and deployment cycles;
- Different Environments Implementation (development, QA, test and deployment environment);
- Incorporation of information security practices throughout the Software development lifecycle and the specific steps to comply with OCIO Policy 141.10, Section 7 (Application Development);
- Bug tracking and problem reporting;
- Software testing methodology (unit, integration, regression and end-to-end) including both formal and informal testing approach;
- Software design and development documentation approach;
- Detailed documentation including configuration on the development environment for replication if needed; and
- Software quality control approach.

The SDP will provide detailed plan on how the Vendor will approach the customization of back office application to meet WSDOT's System requirements and Business Rules for CSC operations.

### 30.3.2 Installation Plan

The Vendor must develop and submit an Installation Plan to WSDOT for approval. WSDOT must approve the installation plan prior to the start of any installation activities.

The initial Installation Plan is required within 60 Calendar Days following the initial NTP under SOW 1 and should provide a comprehensive description of all aspects of the installation activities associated with the BOS Project, including, but not limited to the following:

- A baseline installation schedule for WSDOT review, comment and approval. Following approval, monthly updates to the schedule shall be provided to WSDOT. The Vendor will also provide an installation schedule status update during the bi-weekly status meetings. The installation schedule shall identify resources and dependencies as well as the anticipated durations for each installation activity.
- A description of installation resources to include personnel and equipment.
- A description of how the Vendor will work with its equipment providers to ensure that all BOS equipment is installed and tuned in accordance with the manufacturer's specifications.
- A description of the methods to be used to manage delivery and staging of the WSDOT CSC BOS equipment to be installed.
- A description of any special or unique installation requirements.

- A detailed component list and description of each item shall be recorded for each installation activity. The component list will contain details on each item including version number and serial number.
- A listing of key installation personnel and their titles. Installation personnel shall be approved by WSDOT or its designated representative. Any changes to the staff identified on the chart or responsibilities shall be submitted to WSDOT in writing for approval.

### 30.3.3 Requirement Traceability Matrix (RTM)

The Vendor will prepare and maintain a requirements traceability matrix for the duration of the Contract. The RTM will document how each requirement is met (with a reference to the appropriate document) and the associated test procedures within each test phase which validates that the requirement has been met and a link to the associated test reports/test results. The Vendor shall initially submit the RTM structure and format for review and approval and then populate the RTM content as the System Requirements Document is prepared and completed. The RTM shall then be maintained both for the duration of the implementation Project and during Operations and Maintenance.

### 30.3.4 Initial Core Team Training

The Vendor shall provide WSDOT staff, the WSDOT General Toll Consultant and other consultant staff supporting WSDOT with initial core team training on the Vendor's proposed BOS solution. This training will be hands-on with case exercises. The Vendor will develop a proposed agenda and schedule for these training sessions within 15 Calendar Days of the initial NTP under SOW 1 and will submit this agenda to WSDOT for review and approval. The initial core team training will be conducted within 90 Calendar Days of the initial NTP under SOW 1.

### 30.3.5 Configuration Management Plan

The Vendor will provide a Configuration Management Plan (CMP) document that will include steps and procedure to track, document and manage any COTS application Software, Hardware, configuration files and Project documentation according to industry best practices and in compliance with OCIO Policy 141.10, Section 8.1 (Change Management). The CMP will also provide details on the configuration management tools and techniques that will be used during the Project implementation cycle.

The Vendor's Quality Assurance Manager will be responsible for ensuring the steps are followed as described in the configuration management plan during the Project implementation. The CMP will provide details on all the key personnel from the Vendor side involved in the configuration management control process for the Project.

Configuration management tools and procedures specified in the CMP will be used to track and manage all the Software and Hardware implementations, changes and updates using the version numbering and serialization scheme. All documentation for the Project will also follow the same configuration management tools to manage the revisions and changes to the Project documents.

The Vendor will assist WSDOT in setting-up and implementing a Change Management Control Board (CMCB). The CMCB will include key members from WSDOT who will review and approve changes to the System Hardware and Software setup configuration, with recommendations, guidance and input from the Vendor.

Vendor will not apply any changes without formal approval from the CMCB once the Project is live and operational. Once the changes are approved or rejected, they will be documented as part of the configuration management control process. The CMP will provide samples of the change request and decision forms for review and approval. During the Project implementation phase, regular CMCB meetings will be conducted to review the progress and implementation plan. Meeting minutes will be used as the baseline for the implementation.

### **30.3.6 System Architecture**

The Vendor will provide a System Architecture design document which provides a conceptual blueprint of the overall BOS solution. The System Architecture document will outline the planned application and technical architecture for the System. This document shall include the major Software and Hardware components of the BOS application and define and describe the interactions between these components.

In addition, the Vendor must describe how Data will flow through the System. This description should include, at a minimum, the category(s) of Data (OCIO Standard 141.10, Section 1.2.1) generated and stored, all Data origination and termination points in the System, all user types (e.g. Vendor personnel, WSDOT personnel, general public) who will have access to the Data, and the level of access permitted to Data in the System.

### **30.3.7 Organizational Change Management Plan**

Within 90 Calendar Days of the initial NTP under SOW 1, the Vendor will develop an Organizational Change Management (OCM) Plan for the BOS Project, as required in Section 22.5, and submit it to WSDOT for review, comment and approval. In addition, submitted to WSDOT for review, comment and approval will be the required OCM Plan components including the Communication Plan, Readiness Plan, Training Plan, and Pre-Go-Live and Post-Go-Live support plan and various materials required as part of or resulting from these plans.

These subsidiary plans shall be submitted as specified in Section 22, or if a due date is not specifically stated, then the plan shall be submitted according to the timeline in the Project Schedule as approved by WSDOT.

### **30.3.8 Communications Plan**

Within 90 Calendar Days of the initial NTP under SOW 1, the Vendor shall prepare and submit to WSDOT for review a Communications Plan. The Communications Plan shall define a strategy for communicating with WSDOT business units, the CSC Operator, other State agencies and other stakeholders about the BOS Project. The Communications Plan shall define key communication messages and themes and identify specific communications techniques and activities to be employed to communicate with various stakeholder groups.

### **30.3.9 System Requirements Document (SRD)**

The Vendor will provide a System Requirements Document (SRD) that will include the BOS environment details, Hardware and Software configurations, all specifications and requirement details needed for the Project implementation. The SRD will also include a requirements traceability matrix (RTM) as an appendix in Microsoft Excel format.

The System Requirements Document (SRD) will include the following at a minimum:

- List and description of all System requirements;
- List and description of all functional requirements;
- List and description of all Software requirements;
- Listing of baseline source used for all requirements;
- Description the interaction between the functional components of the System; and
- Description of any constraints affecting the functionality of the System.

The SRD will be developed and submitted by the Vendor as a part of its requirement gathering effort. The Vendor may submit the SRD in functional groups such as:

- OBOS;
- CBOS;
- Accounting and Financial; and
- Reporting

During the customization and implementation phase of the BOS Project the SRD will be updated to reflect any changes to the requirements that have been approved by WSDOT. The approved SRD and RTM along with WSDOT Business Rules will be the basis for defining the testing requirements to be demonstrated during the Factory Acceptance Test (FAT).

### **30.3.10 Training Plan**

The Vendor shall prepare and submit for WSDOT review and approval a Training Plan. This Training Plan shall consist of:

- Training Needs Analysis for each target audience affected by the Project. The analysis will highlight the business processes that are changing, identify Systems capabilities / functionalities that the target audience will need to be trained on, establish who will be affected by the change, and identify the desired level of knowledge / skills expected after the training;
- Training Strategy that includes the approach that will be taken to develop the training materials along with the timing required for development, resources needed and dependencies / considerations including but not limited to the items and Deliverables that follow, and results in the production of training materials to meet the needs identified in the Training Needs Analysis;

### **30.3.11 Data Migration Plan**

The Vendor shall prepare a Data Migration Plan for the new BOS. The Data Migration Plan will provide a detailed and comprehensive approach to completing the Data migration process starting from initial analysis and design activities to final Data validation and live System processing and operations. The Data Migration Plan will also define the Datasets to be migrated from the legacy System and how it will be used in the new System.

The Data Migration Plan shall include but not be limited to:

- Overview of the Project, a high-level description of the target System, and the impact of the migration to the success of the Project;
- A clearly defined scope of efforts including expectations, assumptions, resource needs (internal and external), objectives, and production results;
- Definition of Data to be migrated;
- The criteria for deeming migration successful. This will include elements such as testing, validation, and that all migrated Data fully complies and supports the target System’s functionality;
- Areas and aspects which are deemed out of scope or not necessary as part of the Data migration process;
- Identification of any potential risk factors and or mitigation efforts in achieving successful migration as per the success criteria;
- Data migration schedule; and
- Data migration management and delivery details as follows:
  - Data migration team,
  - Data migration approach,
  - Data migration required Deliverables,
  - Data migration tasks including:
    - Requirement analysis,
    - Specifications development,
    - Development and unit testing,
    - Migration testing and validation, and
    - Actual migration implementation.

## 30.4 Final Design Phase

This subsection outlines the required Deliverables during the Final Design Milestone of the BOS Project. Certain Deliverables in this phase as indicated in Appendix 5: Price Proposal will apply to both Phase 1, Phase 2 and the WSDOT optional components.

### 30.4.1 Disaster Recovery Plan

The Vendor will provide a Disaster Recovery Plan including disaster recovery procedures for the BOS for WSDOT review, comment and approval. The Disaster Recovery Plan will be submitted for review and approval prior to the completion of System Design. The Disaster Recovery Plan shall include but not be limited to the following:

- Business impact analysis of an outage;
- Initial Systems damage assessment checklist;
- Description of redundant Systems and failover processes;

- Equipment list of equipment in the primary BOS hosting environment, including a Software list which includes the version and patch level;
- Equipment list of equipment in the BOS back-up or disaster recovery site including a Software list which includes the version and patch level;
- Emergency contact lists;
- Hardware manufacturer and Software Vendor contact lists;
- Detailed procedures/processes for failing over to the back-up hosting site in the event of an outage at the primary hosting site;
- Detailed procedures/processes for falling back from the back-up hosting site to the primary hosting site;
- Test plans including detailed test scripts for testing the fail over and fall back procedures; and
- Detailed procedures/processes that will be used in the event of complete destruction of the primary host site.

The Disaster Recovery Plan will be tested as part of Integration and Commissioning Testing and then annually during the Operation and Maintenance phase of the System. This disaster recovery testing must include actually exercising the Failover-Failback process.

### **30.4.2 Interface Control Documents (ICD)**

The Vendor shall prepare (or update as required if there is an existing ICD) and obtain WSDOT approval of an Interface Control Document (ICD) for each interface within the Business Requirements for the BOS. The Vendor may submit ICDs for review and approval by WSDOT in logical groupings of interfaces.

### **30.4.3 Test Procedures**

The Vendor shall prepare test procedures for each phase/type of testing. All formal test procedures shall conform to the standards defined in the Master Test Plan. At a minimum, the test procedures should include the following elements:

1. Introduction
  - a. Test Purpose,
  - b. Test Platform (including required equipment),
  - c. Time Estimate,
  - d. Pre-requisites, and
  - e. Set-up;
2. Individual Test Conditions/Steps
  - a. Test Condition Identifier (i.e., reference to requirement),
  - b. Description,
  - c. Expected Results,
  - d. Actual Results, and

e. Notes.

As test procedures for specific formal tests are developed, the test procedures shall be submitted to WSDOT for review, comment and approval. Test procedures may be submitted by the Vendor for each individual test or a grouping of tests. Once approved, the test procedures shall be added to the Master Test Plan as addendums.

#### **30.4.4 Data Migration Specifications**

The Vendor shall prepare and submit for WSDOT review detail design specifications for all Data migration programming work units. The Data migration specifications shall include:

- All files/tables to be built in the new environment;
- Data sources for those files/tables;
- Estimated Data volumes and transformation/mapping requirements; and
- Identification of Data sources that require WSDOT intervention (e.g., interpretation, mapping) or cleansing (e.g., rationalization or repair of Data) prior to programmatic loading of such Data to the new BOS application.

#### **30.4.5 System Detail Design Document (SDDD)**

The Vendor will provide a System Detailed Design Document (SDDD) that will include the design specifications of all Hardware, Software, interfaces and network communication provided to meet the WSDOT's requirements for the new BOS. Hardware detailed design shall describe all Hardware specifications including appropriate diagrams and facility layouts. Software detailed design shall describe the module and/or process level, user interface and screen layouts, report formats testing procedures, operational procedures, other pertinent design documentation for the BOS.

The SDDD shall include the following at a minimum:

- Detailed technical architecture, including equipment layout diagrams;
- Server design, including sizing and processing calculations;
- Storage System design, including sizing and processing calculations;
- Data backup Systems design, including sizing and processing calculations;
- Detailed Database design, schema and entity relationship modeling including sizing and processing calculations and Data dictionary;
- High System availability design; including servers, network, Database and application;
- Internal functional System interfaces for non-COTS elements;
- User interfaces including reports, correspondence and screen formats for the application;
- Detailed interface specifications between all Software components (except for internal COTS interface components);
- Module level descriptions and interaction among various modules (for non-COTS elements);

- Detailed description to the module and process level Data flow diagrams, state diagrams and Data queues for the functions (for non-COTS elements);
- Detailed Data management design and processes, including summarization, archiving and purging;
- Application performance monitoring details;
- Third party provided Software details including manuals;
- External System interfaces;
- Environment specification with space and power requirements;
- Degraded mode of operations and impacts of failures on System operations;
- UPS sizing information detailing all equipment on the UPS(s) and their total power requirements;
- Specification sheets with complete bill of materials, including Hardware, Software and support agreements;
- Network sizing and details; and
- System and user security access methodology details.

The SDDD will show the Vendor's understanding of the functional and operational requirements and describe the design processes and policies in place to provide a high quality and reliable Product that meets the requirements of the new BOS.

## **30.5 Procurement Phase**

This subsection outlines the required Deliverables during the Procurement Milestone of the BOS Project. Certain Deliverables in this phase as indicated in Appendix 5: Price Proposal may apply to both Phase 1, Phase 2 and the WSDOT optional components.

### **30.5.1 Procurement Plan**

Within 60 days of the initial NTP under SOW 1, the Vendor shall prepare a Procurement Plan and submit to WSDOT for review and approval. This Procurement Plan shall identify the Products and Services that the Vendor is obtaining from third party suppliers; the process for identifying and selecting these suppliers and the timeline for obtaining these Products and Services. As part of this plan, the Vendor shall identify any risks associated with procurement activities and define mitigation strategies for each identified risk.

### **30.5.2 Hardware and Software Installed and Accepted**

This Deliverable consists of the receiving, installing, configuring, testing and Acceptance of Hardware and Software elements of the BOS application. The Vendor may group the Hardware and Software into logically related bundles for Deliverable invoicing purposes. For each item being submitted to WSDOT for payment, the Vendor shall certify to WSDOT that the item has been installed, configured and tested. The Vendor shall also post the completed unit test documentation in the project collaboration environment for review by WSDOT at its option.

### **30.5.3 Third Party Hardware Manuals**

The Vendor shall provide a complete set of third party Hardware manuals to WSDOT. In addition, a second set shall be maintained for use by the Vendor's maintenance personnel. Each set of Hardware manuals shall include technical manuals, Hardware reference materials, parts lists, operator's guides, installation and maintenance manuals and all other related materials necessary to install and maintain the third party Hardware installed on or as part of the BOS. Manuals shall be provided in both hardcopy and electronic format.

### **30.5.4 Third Party Software Manuals**

The Vendor shall provide a complete set of Third Party Software manuals to WSDOT. In addition, a second set shall be maintained for use by the Vendor's Software support personnel. The set of Software manuals shall include user's manuals, programmer's reference guides, installation and maintenance manuals and all other related materials necessary to install and maintain the Software Systems. In addition, the Vendor shall maintain a full set of electronic media containing the Third Party Software installation materials as well as any patches or updates provided by the Software Vendor/ manufacturer. Manuals shall be provided in both hardcopy and electronic format.

## **30.6 Installation and Testing Phase**

This subsection outlines the required Deliverables during the Installation and Testing phase of the BOS Project. Certain Deliverables in this phase as indicated in Appendix 5: Price Proposal will apply to both Phase 1, Phase 2 and the WSDOT optional components.

### **30.6.1 Customer Website**

#### **30.6.1.1 Wireframes**

The Vendor shall submit the completed wireframes for the customer website to WSDOT for review and approval. The Vendor shall update these wireframes to reflect the results of the usability study conducted by WSDOT or a third party engaged by WSDOT and then re-submit the wireframes to WSDOT for final review and approval.

#### **30.6.1.2 Visual Design Mock-ups**

The Vendor shall submit the completed visual design mock-ups for the customer website to WSDOT for review and approval. The Vendor shall then update these design mock-ups based on input from WSDOT and submit for final review and approval.

#### **30.6.1.3 Completion of WSDOT Usability Study on the Unit Tested Software**

The Vendor shall make necessary modifications and corrections to the unit tested website Software to address any issues identified by an independent usability study performed either by WSDOT or a third party engaged by WSDOT. The Vendor shall then demonstrate these modifications to WSDOT and submit the revised website application Software for final review and approval by WSDOT.

#### **30.6.1.4 Security Certification by Independent Firm**

The Vendor shall engage an independent third party firm to perform a security test on the website. The final report from this security test and documentation of the security certification shall be submitted to WSDOT.

#### **30.6.1.5 Accessibility Certification by Independent Firm**

The Vendor shall engage an independent third party firm to perform an accessibility test on the website to confirm that the website has Level AA accessibility. The final report from this accessibility test and documentation of the security certification shall be submitted to WSDOT.

### **30.6.2 Test Reports**

After the completion of each formal test, the Vendor will submit a test report to WSDOT for review and approval. The Test Report shall describe the results of the test; a listing of all defects identified together with the severity level of each; a plan for resolving those defects; and a recommendation for retests (if appropriate). WSDOT reserves the right to withhold approval and any associated payments pending completion of corrective action and any necessary retests. Test reports shall be prepared for the following tests:

- Component Acceptance Test;
- Factory Acceptance Test;
- Hardware Production Test;
- Integration and Commissioning Test;
- Security Test;
- Performance Test;
- Disaster Recovery Test;
- User Acceptance Test; and
- Operations Test.

### **30.6.3 Data Migration**

The following Deliverables are associated with Data migration activities from the existing RITE System to the new BOS application.

#### **30.6.3.1 Data Migration Development and Unit Test Report**

The Vendor shall submit a detailed unit test report for the Data migration programming work units following completion of all unit test activities on the Data migration programs. The Data Migration Development and Unit Test Report shall include:

- Unit test conditions;
- Expected results;
- Actual results; and
- Open issues (if any).

### **30.6.3.2 Trial Migration Test Report**

Following completion of the Trial Migration Test, the Vendor shall submit the Trial Migration Test Report. The Trial Migration Test Report will provide a summary of the test results. The Trial Migration Test Report shall describe the results of the test; a listing of all defects identified together with the severity level of each; a plan for resolving those defects; and a recommendation for retests (if appropriate). The final approved test report should also be added to the Master Test Plan as an addendum.

### **30.6.3.3 Full Migration Test Report**

Following completion of the Full Migration Test, the Vendor shall submit the Full Migration Test Report. The Full Migration Test Report will provide a summary of the test results. The Full Migration Test Report shall describe the results of the test; a listing of all defects identified together with the severity level of each; a plan for resolving those defects; and a recommendation for retests (if appropriate). The final approved test report should also be added to the Master Test Plan as an addendum.

## **30.6.4 Transition Plan**

The Vendor will provide a Transition Plan document that will include steps, procedures and approach to transition the current BOS and operations to the new commercial BOS. The Transition Plan will address the System configuration and installation, the initiation of Services and the seamless transition from the current BOS to the new BOS. The Transition Plan will be submitted to WSDOT for review at least six (6) months prior to the initial Go-Live date.

The Transition Plan will include the following at a minimum:

- Possible approaches to transition;
- Criteria for successful transition;
- System resource identification and allocation for the transition;
- Roles and responsibilities of the BOS, all other vendors and WSDOT;
- Transition schedule and implementation plan;
- Personnel allocation for the transition;
- Training requirements for the transition;
- Transition status reporting plan;
- Fallback plan in case of major issue during transition; and
- Any other specific requirements for transition.

The Vendor shall submit the final transition status report once the transition to the new BOS is complete (implemented in production and eligible for either Phase 1 Acceptance or Phase 2 Acceptance based on the criteria defined in Section 27.2 and Section 27.3.)

## **30.6.5 Successful Completion of PCI Audit**

The Vendor shall submit documentation of its achieving PCI compliance including a copy of the full audit report from the independent audit firm and any associated documentation showing successful completion of the PCI audit.

### 30.6.6 **Successful Completion of OCIO Audit**

The Vendor shall submit documentation demonstrating its successful completion of an OCIO audit. The Vendor shall submit a copy of the full audit report from the independent audit firm and any associated documentation showing successful completion of the OCIO audit.

### 30.6.7 **Successful Completion of SOC1 and SOC2 Audit**

The Vendor shall submit documentation demonstrating its successful completion of a SOC1 and SOC2 audit. The Vendor shall submit a copy of the full audit report from the independent audit firm and any associated documentation showing successful completion of the SOC1 and SOC2 audit.

### 30.6.8 **Systems Administration Manual**

The Vendor will provide a Systems Administration Manual that will serve as a guide to the overall administration and management of the BOS applications. The System Administration Manual will be used as a reference by Vendor administration staff in managing the new BOS. The System Administration Manual shall include the following at a minimum:

- Description of the programs and processes that need to be monitored to ensure that the BOS is operational;
- Procedures for validating tasks, processes and jobs have successfully completed, and errors and exceptions encountered;
- Database administration activities required to keep the BOS operational along with the schedule of such activities;
- Details of user access privileges and controls, and user tracking processes used to ensure BOS security and Data integrity;
- Procedures for validating the successful transfer and receipt of messages/files for all interfaces;
- Listing of all the error codes, their meaning and potential associated problems with a step-by-step guide to troubleshooting and correcting the problem;
- Description of operations monitoring features in BOS to ensure performance requirements; and
- Ad-hoc reporting tools and usage of the tools to generate ad-hoc reports.

Prior to requesting Final System Acceptance of the new BOS, the Vendor shall provide final updates to the System Administration Manual to include any changes or fixes that occurred during the implementation, transition and initial operational phase of the BOS solution.

### 30.6.9 **Post Go-Live Support Plan**

The Vendor will create a Post Go-Live Support Plan and obtain WSDOT approval of this plan no later than 60 Calendar Days before the first scheduled Go-Live date. The Post Go-Live Support Plan shall:

- Identify the tasks and roles required to support the application during the "go-live" and post "go-live" periods;

- Outline the escalation process, prioritization and issue resolution;
- Identify people who will be assigned to the support roles, and where they are located;
- Set expectations for people who perform the support roles; and
- Appoint a contact person that the key WSDOT and CSC Operator users must consult when escalating issues.

The Post-Go-Live Support Plan will identify the series of tasks to be performed in the appropriate sequence to ensure production readiness and support WSDOT and the CSC Operator in post-go live issues. This plan will include the following:

- The approach for business continuity during and after BOS cutover;
- The Vendor's plan to manage each implementation (if phased);
- Plan to execute required Data conversions or migrations including, but not limited to, baseline configuration tables and parameters, and ancillary supporting Data as required by the System to function successfully in the production environment;
- Conduct production pilot(s) (including "day in the life" simulations) and fine tune solution as agreed appropriate;
- Compile and maintain solution issue lists;
- End to end final validation of the operational architecture for each solution area; and
- Conduct quality and progress reviews with appropriate WSDOT personnel.

### 30.6.10 Maintenance Plan

At least 45 Calendar Days prior to the Go-Live for Phase 1, the Vendor will submit a Maintenance Plan identifying all aspects of the maintenance program and Services that will be provided as part of the BOS Project. The Maintenance Plan shall address both Hardware and Software maintenance and should include, but not be limited to the following:

- An organizational chart that contains titles, names and reporting structure for personnel who will be assigned to the Hardware, Software and networking aspects of the maintenance program. If any of the personnel will not be assigned to the BOS operations and maintenance phase on a full-time basis, the percentage of FTE shall be indicated on the organizational chart.
- A description of the maintenance procedures including preventive and predictive maintenance as well as unscheduled maintenance such as responses to alarms generated by the System or issues reported directly by WSDOT staff, the CSC Operator or other third parties.
- A schedule and description of preventive and predictive maintenance activities for all System components.
- The process the Vendor shall utilize to respond to all alerts and notifications in the event a subsystem or a component of the BOS experiences a failure. Unscheduled maintenance shall be classified, tracked and reported. The response times to the failure and the repair times are measured against the requirements detailed in Section 25.9.

- A listing of the number and title of maintenance personnel for Hardware, Software and networking aspects of the System who will be on duty and/or on call for all periods of the day and work week.
- A listing of contact numbers and email addresses for maintenance personnel with the priority of notification protocol indicated in the event of major problems and/or emergencies.
- A description of the Maintenance Online Management System (MOMS) or any other tools and methods that shall be used to monitor the BOS, including priority levels for response to alarms, paging protocol and sample reports and screens.
- A description of the method(s) that will be utilized to measure and report on the performance of the System, especially with regard to Performance Requirements as described in Section 18.12 of this document.
- A description of the maintenance training program for staff that will perform maintenance activities. Documentation that maintenance staff are certified to perform maintenance on the BOS equipment before allowing them access.
- A description of configuration management and inventory control processes to be used to track equipment and Software. (Refer to Section 30.3.5, Configuration Management Plan for more information regarding configuration management requirements).
- A listing of spare parts including quantities and processes to be utilized to ensure that the inventory of spares is available as needed to maintain performance and availability requirements.
- A description of handling any maintenance activities that may need to be performed during hours of peak usage of the BOS, including how this will affect response time and this System impact will be managed to ensure compliance with System performance requirements.

### 30.6.11 Maintenance and Service Manuals

The Vendor will provide a Maintenance Service Manual or Manuals describing the Hardware and Software maintenance procedures to be followed by technicians for the maintenance of the BOS to ensure that the System meets or exceeds the performance requirements established in Section 18.12. The Vendor will deliver a Maintenance Service Manual (covering the Back Office equipment and Systems) to WSDOT for review, comment and approval at least 60 Calendar Days prior to the Go-Live for Phase 1.

The Manual(s) shall include, but not be limited to the following:

- Project description and Systems overview;
- Installation instructions;
- Troubleshooting procedures;
- Predictive and preventive maintenance procedures,
- MOMS instruction;
- Maintenance schedule(s);
- Diagrams, schematics, and layouts;

- As-Built drawings;
- Parts lists;
- References to third party service manuals for equipment or Software provided by the Vendor for use on the BOS Project;
- Listing of error codes for each subsystem; and
- Test procedures and guidelines.

The Maintenance Service Manual(s) shall be updated as part of any Change Orders that affect Hardware or Software maintenance requirements. Manuals shall be provided in both hardcopy and electronic format.

In addition to the Maintenance Service Manual(s) provided specifically for the BOS, the Vendor shall also ensure that standard service manuals for all commercial equipment will be made available to technicians working on the BOS Project and to WSDOT on request.

### **30.6.12 Maintenance Online Management System (MOMS)**

At least 45 Calendar Days prior to the Go-Live for Phase 1, the Vendor shall complete configuration, test and implement its MOMS solution to production status. Prior to moving the MOMS to production status, the Vendor shall provide WSDOT with a detailed walkthrough of the functionality of the System including a scripted Software demonstration of its MOMS to allow WSDOT to verify that the MOMS provides all functionality as requested in Section 25.4.

### **30.6.13 KPI Dashboard**

At least 45 Calendar Days prior to the Go-Live for Phase 1, the Vendor shall complete configuration, test and implement its KPI Dashboard to production status. Prior to moving the KPI Dashboard to production status, the Vendor shall provide WSDOT with a detailed walkthrough of the functionality of the dashboard including a scripted Software demonstration to allow WSDOT to verify that the KPI Dashboard provides all functionality as requested in Section 25.5.

### **30.6.14 Annual Audit Plan**

At least 45 Calendar Days prior to Go-Live of Phase 1, the Vendor shall provide to WSDOT for review and approval an Annual Audit Plan for ensuring compliance with the various on-going audit requirements of the RFP including PCI audit, SOC 1 and SOC 2 audit, OCIO audit and System audit. At least 45 Calendar Days prior to the Go-Live of Phase 2, the Vendor shall provide an update of the Annual Audit Plan to address Phase 2 functionality including the required audit of the Trip Building process for adherence to the Trip Building KPIs (please refer to Appendix 3: Contract, Exhibit J: Performance Measures, Liquidated Damages and Incentives). This plan shall include the audit plan to be followed by the external Systems auditor engaged by the Vendor to validate compliance with the Trip Building KPIs. The Vendor shall select a statistically valid sample size, as defined in the Annual Audit Plan, to support its annual audit.

### **30.6.15 Data Dictionary (WSDOT Option for Data Warehouse)**

At least 30 Calendar Days prior to the Go-Live for the Data Warehouse component (if WSDOT elects to execute this option), the Vendor shall provide to WSDOT for review and approval a completed Data Dictionary consistent with the specifications in Section 14.9. The Vendor will

then provide an updated version of the Data Dictionary within 30 Calendar Days after Go-Live to reflect any adjustments through testing and cut-over. The Data Dictionary will then be maintained regularly throughout Operations and Maintenance phase.

## **30.7 Training Phase**

This subsection outlines the required Deliverables during the Training Milestone of the BOS Project. Certain Deliverables in this phase as indicated in Appendix 5: Price Proposal may apply to both Phase 1, Phase 2 and the WSDOT optional components.

### **30.7.1 Training Courseware and Training Materials**

The Vendor will provide all training materials and courseware including instructor guides and student workbooks and end-user documentation including user manuals and job aids for WSDOT review, comment and approval in sufficient time to allow for their use during the training to be provided prior to User Acceptance Testing. Once approved, the Vendor will produce sufficient copies of these materials to accommodate the estimated number of personnel who will attend each training course and one reproducible set of documentation on compact disc (CD) that may be used for future training sessions.

### **30.7.2 Training Pilot Walkthrough**

Following submission of the draft training courseware and training materials, the Vendor will conduct a comprehensive walkthrough of all training materials with the WSDOT Project team and other stakeholders. This walkthrough shall include a review of the full training curriculum including all proposed hands-on exercises and case studies. To ensure the depth of coverage required, it is envisioned to be a multiple day activity. The Vendor shall then incorporate all feedback from the walkthrough into the training course and training materials prior to re-submitting these materials to WSDOT for final review and approval.

### **30.7.3 User Acceptance Test Training**

The Vendor shall plan, schedule and conduct training for all WSDOT user acceptance testers prior to the start of User Acceptance Testing. The Vendor shall then update the training courseware and training materials as required based on any feedback received during the User Acceptance Test Training.

### **30.7.4 Train the Trainers Course(s) Completed**

The Vendor shall plan and then schedule and conduct train the trainer training for the WSDOT and CSC Operator staff who will be performing the end-user training. This training shall include a full walkthrough of the final training courseware and training materials including a review of the instructor manual.

### **30.7.5 End User Training Completed**

The Vendor shall submit a report following the end of end user training summarizing the training conducted, dates conducted, number of attendees and names of WSDOT and CSC Operator attendees. The Vendor shall design, develop and obtain WSDOT approval of a post-training

course survey to be completed by training participants. The Vendor shall ensure the survey is conducted and shall report the results of this survey as part of the end of user training report.

### **30.7.6 Readiness Plan**

At least 60 Calendar Days prior to the Go-Live for Phase 1 and Phase 2, the Vendor shall prepare and provide to WSDOT for review and approval a Readiness Plan. The Readiness Plan shall be developed consistent with the specifications outlined in Section 22.7.

### **30.7.7 Updated Training Materials Post Go-Live**

Within 30 Calendar Days after each scheduled Go-Live, the Vendor shall provide WSDOT with an updated set of training courseware and training materials reflecting any updates made based on User Acceptance Testing, end-user training or initial Go-Live support. The updated materials will be provided as a single hard copy set and in soft copy.

## **30.8 Production Cut-Over Phase**

This subsection outlines the required Deliverables during the Production Cut-Over Milestone of the BOS Project.

### **30.8.1 System Go-Live**

Upon meeting the Go-Live criteria as outlined in Section 27.1 and then successfully executing the cut-over to production, the Vendor shall notify WSDOT in writing that the BOS application is ready for production use. This notification shall provide a summary of all open issues, the anticipated action to address each open issue and the target date for issue resolution.

### **30.8.2 Go-Live Report**

Within 30 Calendar Days after each scheduled Go-Live, the Vendor shall provide a Go-Live Report which documents the status of the Go-Live. The report shall provide a summary of all open issues, the anticipated action to address each open issue and the target date for issue resolution.

### **30.8.3 System Release Notes**

Within 30 Calendar Days after each scheduled Go-Live, the Vendor shall provide a set of System Release Notes fully updated to reflect the Software which was transitioned to production status. An updated set of System Release Notes shall also be provided for any System updates during Operations and Maintenance. The release notes will have the following details at a minimum:

- Release Details – Includes the document name, Product name, release type, release number, release date, functional area etc.;
- Release Purpose – A brief overview of the purpose of the release note with a listing of items included in this release related to the changes in the System;
- Change Details – Summary of the changes included in the release;

- Steps to Reproduce – Details on the steps followed to simulate the issues or changes needed;
- Change Resolution – Summary of the changes that were made to resolve the issue or enhancement;
- User Impact – Any specific steps the System user needs to take to support the changes. It should include any other functionality affected by the changes;
- System Impact – Any specific impact related to the System that needs to be accounted for the given release;
- Testing Results – Include the summary details of testing conducted and the results found;
- Comments & Notes – Any specific comments and notes about the changes releases including any supporting documentation provided with the release details;
- Exceptions & Disclaimers – Any specific exceptions or disclaimers to follow with the release details;
- Approval Details – Include the details for the person or group approving the release to be deployed;
- Deployment Details – Include the schedule and steps for deployment for the release;
- Release Revert Detail – Include details and steps to revert the release in case of issues after the deployment; and
- Support Contact – Include details for support contact for the release.

The actual System release note format will be established between the Vendor and WSDOT during Project start-up. The Vendor will follow the System release notes review guidelines established by WSDOT and provide the release notes to WSDOT at least 15 Calendar Days ahead of a planned release for review and approval before finalizing scheduling of the actual deployment of the release. The release notes should accompany the test results for WSDOT review depending on the type of changes planned for release. Once the release notes are approved, the Vendor will schedule the release and notify the concerned parties including WSDOT, the CSC Operator, and potentially the general public as needed, for the release deployment both prior and after the release.

#### **30.8.4 Hardware and Software Inventory**

The Vendor will maintain an inventory of all Hardware and Software installed on the BOS. The logs shall record the date, time and location of each item of Software, Hardware or other equipment installed on the System, together with any configuration settings or options selected during the installation process or changed subsequent to the initial installation. The Hardware and Software Inventory shall be submitted to WSDOT within 30 Calendar Days of the initial BOS Go-Live and updated periodically thereafter (at least every three (3) months or more frequently if there are significant changes to the inventory).

### **30.9 Acceptance**

This subsection outlines the required Deliverables related to Phase Acceptance and Final System Acceptance for the BOS Project.

### **30.9.1 Phase Acceptance Letter**

The Vendor shall submit a letter to WSDOT requesting Phase Acceptance for Phase 1, Phase 2 or a potential option or modification executed as a separate phase of the BOS Project. The Vendor may submit this letter upon achieving the criteria for Phase Acceptance as defined in Section 27.2 (Phase 1 Acceptance) or Section 27.3 (Phase 2 Acceptance) or Section 27.5 (Acceptance of Modifications). The Phase Acceptance Letter shall certify that the Vendor has met all of the requirements for Phase Acceptance for the particular phase. The letter shall be accompanied by any supporting documentation required to substantiate the certification.

### **30.9.2 Final Acceptance Letter**

The Vendor shall submit a letter to WSDOT requesting Final System Acceptance once the Vendor has fully met the criteria for Final System Acceptance as outlined in Section 27.4. The Final System Acceptance Letter shall certify that the Vendor has met all of the requirements for approval of Final System Acceptance. The letter shall be accompanied by any supporting documentation required to substantiate the certification.