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Performance Audit

Washington State Department of Transportation: Improving the Toll Collection System

May 4, 2016

Washington's statewide, all-electronic, toll collection system began development in 2009 and started operations in 2011. The system, managed by the Washington State Department of Transportation's Toll Division, has processed millions of toll transactions that generated hundreds of millions in toll revenue to meet the transportation needs of Washingtonians.

However, we found the system lacks key functions and has other operational limitations that affect toll processing, collection and managerial reporting. In addition, WSDOT has not been successful in enforcing contract requirements designed to ensure the toll system vendor complies with information security standards, leaving in question how well the system protects sensitive information. Our analysis found that issues affecting the toll system resulted from WSDOT's limited attention to adding necessary expertise, establishing functions and processes, and completing tolling system development. Enhancing leadership and management strategies would help ensure these issues do not persist as the Toll Division develops the next generation toll collection system and adds more tolled facilities.

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State Auditor's Office contacts

State Auditor Troy Kelley
360-902-0370, Auditor@sao.wa.gov

Jan M. Jutte, CPA, CGFM – Deputy State Auditor
360-902-0360, Jan.Jutte@sao.wa.gov

Chuck Pfeil, CPA – Director of State & Performance Audit
360-902-0366, Chuck.Pfeil@sao.wa.gov

Susan Hoffman – Principal Performance Auditor
360-725-5616, Susan.Hoffman@sao.wa.gov

Sohara Monaghan – Senior Performance Auditor
360-725-5616, Sohara.Monaghan@sao.wa.gov

Olha Bilobran – Senior Performance Auditor
360-725-5606, Olha.Bilobran@sao.wa.gov

Adam Wilson – Deputy Director for Communications
360-902-0367, Adam.Wilson@sao.wa.gov

To request public records:

Public Records Officer
360-725-5617, PublicRecords@sao.wa.gov

Executive Summary

Washington's statewide, all-electronic, toll collection system began operations in 2011. Between December 2011 and June 2015, the toll system collected more than $425 million in revenue, money the state uses to meet bond obligations and the transportation needs of Washingtonians. Tolls are now collected at four facilities in Washington: the Tacoma Narrows Bridge, the State Route (SR) 167 High Occupancy Toll (HOT) Lanes, the SR 520 Bridge and the Interstate 405 (I-405) Express Toll Lanes.

A performance audit published by our Office in 2013 found that the Washington State Department of Transportation (WSDOT) faced several challenges when it launched the toll collection system. In that audit, we recommended that WSDOT improve certain leadership and management activities to guide future projects. While WSDOT has since made progress – by strengthening the Toll Division's authority for decision-making, clarifying roles and responsibilities within WSDOT for some toll program operations, and developing a project management function to help guide operations – opportunities for improvement exist. It is crucial that WSDOT and its Toll Division continue to evaluate and improve the management of the tolling program, not only to address current issues but particularly before embarking on projects such as toll facility expansion and the procurement of a new toll system.

This performance audit examined how well the toll collection system processes, collects and reports toll transactions, and assessed the toll system vendor's compliance with state and payment card industry information security standards. We found three key areas of concern:

1. **The toll system lacks key functions and has other operational limitations that affect toll processing, collection and managerial reporting.**
   For example, absence of proactive collection processes and functionality have contributed to the toll system accumulating $96.4 million in outstanding tolls, fees and penalties, of which WSDOT only expects to recover $37.1 million. Other operational limitations complicate creation of toll bills and collection of tolls.
2. **WSDOT has not been successful in enforcing the toll system vendor's compliance with information security standards, leaving in question how well the system protects sensitive information.**
   The toll system vendor has not yet completed the independent audit required by the Office of the Chief Information Officer (OCIO), nor the independent assessment required by the payment card industry on the effectiveness of system controls designed to protect system security and customer payment information. Our own analysis of vendor compliance with OCIO standards found that some security risks are present.
3. **Issues affecting the toll system resulted from WSDOT's limited attention to adding necessary expertise, establishing functions and processes, and completing tolling system development.**
   More attention to these leadership and management activities would have helped the Toll Division complete development of the toll collection system; prevented the toll system's processing, collection, reporting and security issues; and engaged key stakeholders to build trust and support for the program.

Accuracy in the context of this performance audit refers to how well the toll collection system processes, collects and reports toll transactions. We did not examine the accuracy of WSDOT's tolling financial statement reporting.

1. The toll system lacks key functions and has other operational limitations that affect toll processing, collection and reporting

The toll collection system has been in operation since 2011, and was formally accepted by WSDOT as complete in 2015. We found that it continues to lack key functionality in several areas and exhibits multiple system and operational issues that affect toll processing, collection and reporting. Some issues arose because functions were not included in the initial system design; others because a top priority of WSDOT management was increasing the number of tolled facilities, which meant it concentrated resources on facility expansion rather than completing system development.

Missing or incomplete toll system functions include:

- *Data warehouse* – The Toll Division does not have a data warehouse or other similar system separate from the real-time toll transaction processing system to perform analysis of tolling data. Without one, WSDOT has to rely on time-consuming manual report reconciliation processes to verify the accuracy of toll transaction processing, collection and reporting.
- *Collections* – Although internal and external advisors recommended WSDOT implement robust collection activities before the penalty phase to improve the probability of collections, the Toll Division only recently started developing these processes. The lack of proactive collection activities and functionality contributed to the $96.4 million the toll system has accumulated in outstanding tolls, fees and penalties. About $85 million consists of penalties imposed after a customer fails to pay their original toll bill, and $65.7 million is more than 12 months old. Toll Division's financial reports indicate it expects to recover only $37.1 million of the outstanding debt.
- *Write-off functionality* – The dollar value of the toll system's accumulated outstanding tolls, fees and penalties has continued to grow because the system lacks the functionality to write them off. WSDOT staff must manually adjust the $96.4 million receivables in the system to accurately reflect the $37.1 million the agency expects to collect in the financial reports for external stakeholders.
- *Data entry controls* – The toll system lacks adequate ways to verify billing information entered by customers or others (such as staff or the vendor), or obtained from the Department of Licensing. This led to about 175,800 toll bills and notices being returned undeliverable in the first nine months of fiscal year 2015. That is about 6 percent of all toll bills sent. The result has been customer frustration, delays in creating accurate toll bills and missed opportunities for revenue collection. WSDOT managers said they are investigating solutions that will allow them to acquire and confirm registered vehicle owner information to reduce the volume and cost of undeliverable mail.

We found other system and operational limitations also affect toll processing, collection and reporting. They include: no automated financial reconciliation capabilities, transaction processing flaws that complicate creation of toll bills, and factors affecting toll lane equipment's ability to capture license plate images to create toll bills and read *Good to Go!* passes to collect tolls.

Data warehouse functions help organizations evaluate and monitor performance without slowing real-time transaction processing. Analytical processing tools use the data contained in the warehouse to provide insights needed for better decision making.

Collections functions allow for systematic, effective, routine management of outstanding toll, fee and penalty payments.

Write-off functionality allows organizations to waive full or partial amounts of outstanding payments they no longer expect to collect. When automated, it saves businesses time they would spend preparing financial reports.

Data entry controls help organizations verify the accuracy of data entered by staff, vendors, other businesses and customers.

- *Financial reconciliation processes* – WSDOT's tolling system cannot reconcile tolling data with the agency's financial management system automatically. As a result, the Toll Division has required the toll system vendor to perform multiple, time-consuming, manual reconciliations across 11 transaction processing areas to verify accuracy. The toll system vendor has struggled to complete these reconciliations accurately and as frequently as required in its contract with WSDOT.
- *Toll system transaction processing* – A flaw in the system has made it difficult to create or amend toll bills. For example, correcting a toll bill sent to a wrong address may cause the transaction to lose the toll charge. When this happens, the vendor cannot – without further research – create a new bill for the correct customer because the toll amount is missing. Additionally, some toll transactions lack the identification number of the tolling facility that created the transaction. Without it, the vendor cannot bill a customer or record revenue to the proper facility.
- *License plate image capture* – Toll facilities rely in part on cameras to take pictures of license plates in order to create toll bills. Between July 2014 and March 2015, image quality for around 400,000 toll transactions (5.4 percent of all license plate images captured) did not meet the requirements to automatically generate a toll bill. WSDOT does not ascribe most of these problems to the toll lane equipment because third-party testing shows it meets performance measures for image capture and quality. However, our analysis showed that bad camera aim contributed to about 4 percent of rejected images.
- *Good to Go! pass reader* – Toll facilities also use equipment that reads a vehicle's *Good to Go!* pass to trigger automatic deductions from the driver's prepaid account. When it cannot detect a pass on a vehicle, the system charges a 25-cent photo toll-enforcement fee to the registered owner. The assessment of this 25-cent fee has resulted in many credit adjustments. About three-quarters of the toll bill corrections processed in 2015 were adjustments to *Good to Go!* accounts resulting from customer inquiries about this fee. While WSDOT officials said the 25-cent fee is intended to motivate customers to get a *Good to Go!* pass, it results in additional work. WSDOT has yet to determine whether it is achieving the intended purpose.

What prevents a toll transaction from being processed properly?

Cameras at toll facilities may not be able to capture a high-enough-quality image if the vehicle's license plate is missing or obstructed.

Pass readers may be affected by passes that are improperly mounted, damaged, missing or unregistered; metallic windshields; and weather conditions.

2. WSDOT has not been successful in enforcing toll system vendor compliance with information security standards

WSDOT's contract with the toll system vendor states it must comply with state and payment card industry information security standards, which are in place to protect system security and customer payment information. However, the vendor has not yet completed the independent audit required by the state's OCIO, nor the independent assessment required by the payment card industry on the effectiveness of system controls designed to protect system security and customer payment information. When we asked what contributed to the delay in verifying compliance with IT security standards, WSDOT and the vendor commented on:

- Unclear information security roles and responsibilities
- Unclear contract language
- WSDOT's focus on tolling facility expansion

Our own analysis of the toll system vendor's compliance with OCIO's 11 information security standards found that some security risks are present. We found the vendor has fully addressed two of the state's standards, partially addressed eight more, and not addressed the remaining standard at all. Given the risks we found in our limited review, the full independent audit and assessment the vendor has yet to complete may reveal system vulnerabilities.

The Director of WSDOT's Information Technology (IT) Division told us that the agency has already acted to mitigate some of these risks. He also explained his staff are being trained on payment card industry requirements to support efforts to verify compliance by WSDOT and its vendors. WSDOT expects the vendor to complete both the required independent audit of its compliance with state's information security standards and an independent assessment of its compliance with payment card industry standards in April 2016.

3. WSDOT's limited attention to adding necessary expertise, establishing key business functions and processes, and completing tolling system development led to problems

Effectively managed organizations embrace leadership and management activities that facilitate their operational success (see sidebar for a short list of typical activities). We found that issues affecting the toll system resulted from WSDOT's limited attention to several key activities:

- Adding staff or contractors with the necessary expertise to develop and manage the toll system
- Establishing key management functions and processes
- Completing tolling system development

More attention to these leadership and management activities would have helped the Toll Division complete development of the toll collection system; prevent toll system's processing, collection, reporting and security concerns from arising; and engage key stakeholders to build trust and support for the program.

Our analysis identified four fundamental problems in the Toll Division's leadership and management activities that hampered its ability to effectively develop and operate this complex system:

- *Organizational vision and priorities* – The Toll Division's initial vision of an integrated toll collection and accounting system, shared by tolling stakeholders, was not sustained when WSDOT suspended tolling system development in favor of toll facility expansion. WSDOT's managers told us they discussed the risks of delaying implementation of collection and write-off functionality versus the risks of delaying I-405 toll project schedules. Based on this discussion, they decided to focus on toll facility expansion because the risks and costs of delaying I-405 schedules appeared greater than the risks of delaying back-office system completion.
- *Business functions* – The Toll Division did not formally establish business functions that could have helped it prevent and resolve system-related problems and identify early warning signs of operational difficulties. Without IT expertise, for example, Toll Division project managers did not realize that data-entry controls and a data warehouse were necessary; nor did they establish adequate processes for verifying vendor compliance with information security requirements, or protocols to ensure proper system design and prevent the system processing flaws that persist.

Effective leadership and management activities include:

- Establish, communicate and sustain the ***organization's vision and priorities***
- Establish ***business functions*** and processes that support operations
- Place the ***right staff*** with the right expertise in the right roles
- ***Engage*** directly with stakeholders and staff when defining program success to secure their support

A centralized project control office would have helped oversee system development and operations and resolve system and vendor compliance issues in a timely, strategic and coordinated manner. Finally, developing key performance measures would have helped the Toll Division assess system performance.

- *Staff alignment to roles* – The Toll Division's leadership did not always assign people with appropriate expertise to program managerial roles. This directly affected system development and timely enforcement of toll system vendor compliance with state and payment card industry information security standards. For example, the Toll Division assigned some project managers responsibility for toll system development and system security although they possessed limited knowledge and experience in these areas. This absence of expertise led to inattention to vendor compliance with security standards and an inability to investigate and solve complex toll system transaction processing issues.
- *Communication and engagement* – Key stakeholders in the Legislature and Washington State Transportation Commission told us they were not satisfied with the completeness and timeliness of the information they received from the Toll Division. The Legislature needs this information to meet its responsibilities for setting policy, designating new toll facilities and funding operations. The Commission needs this information for setting toll rates. Ineffective communication has led to erosion of trust between these stakeholders and Toll Division management, and to an impression that the agency is unresponsive to citizen concerns.

Improvement is necessary to ensure problems do not recur while establishing the next-generation toll collection system

In anticipation of tolling additional state highway facilities, the Toll Division has requested and received funding from the Legislature to begin planning for an even more complex next-generation toll payment system. The long-term success of toll system expansion efforts depends on a system that meets the state's needs for toll processing, collection, reporting and security. While our work found the toll system vendor had its challenges, WSDOT and the Toll Division contributed significantly to the issues and concerns we describe in this report.

In October 2015, the Toll Division prepared a Work Program for the 2015-2017 biennium to guide its future operations. Viewed by Toll Division management as its long-term business strategy, the Work Program has promising goals and objectives, but it does not contain the strategies needed to achieve those goals and objectives. Furthermore, the plan does not include information on the state of the toll system today, a statement of the Toll Division's long-term vision, and, most important, detailed strategies on how it plans to address its current and future administrative and infrastructure needs. Without a comprehensive long-term business strategy, the success of future tolling facility expansion is at risk.

Recommendations

To improve WSDOT's and the Toll Division's management of the statewide tolling system and tolling operations, we provide the following recommendations to the Secretary of Transportation:

1. Require the Assistant Secretary of the Toll Division to develop a long-term business strategy and plan to support and improve current operations as well as the next-generation toll system. Items to address include:
   a) Obtain input from stakeholders in the Legislature and the Washington State Transportation Commission, as appropriate to their roles in tolling operations, to develop a long-term business strategy and plan
   b) Obtain appropriate technical and project management expertise, either from within WSDOT or by hiring qualified technical experts
   c) Ask the Tolling Expert Review Panel to evaluate the strategic plan and to provide feedback to the Legislature and a progress update to the Transportation Commission
   d) Provide a progress update on the strategic plan to the Legislature and Transportation Commission
   e) Conduct an annual review of the strategic plan with the Review Panel and provide a progress update on any changes to the Legislature and Transportation Commission
2. Address the leadership and management weaknesses identified in this report:
   a) Develop appropriate processes and functions within the Toll Division to oversee all aspects of new initiatives and projects, including working with other state agencies to identify and resolve concerns, coordinating schedules and resources, and ensuring contract compliance
   b) Establish effective two-way communication protocols with key stakeholders in the Legislature and Transportation Commission, which include frequent interactions and outreach to assess whether the level of engagement and information provided meets their needs
   c) Ensure the toll system vendor completes the required independent reviews and assessments to comply with security standards, and seek remediation of any identified issues
3. Address the current toll collection system limitations and operational challenges we identified in this report:
   a) Implement processes and functionality that focus on toll collection before penalties are added, to maximize toll revenue collections and to give customers every opportunity to pay their bill before civil penalties are imposed
   b) Implement processes and functionality to facilitate write-offs of tolls, fees and penalties WSDOT no longer expects to collect
   c) Include functions that facilitate analysis and evaluation of toll transaction and financial data in the next generation system procurement
   d) Evaluate the costs versus the benefits of the 25-cent photo fee for image-based tolls, and seek elimination of the fee if appropriate
   e) Work with the Department of Licensing to improve the accuracy of registered vehicle owner information and consider the benefits of using software to verify the validity of customer addresses
   f) Consider further reductions in the frequency and number of reconciliation reports manually prepared by the toll system vendor
   g) Conduct customer outreach to provide added information on how to properly register, install and maintain *Good to Go!* accounts, passes and license plates
   h) Resolve transaction processing flaws that complicate creation of toll bills

Introduction

WSDOT's statewide, all-electronic toll collection system has been in operation since 2011. Between December 2011 and June 2015, the system processed, collected and reported more than 115 million toll transactions that generated more than $425 million in toll revenues.

A performance audit our Office published in 2013 on lessons learned from delays in implementing the toll collection system found that WSDOT and its Toll Division faced challenges in launching the system. These challenges resulted from unclear roles and responsibilities for the complex project regarding who made decisions, who was accountable and how to manage Electronic Transaction Consultants (ETC), the vendor hired to design and operate the toll collection system. We recommended WSDOT clarify the Toll Division's roles, responsibilities and decision-making authority, and establish policies and procedures that would help it manage similar complex projects in the future.

While WSDOT and its Toll Division have taken action on these recommendations, issues persist that affect the toll collection system. Customer complaints about their toll bills, including charges for trips never taken and receiving bills for vehicles they do not own, raised concerns about how well the toll system processes, collects and reports toll transactions. Data security, including customer billing information, is also a concern given that the toll system vendor has yet to complete required independent information security reviews and assessments.

How well the toll system processes, collects and reports toll transactions is important for a number of reasons.

- The Legislature and the Washington State Transportation Commission want to make sure that customers receive accurate and timely toll bills.
- State-issued public bonds that funded the nearly $519 million needed to construct the Tacoma Narrows Bridge and the SR 520 Bridge are repaid with toll revenue and motor vehicle taxes. The state has "pledged its full faith, credit and taxing power" for the sale of the bonds. Investors need reliable, timely data on tolling activity, such as revenue, expenditures and trips, to make informed decisions.
- The Transportation Commission uses current and projected toll system revenues and transaction costs to set toll rates for each toll facility at sufficient levels to cover bond obligations and future operations.
- State law requires that revenues collected at a toll facility may be used only to improve, preserve, manage or operate the toll facility at which the revenue is collected, which means tolls must be accurately accounted for at the facility level.
- The state's Office of Financial Management and the Legislature depend on accurate financial information to plan for the state's future transportation needs and to prioritize transportation projects.

Information security is just as important:

- WSDOT requires its toll system vendor to comply with information security standards set by both the state and the payment card industry to protect customer payment information.
- The toll system contains payment information for customers that have established a *Good to Go!* account.
- State law requires the protection of confidential and sensitive information.

Recognizing the need to ensure accountability of WSDOT's tolling program, this audit was designed to answer the following questions:

1. How well is WSDOT's toll collection system processing, collecting and reporting toll transactions? If issues exist, why?
2. Is WSDOT's toll collection system in compliance with the security standards issued by Washington's Office of the Chief Information Officer (OCIO) and payment card industry? If not, why not?

Background

WSDOT's Toll Division is responsible for toll collection system operations

Established in 2009, WSDOT's Toll Division is responsible for the procurement, development, operation and strategic financial planning of the state's toll collection system. The breadth of these responsibilities requires the Toll Division to coordinate with multiple divisions within WSDOT, including those responsible for the accounting and financial reporting of toll transaction revenue, and other divisions responsible for information technology, engineering, communications, government relations, and project offices responsible for toll facility planning and construction. The Toll Division also relies on in-house consultants to assist with day-to-day tasks, and contracts with vendors to develop and operate the toll collection system. Toll Division project managers are responsible for day-to-day coordination within WSDOT and among its external stakeholders. Major decisions concerning tolling operations are generally made by the Toll Division executive management and WSDOT's executive leadership team.

WSDOT must also work with key state agencies such as the Department of Licensing to collect customer information for billing purposes and the State Treasurer to sell bonds to fund construction projects.

The Legislature and the Washington State Transportation Commission use information from WSDOT's Toll Division to make decisions

The Legislature and the Transportation Commission make decisions that affect tolling operations. The Legislature also designates which roadways may be tolled and establishes tolling policies, such as limiting the use of toll revenues each toll facility generates to construct, operate and maintain only that facility. The Legislature also provides direction to WSDOT and the Toll Division through the state's budget process and the passing of specific legislation. An example of such legislation is requiring the Toll Division to implement a program to forgive toll customers' fines and penalties upon payment of the original toll charges, in response to citizen complaints about excessive toll fines and penalties. The Transportation Commission, whose members represent geographic areas of the state and are appointed by the Governor, develops the state's transportation plan, and sets toll rates and ferry fares.

These external stakeholders rely on information collected and reported by the Toll Division to inform their decisions. At the same time, the Toll Division must seek input and support from these stakeholders to set and sustain a shared vision, and to balance competing interests.

Washington has four tolled facilities, with more under development

The toll system has expanded since 2007, when WSDOT started collecting tolls on the new Tacoma Narrows Bridge. The state currently has four tolled facilities: the Tacoma Narrows Bridge, the State Route (SR) 520 bridge, the SR 167 High Occupancy Toll Lanes between Auburn and Renton, and the Interstate 405 (I-405) Express Toll Lanes between Bellevue and Lynnwood.

The Legislature has approved the development of additional tolled facilities for the SR 99 tunnel, and WSDOT considered other potential tolled facilities on the I-90 Floating Bridge, the SR 509/I-5/SR 167 Gateway Project, and I-5 Express Lanes between Tacoma and Everett. In an October 2015 presentation to the Joint Transportation Committee, WSDOT executive management reported that the agency expects to collect $300 million in tolls annually by fiscal year 2025.

Tolls are collected using a complex information and financial payment system

The information systems and toll lane equipment used to create toll transactions and process them for revenue collection serve as the backbone of the state's complex tolling program. This audit focused on work conducted by Electronic Transaction Consultants, referred to as "toll system vendor" throughout this report. Reference is made to other toll lane vendors only when discussing toll lane equipment and the effect license plate image capture and *Good to Go!* pass reading has on creation of toll bills and collection of tolls.

WSDOT hired the toll system vendor to develop and operate the toll collection system and the back-office functions needed to conduct and support toll transaction processing, payments, collection and financial reporting, as well as customer service activities such as handling customer complaints, correspondence and toll bill disputes. Through July 2015, the Toll Division has paid this vendor $38.9 million; **Appendix C** provides a breakdown of payments made to the toll system vendor between May 2010 and July 2015. The Toll Division extended its contract with the toll system vendor through fiscal year 2016, and is considering further extending the contract while it procures a new toll collection system. The Toll Division has requested and received funding from the Legislature to take the next steps toward procuring an even more complex system that may integrate toll fees and ferry fares.

Washington's toll collection system is unique in the nation's tolling industry because WSDOT intended it to include robust accounting functionality and because of the statutory requirement that toll revenue generated by a toll facility must be tracked and used only for that facility. WSDOT needed a toll collection system that would provide certain functionalities, controls and processes to ensure that financial statements for each toll facility complied with Generally Accepted Accounting Principles. Adding to the complexity of Washington's toll system is the individualized fare structure at each facility, requiring different system configurations and business rules. Although the toll collection system began operations in 2011, the Toll Division did not formally accept the system as complete from the toll system vendor until May 2015.

Good to Go! accounts expedite toll collections

With all-electronic tolling, customers have two primary ways to pay their toll bills: They may pay by establishing a prepaid *Good to Go!* account with WSDOT or through the Pay by Mail option. A pre-paid *Good to Go!* account allows the toll system vendor to automatically deduct toll payments from customer accounts when registered vehicles drive on tolled facilities. The toll collection system matches registered vehicles to *Good to Go!* accounts by reading electronic passes affixed to the vehicle or through photographs of the vehicle's license plates. For customers without a *Good to Go!* account, the toll lane system captures a license plate photo to identify the registered vehicle owner information needed to generate a toll bill, which is then mailed to the customer for payment through the Pay By Mail option.

During the first nine months of fiscal year 2015 (July 2014 – March 2015), the toll system processed and collected tolls for 27.7 million toll transactions. More than three-quarters of these were collected through pre-paid *Good to Go!* accounts. Toll Division reports show that, on average, customers are billed for about 96 percent of total toll trips. Total toll revenue collected during this period was $112.4 million; **Exhibit 1** shows the breakdown of toll transactions and revenues by facility.

The toll system keeps a cumulative record of all toll trips made through the state's toll facilities since the toll system began processing toll trips in December 2011.

We examined the rates of billing and payment, as recorded in the toll system, and analyzed summary data reports extracted from the toll system by the Toll Division for July 2014 through March 2015.

Exhibit 1 – Toll transactions and revenue by toll facility

July 2014 through March 2015, Numbers and dollars in millions

	SR 520	Tacoma Narrows Bridge	SR 167	Total
Number of total toll transactions	16.2	10.6	0.9	27.7
Number of toll transactions paid	15.1	10.2	0.8	26.1
Percentage of toll transactions paid[1]	93%	96%	94%	94%
Number of transactions pending or leakage	1.1	0.5	0.03	1.6
Percentage of all transactions paid through *Good to Go!*	84%	69%	96%	78%
Revenue[2]	$57.0	$54.1	$1.4	$112.4**

Data notes: [1]Difference in sums due to rounding. [2]Does not include Federal Highway Administration funding.

Source: Auditor analysis of tolling transactions and revenues.

Scope and Methodology

The purpose of this audit was two-fold:

- To assess how well WSDOT's statewide electronic toll system processes, collects and reports toll transactions, and if issues exist, why
- To assess whether the toll system complies with state and industry information security standards, and if not, why not

To conduct this audit, we engaged TAP International, Inc., to provide subject matter expertise. TAP's consultants are experienced performance auditors who have conducted multiple audits of tolling and financial payment systems as well as security assessments of information systems.

To assess how well the toll system processes, collects and reports toll transactions, we conducted nearly 80 interviews with staff and managers of WSDOT and the toll system vendor. These interviews helped us gain an understanding of and assess performance across 18 areas. We also collected data from WSDOT and the toll system vendor for July 2014 through March 2015 to assess Toll Division's performance in five key measures: leakage rate, number of billing adjustments, revenue forecasting variances, aging-receivable volumes (past-due toll fares, fees and penalties), and the pass and rejection rates for license plate photographs. For some of the areas we examined, the Toll Division took action after March 2015 to resolve issues. When this occurred, we collected additional data to show the effect that these actions had on system performance.

Accuracy in the context of this performance audit refers to how well the toll collection system processes, collects and reports toll transactions. We did not examine the accuracy of WSDOT's tolling financial statement reporting. Instead, we analyzed the completeness and sufficiency of various toll system functions and controls that are designed to ensure accuracy. We also analyzed indicators of operational issues with the system — such as system completeness, data controls and business processes — to gain an understanding of potential system issues that could affect toll processing, collection and reporting.

The toll system is required to comply with the OCIO's IT security standards and payment card industry requirements for protecting customer payment information. To assess its compliance with these standards, we reviewed the relevant actions taken by the Toll Division to enforce toll system vendor compliance and actions taken by the vendor, ETC, Inc., to achieve compliance. We supplemented these efforts by conducting onsite audit work at ETC's headquarters in Richardson, Texas, to determine the degree to which the toll system vendor complied with the OCIO's IT security standards.

18 areas reviewed:

1. Account information
2. Account establishment
3. Payment processing
4. Account replenishment
5. Adjustments
6. Account management
7. Correspondence
8. Refunds
9. Photo enforced toll transaction processing
10. Negative balances
11. Non-revenue account management
12. Notice of civil penalty processing
13. Adjudication
14. Licensing holds
15. Mail processing
16. Appeals
17. Reconciliation
18. Security

Generally Accepted Government Auditing Standards require that we identify the causes of issues the audit has found so we can develop recommendations that address those causes. We applied root cause analysis approaches to determine the primary factors for current or recurring issues we found regarding toll system's processing, collection, reporting and security. For this analysis, we met individually with people whom Toll Division management identified as the best stakeholders to discuss key circumstances driving toll system and operational issues. Our analysis did not stop with factors stakeholders identified. Had we done so, the analysis may not have been complete. As suggested by industry methodological guidance, we further linked the causal factors stakeholders identified to effective management and leadership activities expected of public agencies.

Audit performed to standards

We conducted this performance audit under the authority of state law (RCW 43.09.470), approved as Initiative 900 by Washington voters in 2005, and in accordance with Generally Accepted Government Auditing Standards (December 2011 revision) issued by the U.S. Government Accountability Office. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. See **Appendix A**, which addresses the I-900 areas covered in the audit. **Appendix B** contains more information about our methodology.

Next steps

Our performance audits of state programs and services are reviewed by the Joint Legislative Audit and Review Committee (JLARC) and/or by other legislative committees whose members wish to consider findings and recommendations on specific topics. Representatives of the State Auditor's Office will review this audit with JLARC's Initiative 900 Subcommittee in Olympia. The public will have the opportunity to comment at this hearing. Please check the JLARC website for the exact date, time and location (**www.leg.wa.gov/JLARC**). The State Auditor's Office conducts periodic follow-up evaluations to assess the status of recommendations and may conduct follow-up audits at its discretion.

The toll system lacks key functions and has other operational limitations that affect toll processing, collection and reporting

We found the toll system lacks key functions that, combined with other operational limitations, affect toll processing, collection and reporting. Missing functions include a data warehouse (or similar functionality) that allows for analysis of toll data and assessment of operational performance without impacting the real-time transaction processing system. The toll system also lacks processes and functionality for collecting unpaid tolls, fees and penalties, and for writing off the portion of these receivables the program does not expect to recover. The absence of collection and write-off processes and functions have contributed to the $96.4 million in outstanding tolls, fees and penalties the toll system has accumulated since it became operational.

Other system and operational limitations affecting the toll system include: insufficient controls to identify errors in customer data entered manually or obtained from other systems to create toll bills, system processing flaws that complicate creation of toll bills, issues with system report settings that prevent automatic reconciliation of tolling reports, unbilled toll transactions, and factors that affect the toll lane equipment's ability to capture license plate images needed to create toll bills and to read *Good to Go!* passes to collect tolls.

The absence of a data warehouse with analytical capabilities complicates analysis and assessment of operational performance. A data warehouse is a computer subsystem that stores detailed transaction data separately from the real-time transaction processing system. Analytical processing tools can be used to analyze data housed in data warehouses, or similar systems, to evaluate system performance without causing delays to real-time transaction processing. WSDOT does not have a data warehouse or other system separate from the toll transaction processing system to perform analyses of tolling data. Without one, WSDOT has to rely on time-consuming manual report reconciliation processes to verify the accuracy of toll transaction processing, collection and reporting. Toll system responsiveness is also at risk as the number of tolled facilities and the volume of toll transaction data housed in the toll system increases. Design requirements in the contract for WSDOT's toll collection system did not include this functionality because agency staff did not recognize its importance or the need to define this requirement in the procurement phase.

The lack of collection and write-off processes and functionality means the toll system has accumulated outstanding tolls, fees and penalties that WSDOT does not expect to collect. Payment systems typically include processes and functionality designed to initiate and track the collection of unpaid bills and to write off outstanding debt that is not likely to be collected. Having such features improves the probability of collections and reduces the risk of over-reporting collectable revenue in financial reports. The Toll Division does not have write-off processes and functionality, and it has not fully implemented proactive processes to recover tolls prior to assessment of penalties or third party collection functionality. Although when the program began, the tolling Expert Review Panel and other in-house consultants advised WSDOT to implement collection activities before the penalty phase to improve the probability of collections, the Toll Division only recently started developing these processes.

WSDOT included collections and write-off functions in its system design and its contract with the toll system vendor, but chose to suspend work on them so this vendor could redirect its resources to toll facility expansion. In May 2015, the Toll Division formally accepted the tolling system as complete even though the collections and write-off functions were still outstanding. Toll Division managers acknowledge that the system should have been fully developed before expanding the number of toll facilities. They plan to complete the collections and write-off functionality for the system, although no date has been established. And with the toll system accepted as complete, WSDOT will incur additional costs to do so.

The reports generated by the toll system capture the financial value of all outstanding toll transactions whether WSDOT can expect to collect them or not. As of April 2015, the financial value of all outstanding tolls, fees and penalties, including tolls that have never been billed, reached about $96.4 million. It is unlikely the Toll Division will recover most of these outstanding receivables because, as **Exhibit 2** shows, $85.3 million of the total consists of penalties imposed after a customer fails to pay their original toll bill, calling into question the Toll Division's approach to assessing and collecting these penalties.

Additionally, as **Exhibit 3** shows, 68 percent (or $65.7 million) of the total outstanding tolls, fees and penalties are more than one year old, which typically makes them less likely to be collected. Currently, the Toll Division expects to recover only $37.1 million of the total $96.4 million in outstanding receivables.

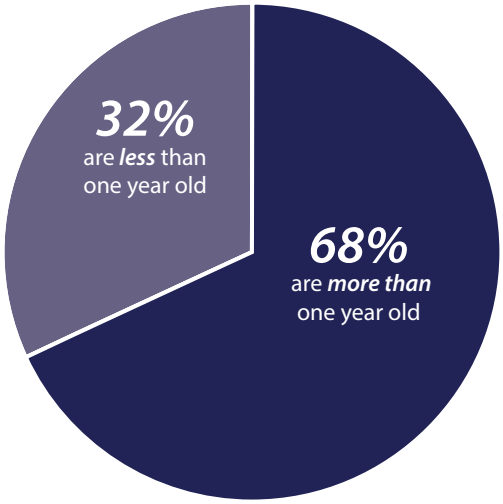
Exhibit 2 – Outstanding tolls, fees and penalties total $96.4 million

As of April 2015, dollars in millions

Outstanding tolling receivables	Amount
Total gross receivables	**$96.4**
Unbilled tolls	$6.0
Unpaid toll fare	$1.7
Unpaid toll fee	$3.4
Unpaid civil penalty	$85.3
Total of doubtful accounts for tolls, fees and penalties	*$59.3*
Total net receivables	**$37.1**

Source: WSDOT's aging receivables reports.

Exhibit 3 – Two-thirds of the $96.4 million in outstanding debt is more than a year old



Source: Auditor analysis of tolling outstanding receivables.

Based on statutory authority, WSDOT adds a $5 reprocessing fee and a $40 civil penalty to the original toll bill if a customer does not pay their toll bill within 80 days. By contrast, other tolling authorities start collection activities, such as sending follow-up bills or requests for payment, before they add penalties to customer toll bills. Before assessing penalties, WSDOT could implement collection processes such as sending additional payment reminders, conducting address verification searches to generate toll bills, or sending accounts to a third party collections agency, to encourage customers to pay outstanding toll bills. Attempts at collecting outstanding amounts early in the process generally increase the probability of collections, because an organization's ability to collect its debts diminishes over time.

In the absence of proactive collection activities and write-off functionality, WSDOT has had to adjust outstanding tolls, fees and penalties downward in its financial reports to offset amounts it does not expect to recover by applying an allowance for doubtful accounts. The Toll Division originally set the allowance for doubtful accounts at 24 percent for Notices of Civil Penalties (NOCPs) and 10 percent for toll bills, meaning that it reasonably expected to collect 76 percent of outstanding civil penalties and 90 percent of toll bill revenue. The Toll Division increased these allowances substantially in 2014 to 70 percent for NOCPs and between 14 and 32 percent for toll bills, depending on the toll facility, because expected collection targets were not met. While applying an allowance for doubtful accounts facilitates accurate financial statement reporting for stakeholders, this action does not address the core issues that contribute to the growing amounts of outstanding tolls, fees and penalties the program continues to accumulate.

In July 2015, due to numerous customer complaints, the Legislature directed WSDOT to develop a civil penalty forgiveness program. In coordination with the Legislature, the Toll Division created the Customer's Program for Resolution (CPR) to ease the financial burden of customers who received penalties for unpaid toll fares. Under this new program, if the customer requests, the Toll Division will forgive outstanding penalties and fees when the customer pays their original toll bill. In October 2015, WSDOT reported that it had collected about $182,000 in unpaid toll charges and dismissed about $3.4 million in civil penalties and fees through this program. The Legislature also directed WSDOT to conduct more customer outreach before sending Notices of Civil Penalties. WSDOT said it is currently developing processes to collect tolls prior to assessment of penalties.

Lack of data entry controls has resulted in incorrect information for customer billing. The toll system does not have sufficient data entry controls to check the accuracy of information entered in the system by customers and customer service representatives, and to validate data obtained from other systems for billing, such as customers' addresses provided by the Department of Licensing. An example of a data entry control would be the addition of third-party software that can validate addresses entered into or obtained by the system. Incorrect information has resulted in bills sent to wrong addresses, customer frustration and missed opportunities to collect toll revenue. About 175,800 (or 5.8 percent of total mail) toll billing statements and other notices were returned to the Customer Service Center between July 2014 and March 2015 because of these types of missing controls. This issue has also created additional administrative burdens for toll system vendor staff, who have to process, research and resend the toll bill to the correct customer. WSDOT said it is currently investigating solutions for acquiring or validating registered vehicle owner information to improve the correct toll billing rate, and to reduce the volume of undeliverable mail.

Other system and operational limitations also affect toll processing, collection and reporting

We found other system and operational limitations that affect toll processing, collection and reporting, including lack of automated financial reconciliation capabilities between WSDOT's tolling and accounting systems, the toll system's transaction processing flaws that complicate creation of toll bills, unbilled tolls, and factors affecting toll lane equipment's ability to capture license plate images to create toll bills and read *Good to Go!* passes to collect tolls.

Manual reconciliation processes and misconfigured report settings complicate verification of managerial reporting. Reconciliation processes check the accuracy of financial data and transaction counts by comparing information between different reports. WSDOT's tolling system cannot perform automated financial reconciliations of tolling data with WSDOT's financial management system. Additionally, a coding error causes some toll system reports to drop up to five days' worth of financial data, which further complicates financial reconciliations between the two systems. Toll system vendor staff told us that they had not resolved this error because the Toll Division placed a freeze on further computer system development until tolling started on I-405.

Without automated reconciliations, the Toll Division has required the toll system vendor to perform multiple time-consuming manual reconciliations across 11 transaction processing areas to verify accuracy. The toll system vendor has found it difficult to complete timely and accurate reconciliations because WSDOT's Accounting and Financial Services Division has required it to investigate and resolve nearly all differences in the data. Some of these reports, such as a reconciliation of transponder equipment on hand and a reconciliation between reconciliation reports, may not need to be done as frequently or at all. Toll Division management reported that reconciliation issues — such as frequency and amount — have been resolved in a 2015 memo to the toll system vendor. However, our analysis of this report and other support shows that while the frequency of some reports decreased, the number of required reconciliations increased.

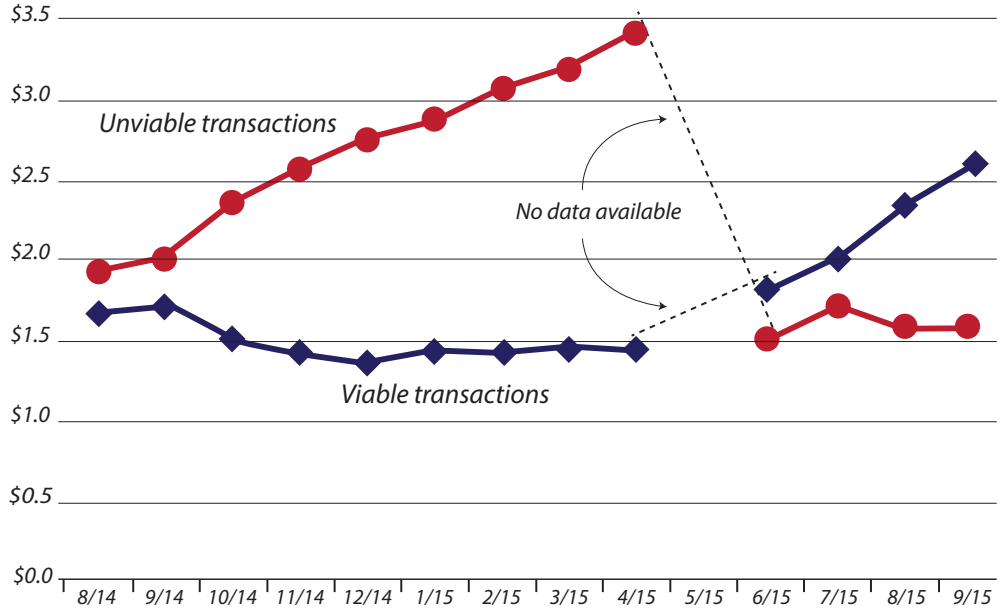
System transaction processing flaws cause difficulties creating toll bills. In our discussions with toll system vendor staff, we learned about multiple transaction processing issues that cause difficulties in creating and/or processing toll bills. For example, correcting a toll bill sent in error causes the transaction to lose the toll charge. When this happens, the toll system vendor cannot — without further research — resend the bill to the correct customer because the toll amount is missing. Additionally, some toll transactions are missing the identification number of the facility that created the transaction. Without this information, the toll system vendor cannot bill a customer or record revenue to the proper tolling facility. Neither the Toll Division nor toll system vendor staff could explain what causes the system to lose toll charges, and they said resolving this issue has not been a priority for the Toll Division. Managers of WSDOT's Accounting and Financial Services Division told us that formal acceptance of the toll system as complete would not have occurred if the magnitude of the problems was large.

Unbilled toll transactions continue to grow. Based on data available to us, we determined the toll system contained more than 800,000 unbilled toll transactions, valued at about $4.2 million, as of September 2015. Of the $4.2 million, $2.6 million in transactions is considered viable, meaning it would likely be paid if the information needed to create a bill was obtained in a timely basis. The remaining $1.6 million represents unviable transactions that are not expected to result in a toll bill. These unviable transactions include trips by publicly owned vehicles exempt from toll charges, trips for which WSDOT is unable to obtain customer information needed to create a toll bill, and trips made by vehicles from other countries.

Reports generated by the toll system include the $4.2 million of unbilled transactions in the total $96.4 million in outstanding tolls, fees and penalties accumulated since the tolling program began operations. However, WSDOT does not recognize unbilled tolls as revenue in financial reporting provided to external stakeholders. WSDOT dismissed a portion of the unviable transactions from the toll system in May 2015. However, during this same time period the financial value of viable transactions increased, as shown in **Exhibit 4**. When we asked WSDOT managers about this increase, they were not able to explain the change, but said they are working on investigating and resolving the issues causing the increase in viable unbilled toll transactions.

Exhibit 4 – The value of viable unbilled tolls continue to grow

August 2014 -September 2015, dollars in millions

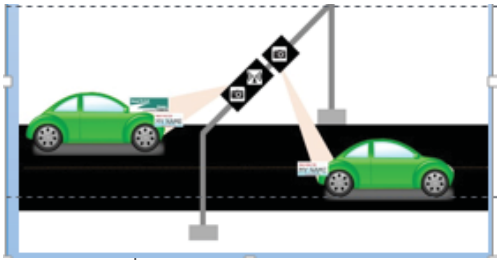


Source: Auditor analysis of WSDOT unbilled receivables.

Limitations with license plate image capture and *Good to Go!* pass reading complicate creation of toll bills and collection of tolls. The toll system vendor as well as other toll lane vendors operate the toll lane equipment used at toll facilities to read *Good to Go!* passes and vehicle license plates. Several factors may affect the toll lane equipment's ability to capture license plate images needed to create toll bills and read vehicle *Good to Go!* passes that trigger automatic deductions from drivers' *Good to Go!* prepaid accounts.

Of the nearly 7.5 million vehicle license plate photo images taken between July 2014 and March 2015, about 2.7 million (or 36 percent) required manual review because the information provided by the toll lane vendor did not meet the requirements for the transaction to be automatically read. The Toll Division expected the toll system to be able to automatically create bills for 75 percent of the photo images taken at its tolling facilities, but the system has only been able to automatically create toll bills for about 64 percent of photo transactions between July 2014 and March 2015.

Optical character recognition software cannot read all photo images of vehicle licence plates



Source: Auditor illustration.

When the cameras fail to capture an image of the quality level required to automatically create a toll bill, the toll system vendor staff manually review the images to see if they can identify the plate number and thus the vehicle's owner. If they cannot, a bill cannot be created for customer payment. The quality level requirement for images to be automatically read has resulted in more images sent for manual review than expected. The Toll Division has had to pay its toll system vendor more than $1 million for this additional review.

Between July 2014 and March 2015, the vendor could not create toll bills for about 400,000 (5.4 percent) license plate images captured at tolling facilities: missing or obstructed plates were the most common causes of insufficient image quality. WSDOT officials said they believe the majority of license plate image failures are not due to issues with the equipment, because third-party testing shows the toll lane equipment is meeting performance measures for image capture and quality. However, our analysis shows that bad camera aim contributed to about 4 percent of rejected images. **Exhibit 5** shows the totals for our review period.

Exhibit 5 – About 5% of license plate images were rejected
July 2014 – March 2015

Total number of images reviewed by AutoPass and manual review	7,468,393
Number of images rejected	400,173
Percent of images rejected	5.4%

Source: Auditor analysis of license plate image reviews.

Concerned about the potential loss of toll revenue, in June 2015, Toll Division management required the toll system vendor to give staff refresher training on how to review vehicle license plate images. The success of this effort was limited. Although staff significantly improved their performance on matching front and back license plates, the overall rate of rejected images increased to almost 6 percent, as shown in **Exhibit 6**.

Exhibit 6 – The rate of rejected license plate images rose after additional staff training
July–August 2015

Total number of images reviewed by AutoPass and manual review	2,067,510
Number of images rejected	120,989
Percent of images rejected	5.9%

Source: Auditor analysis of license plate image reviews.

Toll Division managers told us that by increasing requirements for the toll lane vendor, they hope to improve the vendor's ability to send transactions with sufficient information to skip the manual review process.

Another issue associated with toll lane equipment is that it doesn't always detect a vehicle's *Good to Go!* pass. Factors that may affect the toll lane equipment's ability to read *Good to Go!* passes include: pass failure; improperly mounted, damaged, missing or unregistered passes; metallic windshields; and weather conditions.

When the toll lane equipment cannot detect a pass on a vehicle, a 25-cent photo toll-enforcement fee is charged to the vehicle's registered owner. The toll system vendor checks whether a customer has a pass before sending a bill that includes this additional fee. If a customer determines they have been charged this additional fee in error, they must contact the Customer Service Center to find out why and obtain a credit. If the customer does not request a correction, the charge remains on the bill.

The assessment of this 25-cent fee has resulted in many credit adjustments. The majority (75 percent) of all billing adjustments the Toll Division made between July 1, 2014, and March 31, 2015, were adjustments to *Good to Go!* accounts resulting from customer inquiries about this fee. The Toll Division made between 16,437 and 19,252 adjustments per quarter during this time period. While the 25-cent fee is intended to motivate customers to get a *Good to Go!* pass, it results in additional work, and WSDOT has yet to determine whether it is achieving the intended purpose.

The number of adjustments has dropped recently, from 2.4 to 1.0 for every 1,000 toll transactions. Toll Division staff suggested several reasons for the decrease, including improved tolling facility equipment following third-party audits and having customer service center staff ask customers to replace their transponders. Despite this progress, toll bill adjustments caused by problems with *Good to Go!* passes may increase again in the future. Toll Division staff explained that the sticker passes currently in use are close to the end of their expected service life, which may make it more difficult for the toll lane equipment to accurately read the *Good to Go!* pass.

WSDOT has not been successful in enforcing toll system vendor compliance with information security requirements

The contract between WSDOT and its toll system vendor requires this vendor to comply with state and payment card industry information security standards. This includes more than 500 requirements in 23 areas of information system management that are designed to maintain the integrity of the system and to protect the confidentiality of customer payment information. We found the Toll Division was not timely in its initial efforts to conduct oversight of these requirements because of unclear roles and responsibilities within WSDOT divisions. In addition, the contract with the toll system vendor was not clear on which information security standards this vendor was expected to implement. When the toll system vendor and WSDOT reached agreement on the scope of the requirements that must be addressed, completion of required independent reviews and audits were delayed to March 2016 and now to April 2016. Our own analysis determined that while the toll system has in place many of the requirements, information security risks are present.

The toll system vendor has not yet completed assessment of compliance with state information security requirements

The Office of the Chief Information Officer (OCIO) requires state agencies to protect their information systems from security threats through implementation of 11 standards set out in Policy 141.10, shown in **Exhibit 7**. These standards address activities designed to protect information systems from unauthorized access, and maintain the integrity and reliability of the system. In addition, agencies must ensure an independent compliance audit is conducted once every three years.

The state's information security standards apply not only to state agency systems, but also to those systems developed and/or operated by a third-party vendor on behalf of a state agency, as is the case for WSDOT's toll collection system. The toll system vendor's staff told us they did not undertake an audit to verify compliance with the state's information security requirements because they did not know it was required. The 2009 contract between the Toll Division and the toll system vendor referred to the standards required under the Information Services Board (Policy 401-S4); it had not been updated to reflect the state's current information security standards (OCIO 141.10). Nonetheless, both sets of standards require state agencies to conduct an audit to assess the level of compliance with the standards.

Although WSDOT reminded the toll system vendor of compliance requirements in March 2015, preparations for an independent audit did not begin until fall 2015, followed by new plans to complete it by March 2016 and now with updated plans to complete it in April 2016. Toll Division management explained that other priorities, such as the go-live schedules for tolling facility expansion, affected security-related contractual obligations.

WSDOT staff reported they made other efforts to provide some assurance that the toll system vendor had effective IT security controls in place. For example, as required under the contract, the toll system vendor had engaged an independent audit firm to conduct a Service Organization Controls (SOC) 1 audit. Although this type of audit's purpose is to review the effectiveness of financial controls, WSDOT required some information security controls to be included in their toll system vendor's SOC 1 audit. However, the audit did not cover all the information security controls needed to assure that the system complies with the state's IT security standards.

If the Toll Division had required the toll system vendor to conduct a SOC 2 audit, which focuses on testing information security controls, it would have had more assurance about the effectiveness of the toll system vendor's information security controls to protect the confidentiality of customer payment information. In 2013, WSDOT's Internal Audit Division evaluated WSDOT's internal compliance with the OCIO's information security requirements, but it did not directly address the toll system vendor's compliance activities, even though it did examine other tolling operations vendors.

Exhibit 7 – The OCIO's 11 standards are set out in Policy 141.10, "Securing Agency Technology Assets"

Service Organization Controls (SOC) Reports

The American Institute of Certified Public Accountants uses SOC reports to evaluate internal controls for outsourced services; the information in these reports helps users assess and address risks. There are two types of SOC audits:

SOC 1 audits examine controls at a service organization (such as the toll system vendor) that are relevant to financial reporting.

SOC 2 audits focus on testing information security controls.

Our analysis of compliance with OCIO information security requirements shows areas that require attention

In the absence of a comprehensive audit to verify the toll system vendor's compliance with the state's information security requirements, we conducted our own assessment and found some security risks. Of the state's 11 security standards, the toll system vendor has fully complied with two, partially complied with eight and is not in compliance with the requirements for one standard. We shared detailed information about our assessment directly with the OCIO, WSDOT's Director of Information Technology and Toll Division management, but have not included it in this report due to security concerns.

The toll system vendor has not performed a comprehensive assessment of compliance with payment card industry standards

The state's information security standard for electronic commerce requires state agencies to address the effects of using the Internet to conduct transactions. To help ensure the protection of customer data, the Toll Division required its toll system vendor to comply with Payment Card Industry Data Security Standards (PCI DSS), shown in **Exhibit 8**, which include conducting security reviews appropriate for their level of transactions.

Exhibit 8 – Payment Card Industry Data Security Standards (PCI DSS)

Goals	PCI DSS requirements
Build and maintain a secure network	1. Install and maintain a firewall configuration to protect cardholder data 2. Do not use vendor-supplied defaults for system passwords and other security parameters
Protect cardholder data	3. Protect stored cardholder data 4. Encrypt transmission of cardholder data across open public networks
Maintain a vulnerability management plan	5. Use and regularly update anti-virus software or programs 6. Develop and maintain secure systems and applications
Implement strong access control measures	7. Restrict access to cardholder data by business need to know 8. Assign a unique ID to each person with computer access 9. Restrict physical access to cardholder data
Regularly test and monitor networks	10. Track and monitor all access to network resources and cardholder data 11. Regularly assess security systems and processes
Maintain information security policy	12. Maintain a policy that addresses information security for all personnel

Source: PCI Security Standards Council.

We found the toll system vendor conducted its own self-assessments of PCI compliance in 2011, 2013 and 2014, and did not document any vulnerabilities in the toll system. However, the volume of credit card transactions the toll system vendor processes and the nature of its role as processor of cardholder data on behalf of WSDOT requires a more robust independent review, which the toll system vendor did not conduct. Although WSDOT and the toll system vendor had ongoing discussions about PCI compliance activities, these discussions were hampered by unclear roles and responsibilities among WSDOT staff regarding who was responsible for ensuring toll system vendor compliance.

The PCI data security standard

PCI DSS Is the global data security standard adopted by payment card brands for all entities that process, store or transmit cardholder data. It consists of commonsense steps that mirror security best practices.

In October 2014, in response to the recommendations we made in our prior report, the Secretary of Transportation issued an executive order that established clearer lines of authority (Executive Order E 1093.00, included in **Appendix D**). At that time, WSDOT's Information Technology Division was assigned the responsibility for ensuring the toll system vendor was PCI compliant. However, when WSDOT's IT staff examined the toll system vendor's contract, they found it did not contain explicit requirements to perform the more comprehensive PCI Level 1 assessment. A PCI Level 1 audit requires an independent third party to audit the effectiveness of PCI-required controls to protect customer payment information.

According to WSDOT's IT staff, they asked the bank that processes credit card payments for the toll system to attend meetings with the toll system vendor in December 2014. The bank agreed with WSDOT's assessment that a PCI Level 1 assessment was appropriate because the volume of credit card payments the system processed exceeded 300,000 transactions annually, and the toll system vendor was performing the functions of a service provider rather than a merchant. The vendor now plans to complete the PCI Level 1 audit in April 2016.

Without attention to issues we provided to WSDOT in our detailed results, the comprehensive PCI Level 1 and OCIO audits may find issues threatening the effective protection of customer payment information. WSDOT's Director of Information Technology Division told us that the agency has already acted on alternative strategies that mitigate some of these risks. He also explained his staff are being trained on PCI requirements to support efforts to verify PCI compliance by WSDOT and its vendors. Additionally, WSDOT says vulnerability scans conducted by the toll system vendor with minimal findings provide some assurance of the toll system's security.

A service provider is a company that stores, processes or transmits cardholder data on behalf of another entity, while a merchant is any entity that accepts payment cards as payment for goods and services.

WSDOT's limited attention to adding necessary expertise, establishing functions and processes, and completing toll system development led to system issues

Effectively managed organizations engage in leadership and management activities that facilitate operational success. These activities ensure that key functions, processes and requisite expertise are in place for effective program operations. Key management and leadership activities include:

- Establishing, communicating and sustaining organizational vision and priorities
- Establishing business functions and processes to support operations, including performance-based measures and processes to monitor the program, identify problems or inefficiencies, and develop corrective action when needed
- Placing the right staff with requisite expertise in the right roles
- Engaging directly with stakeholders and staff to define program success, employing transparent communication to secure their support

We found that issues affecting the toll system arose as a result of WSDOT's limited attention to adding necessary expertise, establishing functions and processes, and completing toll system development. Our analysis revealed that the Toll Division did not establish the business functions, processes and expertise necessary to design and support a complex toll collection system or sustain the vision needed to complete its development. These business functions include a project control office, an information management function, performance based management

activities and quality assurance processes. There are ways to overcome weaknesses in business functions: implementing practices that ensure the right people can deliver the tasks called for in their roles and responsibilities, and communicating effectively with key stakeholders. However, our analysis found that Toll Division management assigned staff without the appropriate expertise to complete tasks, and its communications with outside experts and stakeholders were often ineffective.

Sustaining organizational vision and priorities could have aided Toll Division in completing system development. In 2007, WSDOT executive leadership and other key stakeholders supported plans to design and operate an all-electronic, automated toll collection system that contained an integrated accounting function. However, this shared vision was abandoned when WSDOT managers chose to delay development of collections, write-offs and other system functionalities to focus on adding new toll facilities. Not focusing on sustaining this vision has contributed to the growing amounts of outstanding tolls, fees and penalties the toll system continues to accumulate and the inability to write off the portion of these receivables the program does not expect to recover. While a formal risk assessment has not been performed, WSDOT's executives said they discussed the risks of delaying implementation of collection and write-off functionality versus the risks of delaying I-405 project schedules. Based on this discussion, they decided to focus on toll facility expansion because they determined the risks and costs of delaying I-405 schedules were greater than those of delaying implementation of collections and write-off functions. As the state continues to expand toll facilities without full development of these system functionalities, the amount of unpaid tolls, fees and penalties will continue to grow, representing continued missed revenue opportunities. In addition, Toll Division staff stated that management's shifting operational priorities kept them from completing work that would enhance customer service and resolve system processing flaws.

Establishing business functions and processes could have prevented missing system functionality and lack of enforcement with information security standards

Critical IT activities were not established or implemented effectively. Some Toll Division managers did not recognize early on that all-electronic tolling operations would require the development and operation of a complex information payment system. This lack of understanding resulted in ineffective implementation of key IT management processes and activities to support system development and operations. For example, Toll Division and toll system vendor testing processes did not follow industry standard protocols, such as the use of independent information technology verification and validation consultants to verify testing results. System processing flaws subsequently occurred, preventing the creation of about 800,000 toll bills.

While the Toll Division used its in-house contractors to help resolve these issues, including managing a list of identified system issues, these people were not IT specialists and did not follow IT industry-standard protocols. For example, contractor staff did not put in place effective processes to fully document and investigate system processing issues, leaving them unprioritized and unresolved for years. Following the Toll Division's recent hiring of an IT specialist, staff told us that efforts are under way to prepare new policies and procedures for handling toll system operational issues.

An **IT management function** generally has the systems, policies, processes and staff capable of administering IT strategic planning, data architecture, data integration, information delivery, investment management and IT security. Executing information management and technology activities requires strong IT leadership, capable of working closely across divisions and agencies to support the tolling system and its users. This type of coordination and collaboration ensures that potential risks are identified and action is taken to mitigate those risks.

An IT management function with knowledgeable IT managers at all phases of the project would have helped Toll Division and WSDOT leadership recognize the essential functionality needed in the system, such as the data warehouse and data entry controls. But because IT management activities were not in place, WSDOT leaders did not realize these basic functionalities would be necessary. The Toll Division also did not implement other IT processes, including those that would ensure compliance with information security requirements. These issues will become higher operational risks as the toll system is used to process more transactions from additional toll facilities.

Management functions were not established to identify problems before they occurred. In 2013, WSDOT leadership established a project management team, in response to recommendations made in our earlier audit. The project management team was to meet monthly to discuss project status and provide decision-making support for ongoing tolling program operations. However, it did not fully accomplish activities expected of it, in terms of managing development of the system through schedule coordination, resource management, allocating staff and facilitating communication among internal stakeholders.

More importantly, the project management team did not link the information collected on current projects and other initiatives to identify risks and mitigation strategies. The Toll Division did not establish a formal project control office that could have helped administer these types of day-to-day management activities. The project managers we interviewed, who are responsible for toll facility and system operations, reported the need for this function. In its absence, Toll Division managers waited for problems to happen rather than taking action to anticipate and mitigate risks.

A **project control office** ensures project management is focused on comparing actual performance to planned performance and taking appropriate corrective action (or directing others to take this action) to yield the desired project outcomes when significant differences exist.

The absence of key performance management activities hampers the Toll Division's ability to make informed decisions. While Toll Division managers recognize that key performance metrics facilitate informed decision-making, the Division has not established program-wide metrics and other performance monitoring activities. Instead, Toll Division created more than 50 performance indicators generally related to the delivery of services by the toll system vendor.

We found these indicators are not appropriate measures of program success, but are more useful as tools for contract management and oversight. Even if Toll Division management develops more meaningful performance measures, it is unlikely to produce accurate performance reports because it lacks the capability — through the use of a data warehouse — to produce performance data for selected time periods.

Assigning staff to the right roles could have prevented delays in information security compliance and avoided system processing issues

Leading management practices call for placing staff with the appropriate expertise and skills in the right roles to complete the project's tasks successfully. Toll Division assigned some project managers responsibility for toll system development and system security although they possessed limited knowledge and experience in these areas. For example, the project manager responsible for overseeing development of the toll collection system did not have experience in information system development and therefore did not establish the key IT processes and activities we describe in this report. In early 2015, Toll Division management hired a full-time IT specialist who understands the complexities

of information system configuration. This employee is expected to help resolve issues with the current system. However, managers told us they have not yet decided how this specialist will be utilized to help develop the next generation toll system.

Toll Division assigned responsibility for information security to a manager who did not have sufficient knowledge of this area; this manager was also unaware that this responsibility had been assigned. This resulted in a five-year delay in verifying compliance with information security requirements. The project manager explained that unclear roles and responsibilities at the mid-level management level led to this lapse in oversight. While the WSDOT Executive Order issued in 2014 clarified roles and responsibilities at the executive level, it did not do so for managers and staff below the executive level. Toll Division management said specialized training would be useful to address these needs, but that its training budget was reduced by the Legislature during the last budget cycle.

Toll Division managers could have made better use of available expertise. Sources of specialist knowledge include in-house contractor staff, the Expert Review Panel and WSDOT's Information Technology Division, but the Toll Division did not always effectively use this expertise. In fact, a Toll Division manager told us that departmental culture prevents them from accepting consultant advice. For example, the Expert Review Panel advised WSDOT to initiate collection activities prior to the penalty phase, but the advice was not heeded. As a result, the majority of unpaid toll revenue is made up of fees and penalties. Further, the expertise available in WSDOT's Information Technology Division was not utilized. Had this Division assumed responsibility for system development, it is likely that future system needs would have been considered, preventing the present system processing and scalability issues. For example, large information systems are generally designed for easy expansion of operations, but the toll collection system requires new configurations to be added with each new tolled facility, resulting in new transaction processing issues.

Toll Division's Expert Review Panel

When the Toll Division was created in 2009, the legislative Joint Transportation Committee authorized the Toll Division to use an Expert Review Panel to support its efforts to develop the toll collection system and to provide advisory services to help guide program operations.

The Expert Review Panel consists of tolling industry experts and toll authority officials across the United States. The Toll Division has used the Expert Review Panel five times since 2011.

Toll Division's communication with stakeholders did not build support for toll program operations

Effective engagement and communication strategies help build consensus among stakeholders about how to define program success and how to manage priorities and collaborative approaches to solve problems. Toll Division did not effectively implement these communication and engagement strategies.

Members of the Legislature we talked to said that they depend on information the Toll Division provides to make transportation policy decisions, fund WSDOT operations and designate new toll facilities. Members of the Transportation Commission also depend on this information to set toll rates. These key stakeholders expressed concerns about the completeness and timeliness of the information they received from the Toll Division. While Toll Division managers said they meet routinely with legislative members and staff, and the Commission, to discuss toll operations and have not received direct complaints, they have not directly asked how satisfied stakeholders are with the information they provide. Stakeholders told us that when they directly request information, the Toll Division does not respond promptly and specifically to their requests, eroding trust in Toll Division's management of the tolling program.

Ineffective engagement with the Legislature and the Transportation Commission has also contributed to the lack of consensus about the tolling program's top priority. For example, legislative staff told us that the top concern of the elected officials they serve was for WSDOT to resolve customer service issues, such as toll bill errors and problems with fees and penalties, while the Toll Division management's top priority was toll facility expansion. Commission members say that their foremost priority is being able to set fair toll rates based on complete and accurate information. These competing priorities have led Toll Division managers and staff to question where to focus their time and energy, which has directly contributed to their lack of attention to addressing transaction processing issues.

WSDOT and tolling stakeholders have not established a shared vision of success, further complicating direction for the program. While all stakeholders agreed that meeting bond obligations is one measure of success, each listed other achievements as markers of success. For example, WSDOT defined tolling program's success as enhancing traffic mobility, while legislative staff defined success as tolling program operations that are transparent and accountable.

Enhancing leadership and management activities is needed to ensure similar issues do not occur while developing and implementing the next generation toll collection system

Tolling in Washington will continue to grow: WSDOT is already planning, at the direction of the Legislature, for additional toll facilities on the state's highway system. The success of expansion efforts will depend on toll systems that accurately and securely process, collect and report toll transactions. The Toll Division has requested and received funding from the Legislature to prepare a request for proposal for an even more complex system that integrates toll fees and ferry fares. The rationale included in the Toll Division's request included the issues with the current toll system and toll system vendor — some identified in our audit. However, WSDOT has not conducted a feasibility study that comprehensively evaluates the need for a new system.

While we found that the toll system vendor has had its challenges, WSDOT and the Toll Division contributed significantly to the issues and concerns we describe in this report. Replacing the current toll system and toll system vendor without addressing the issues we identified will increase the probability that such issues will recur.

In October 2015, the Toll Division internally prepared a Work Program Plan for the 2015-17 biennium to guide future operations. Viewed by Toll Division management as its long-term business strategy, the Work Program establishes six promising goals: accomplishing sustainable funding and performance, delivering projects as promised, strategic vision, customer service, transparency and credibility, and communication and leadership. However, it does not contain a statement on the Division's ultimate vision for tolling, where the tolling system is today, where the Toll Division wants to be and, most important, detailed plans on how to address current and future administrative and infrastructure needs of the agency. In addition, the Work Plan was not developed in collaboration with key stakeholders.

Without a clear understanding of the program's goals and specific strategies to achieve them, the success of the tolling program is at risk, with a higher probability that today's system and operational issues will reappear in the future.

Recommendations

To improve WSDOT's and the Toll Division's management of the statewide tolling system and tolling operations, we provide the following recommendations to the Secretary of Transportation:

1. Require the Assistant Secretary of the Toll Division to develop a long-term business strategy and plan to support and improve current operations as well as the next generation toll system. Items to address include:
   a) Obtain input from stakeholders in the Legislature and the Washington State Transportation Commission, as appropriate to their roles in tolling operations, to develop a long-term business strategy and plan
   b) Obtain appropriate technical and project management expertise, either from within WSDOT or by hiring qualified technical experts
   c) Ask the Tolling Expert Review Panel to evaluate the strategic plan and to provide feedback to the Legislature and a progress update to the Transportation Commission
   d) Provide a progress update on the strategic plan to the Legislature and Transportation Commission
   e) Conduct an annual review of the strategic plan with the Review Panel and provide a progress update on any changes to the Legislature and Transportation Commission
2. Address the leadership and management weaknesses identified in this report:
   a) Develop appropriate processes and functions within the Toll Division to oversee all aspects of new initiatives and projects, including working with other state agencies to identify and resolve concerns, coordinating schedules and resources, and ensuring contract compliance
   b) Establish effective two-way communication protocols with key stakeholders in the Legislature and Transportation Commission, which include frequent interactions and outreach to assess whether the level of engagement and information provided meets their needs
   c) Ensure the toll system vendor completes the required independent reviews and assessments to comply with security standards, and seek remediation of any identified issues

3. Address the current toll collection system limitations and operational challenges we identified in this report:
   a) Implement processes and functionality that focus on toll collection before penalties are added, to maximize toll revenue collections and to give customers every opportunity to pay their bill before civil penalties are imposed
   b) Implement processes and functionality to facilitate write-offs of tolls, fees and penalties WSDOT no longer expects to collect
   c) Include functions that facilitate analysis and evaluation of toll transaction and financial data in the next generation system procurement
   d) Evaluate the costs versus the benefits of the 25-cent photo fee for image-based tolls, and seek elimination of the fee if appropriate
   e) Work with the Department of Licensing to improve the accuracy of registered vehicle owner information and consider the benefits of using software to verify the validity of customer addresses
   f) Consider further reductions in the frequency and number of reconciliation reports manually prepared by the toll system vendor
   g) Conduct customer outreach to provide added information on how to properly register, install and maintain *Good to Go!* accounts, passes and license plates
   h) Resolve transaction processing flaws that complicate creation of toll bills

Agency Response

STATE OF WASHINGTON

April 29, 2016

Honorable Troy Kelley
Washington State Auditor
P.O. Box 40021
Olympia, WA 98504-0021

Dear Auditor Kelley:

We appreciate the opportunity to review and respond to the State Auditor's Office (SAO) performance audit report, "Washington State Department of Transportation: Improving the Toll Collection System." Our agencies worked together to provide this joint response.

The Washington State Department of Transportation's Toll Division oversees a complex system of roadways that served more than 37.6 million travelers last fiscal year. Since tolling began in 2007, we have implemented tolling systems on four major highways and generated $616.5 million in revenues for critical system improvements. These improvements help goods and people move more efficiently across our region.

Toll systems are complex both to create and operate. We are aware there are areas where the Toll Division's performance must improve. We welcome many of the recommendations offered by the SAO. However, we believe additional context provides a more accurate assessment of Toll Division performance:

- WSDOT collects 94 percent of tolls generated — a level of performance that prompted the independent Tolling Expert Review Panel to conclude that "…Washington's toll systems are among the nation's best performers." Understanding how other toll systems perform and comparing WSDOT's performance to benchmarks of our peer agencies is vital to evaluating not only WSDOT's collection record, but other duties as well.

- The Toll Division's leadership team initially focused on building a robust toll system, as directed by the Legislature, putting in place the skills and experience to meet that goal. The Toll Division is now focusing on improving operations, customer service and traffic management.

- Understanding the importance of safeguarding customer information, WSDOT has diligently pressed the toll vendor to comply with information technology security requirements in its contract. As issues were identified, WSDOT directly addressed them. As we communicated to the audit team, the toll vendor was in the process of obtaining its Report on Compliance with Payment Card Industry standards. That third-party validation was received on April 22, 2016.

WSDOT's Toll Division regularly reports to Governor Inslee and to the Legislature, the latter of which establishes tolling policy for our state. The SAO report references the roles of both the Legislature and the Transportation Commission. Tolling authority is shared in this way:

- The Legislature provides tolling authority and establishes which roadways can be tolled.
- Once the Legislature provides that direction, the Transportation Commission establishes toll rates.
- The WSDOT Toll Division implements legislative policy and operates the system.

WSDOT Assistant Secretary Patty Rubstello meets regularly with members of the Legislature and their staff at their request. She also participates in multiple monthly meetings with the Transportation Commission to ensure collaboration and to assist it in its toll-setting role.

While this performance audit focused on toll system functionality and efficiency, it is important to recognize that WSDOT produces accurate toll financial reports for the public. The vendor's toll system allows us to complete those reports. WSDOT has received clean annual audits on its Washington State System of Eligible Toll Facilities (520 Bridge) financial statements. In addition, the toll vendor receives annual audits of its internal controls. This tool enables WSDOT to monitor the vendor's internal controls over transaction processing, accounting and security.

We believe your report will assist us in our efforts to continually improve. Several of the SAO's recommendations, such as implementing stricter information security protocols and establishing a long-term business plan, have been under way since 2014. Others we will undertake. We have enclosed our response and steps to address each recommendation.

Sincerely,

Roger Millar, PE, AICP
Acting Secretary
Washington State Department of Transportation

David Schumacher
Director
Office of Financial Management

Enclosure

cc: David Postman, Chief of Staff, Office of the Governor
Kelly Wicker, Deputy Chief of Staff, Office of the Governor
Miguel Pérez-Gibson, Executive Director of Legislative Affairs, Office of the Governor
Matt Steuerwalt, Executive Director of Policy, Office of the Governor
Tracy Guerin, Deputy Director, Office of Financial Management
Wendy Korthuis-Smith, Director, Results Washington, Office of the Governor
Tammy Firkins, Performance Audit Liaison, Results Washington, Office of the Governor
Patty Rubstello, Assistant Secretary, Toll Division, Department of Transportation

Official State Cabinet Agency Response to the Performance Audit on Washington State Department of Transportation: Improving the Toll Collection System

April 29, 2016

This coordinated management response to the State Auditor's Office (SAO) performance audit report received on April 8, 2016, is provided by the Washington State Department of Transportation (WSDOT) and the Office of Financial Management (OFM).

SAO Performance Audit Objectives:

The purpose of SAO's audit was two-fold:

1. To assess how well WSDOT's statewide electronic toll system processes, collects and reports toll transactions, and if issues exist, why.
2. To assess whether the toll system complies with state and industry information security standards, and if not, why not.

SAO Findings:

1. Toll system lacks key functions and has other operational limitations that affect toll processing, collection and reporting.
2. WSDOT has not been successful in enforcing toll system vendor compliance with information security requirements.
3. WSDOT's limited attention to adding necessary expertise, establishing functions and processes, and completing toll system develop led to system issues.
4. Enhancing leadership and management activities is needed to ensure similar issues do not occur while developing and implementing the next generation toll system.

SAO Recommendation 1: To the Secretary of Transportation, we recommend: Require the Assistant Secretary of the Toll Division to develop a long-term business strategy to support and improve current operations as well as the next generation toll system. Items to address include:

a) Obtain input from stakeholders in the Legislature and the Washington State Transportation Commission, as appropriate to their roles in tolling operations, to develop a long-term business strategy and plan.

b) Obtain appropriate technical and project management expertise, either from within WSDOT or by hiring qualified technical experts.

c) Ask the Tolling Expert Review Panel to evaluate the strategic plan and to provide feedback to the Legislature and a progress update to the Transportation Commission.

d) Provide a progress update on the strategic plan to the Legislature and Transportation Commission.

e) Conduct an annual review of the strategic plan with the Review Panel and provide a progress update on any changes to the Legislature and Transportation Commission.

STATE RESPONSE:

WSDOT supports the recommendation to develop a more comprehensive long-term business plan for the toll program. The plan will incorporate the items highlighted in the recommendation and map out the performance requirements and the budget needed to improve near- and long-term operations. In fact, in 2013, we began planning efforts to obtain a new vendor.

In addition to ongoing business planning efforts, in 2014, WSDOT began providing quarterly reports to the Legislature on planning efforts to issue a request for proposal (RFP) for a new toll vendor. Prior to those reports, Toll Division staff, recognizing the need for an improved toll system contract for both back office and customer service systems, had begun budget discussions with OFM.

We worked with the Legislature to include language in the 2016 supplemental transportation budget that requires OFM and the Office of the Chief Information Officer (OCIO) to review the new toll vendor RFP for mitigating risk to the state and ensuring the vendor meets all applicable security standards.

Toll policy is established by the Legislature. WSDOT reports regularly to legislative leadership about Toll Division activities, and agrees that legislators and Governor Inslee play a vital role in the development of the long-term business plan. While WSDOT values its partnership with the Transportation Commission as the body that establishes toll rates, it does not have a governance role for WSDOT as a whole or the Toll Division in particular. Nonetheless, WSDOT will continue coordination with the Transportation Commission, as appropriate.

Action Steps and Time Frame:

- Formalize the Toll Division business model. It will include identifying needs for additional expertise and approving a cohesive, long-term business plan prior to the 2017 legislative session. *By December 31, 2016.*

  The plan will include**:**

  - Further engaging with the Legislature and Transportation Commission to develop a shared vision for the Toll Division, prioritize division activities and clarify how legislative policy actions will affect Toll Division growth and operations.
  - Engaging the Tolling Expert Review Panel to evaluate and annually update the Toll Division's long-term business plan and strategy, and incorporate its feedback.

SAO Recommendation 2: To the Secretary of Transportation, we recommend: Address the leadership and management weaknesses identified in this report:

a) Develop appropriate processes and functions within the Toll Division to oversee all aspects of new initiatives and projects, including working with other state agencies to identify and resolve concerns, coordinating schedules and resources, and ensuring contract compliance.

b) Establish effective two-way communication protocols with key stakeholders in the Legislature and Transportation Commission, which include frequent interactions and outreach to assess whether the level of engagement and information provided meets their needs.

c) Ensure the toll system vendor completes the required independent reviews and assessments to comply with security standards, and seek remediation of any identified issues.

STATE RESPONSE:

While there is always room for improvement, the Toll Division has effective project management policies in place and works continually with other agencies to provide the best possible service to taxpayers. One of WSDOT's strategic goals concerns workforce development. This is a focus area for the Toll Division and the rest of the department.

A key element of this goal includes providing employee training to develop skills — training that requires financial and staff resources to be completed. Budget constraints related to the approved use of toll revenues have limited funds for employee training. These limitations also have led to cancelling membership in appropriate trade and industry organizations, such as the International Bridge, Turnpike and Tunnel Association. WSDOT will be seeking support for training resources.

In addition to skills and best practices training, the Toll Division business plan will ensure Toll Division staff members have the expertise to adapt to changing technologies and trends.

As noted earlier in this response, WSDOT executives and staff members communicate regularly with members of the Legislature and other key stakeholders. These communications include requested briefings, regular reports provided to members, and regular meetings with legislative leadership to address questions or inform them about upcoming milestones. Toll Division staff members also work with legislative staff to provide information and answer questions.

We agree that as part of our outreach work, we should assess how effective these communication efforts are and determine how they can be improved.

The department has worked with the toll vendor to comply with information technology security requirements in its contract. These include requirements established by the OCIO, as well as Payment Card Industry (PCI) standards. The vendor received an external PCI report on compliance on April 22, 2016. The vendor anticipates receiving the final report from its external OCIO security standards audit by May 31, 2016.

Action Steps and Time Frame:

- Incorporate in the Toll Division business plan the training and budget needed to support this recommendation. *By December 31, 2016*
- Ensure the business plan addresses stakeholder involvement in the Toll Division's work program. *By December 31, 2016*
- Ensure the vendor receives the final report from its external OCIO security standards audit. *By May 31, 2016*

SAO Recommendation 3: To the Secretary of Transportation, we recommend: Address the current toll collection system limitations and operational challenges we identified in this report:

a) Implement processes and functionality that focus on toll collection before penalties are added, to maximize toll revenue collections and to give customers every opportunity to pay their bill before civil penalties are imposed.

b) Implement processes and functionality to facilitate write-offs of tolls, fees and penalties WSDOT no longer expects to collect.

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c) Include functions that facilitate analysis and evaluation of toll transaction and financial data in the next generation system procurement.

d) Evaluate the costs versus the benefits of the 25-cent photo fee for image based tolls, and seek elimination of the fee if appropriate.

e) Work with the Department of Licensing to improve the accuracy of registered vehicle owner information and consider the benefits of using software to verify the validity of customer addresses.

f) Consider further reductions in the frequency and number of reconciliation reports manually prepared by the toll system vendor.

g) Conduct customer outreach to provide added information on how to properly register, install and maintain *Good to Go!* accounts, passes and license plates.

h) Resolve transaction processing flaws that complicate creation of toll bills.

STATE RESPONSE:

WSDOT is committed to continued improvements in toll collection, including collection of tolls as early as possible in the process. The Customer Program for Resolution, as well as the Advocate for the Customer program, are examples of these improvements. The department will continue to look at both short-term and long-term improvements in this area that provide the most cost-effective and customer-friendly approaches.

We believe the audit report does not accurately characterize WSDOT's toll collection rate. We suggest that it is beneficial to compare it with other industry benchmarks. At WSDOT's request, the Tolling Expert Review Panel (ERP) provided feedback on the following question: "What is the view of the ERP on the overall collection rates for Washington State Tolls based upon the experiences elsewhere?" Its response was:

> "At 94% of all transactions resulting in a paid toll within the period when tolls were incurred, Washington's toll systems are among the nation's best performers. This is particularly true when considering that nearly 50% of the tolls were collected in an All Electronic Tolling environment (SR 520) and that billed tolls would still have been in process during this time. Billed revenues would normally come in late and it is reasonable to expect a 9-12 month collection period to achieve a 65-70% collection rate."

The Toll Division is working with the back-office system vendor to design, implement and install the write-off module, including a cost benefits analysis.

WSDOT also agrees that the next generation back-office system should better analyze and monitor system performance and offer more efficient managerial reporting.

Moreover, WSDOT continues to help customers resolve outstanding penalties for unpaid tolls. In July 2015, WSDOT implemented its Customer's Program for Resolution, which has benefited 50,000 customers, including I-405 express toll lane drivers, by waiving $20 million in fees and penalties.

The Toll Division will review its business practices to find other opportunities to increase the toll program's efficiency without sacrificing customer service.

Action Steps and Time Frame:

- Work with the vendor to design, implement and install the write-off module for its back-office toll system. *By December 31, 2016.*

- Review current business practices to find other opportunities to increase the toll program's efficiency without sacrificing customer service, and incorporate lessons learned in the procurement process for the next generation system. *By December 31, 2016.*

  This review will include at a minimum the following:

  - Increase the collection efforts for outstanding tolls as early as possible in the collection process.
  - Determine cost effectiveness and efficiency of applying the 25-cent fee for Pay By Plate toll transactions.
  - Increase accuracy of registered owner information between WSDOT and the Department of Licensing to reduce the volume of return mail and research other methods of ensuring accurate owner information.
  - Provide further refinements to the financial reconciliation process.
  - Determine additional methods for customer outreach to improve customer service.
  - Provide further refinements in toll transaction processing.

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Appendix A: Initiative 900

Initiative 900, approved by Washington voters in 2005 and enacted into state law in 2006, authorized the State Auditor's Office to conduct independent, comprehensive performance audits of state and local governments.

Specifically, the law directs the Auditor's Office to "review and analyze the economy, efficiency, and effectiveness of the policies, management, fiscal affairs, and operations of state and local governments, agencies, programs, and accounts." Performance audits are to be conducted according to U.S. General Accountability Office government auditing standards.

In addition, the law identifies nine elements that are to be considered within the scope of each performance audit. The State Auditor's Office evaluates the relevance of all nine elements to each audit. The table below indicates which elements are addressed in the audit. Specific issues are discussed in the Results and Recommendations sections of this report.

I-900 element	Addressed in the audit
1. Identify cost savings	**Yes.** The audit identified activities that could result in future cost savings.
2. Identify services that can be reduced or eliminated	**No.** The purpose of the audit was to assess how well the toll system processes, collects and reports toll transactions, and to assess compliance with state and industry security standards. The audit did not focus on services that can be reduced or eliminated.
3. Identify programs or services that can be transferred to the private sector	**No.** The audit examined services and programs that are already outsourced.
4. Analyze gaps or overlaps in programs or services and provide recommendations to correct them	**No.** The audit did not focus on gaps or overlap in programs or services.
5. Assess feasibility of pooling information technology systems within the department	**No.** The purpose of the audit was to assess how well the toll system processes, collects and reports toll transactions, and to assess compliance with state and industry security standards. The audit did not focus on services that can be reduced or eliminated.
6. Analyze departmental roles and functions, and provide recommendations to change or eliminate them	**Yes.** The audit looked at the roles and responsibilities of staff involved in developing and implementing the toll system, and made recommendations to the Secretary of Transportation to better guide future operations and to prevent current issues from recurring.
7. Provide recommendations for statutory or regulatory changes that may be necessary for the department to properly carry out its functions	**Yes.** We made recommendations that may require statutory or regulatory changes.
8. Analyze departmental performance, data performance measures, and self-assessment systems	**Yes.** The audit included analyzing the department's process to manage the project and monitor its toll system vendor's performance.
9. Identify relevant best practices	**Yes.** The audit used industry best practices along with state regulations and guidance to identify opportunities to improve performance of future tolling projects.

Appendix B: Methodology

Audit objectives

The purpose of this audit was two-fold:

- To assess how well WSDOT's statewide electronic toll system processes, collects and reports toll transactions, and if issues exist, why
- To assess whether the toll system complies with state and industry information security standards, and if not, why not

How we collected and analyzed the data

Assessing how well the toll system processes, collects and reports toll transactions

To determine how well the toll system processes, collects and reports toll transactions, we conducted close to 80 interviews with staff and managers of WSDOT and the toll system vendor. In these interviews, we assessed how work is performed in 18 areas (see the sidebar for a list). Each of these areas has specific requirements that govern its execution. We also applied advanced auditing techniques and collected data from the toll system vendor to compute and assess system performance in five key measures: leakage rate, number of billing adjustments, revenue forecasting variances, aging receivable volumes (past-due toll fares, fees and penalties), and the pass and rejection rates for license plate photos. Where applicable, we compared the results of these measures to either standards set by the Toll Division or against industry guidance or practice, including Generally Accepted Accounting Principles.

We examined and reported results for the first nine months of fiscal year 2015 — July 2014 through March 2015. We used nine months, instead of a full year, because it was the only recent period for which we could collect data across all areas we reviewed. When the Toll Division took action after March 2015 to resolve issues, we collected additional data to show the effect that these actions had on toll system performance.

Accuracy in the context of this performance audit refers to how well the toll collection system processes, collects, and reports toll transactions. We did not examine the accuracy of WSDOT's tolling financial statement reporting.

18 areas reviewed:

1. Account information
2. Account establishment
3. Payment processing
4. Account replenishment
5. Adjustments
6. Account management
7. Correspondence
8. Refunds
9. Photo enforced toll transaction processing
10. Negative balances
11. Non-revenue account management
12. Notice of civil penalty processing
13. Adjudication
14. Licensing holds
15. Mail processing
16. Appeals
17. Reconciliation
18. Security

Examining compliance with state and industry information security standards

To determine the toll system's compliance with the state and industry security requirements, we obtained and reviewed security-related standards and requirements issued by the state's Office of the Chief Information Officer (OCIO) and the payment card industry, and toll system vendor contractual requirements. We reviewed earlier WSDOT internal audit reports, external audits of toll operations and toll system vendor self-assessments to identify current IT security risks. We also analyzed the toll system vendor's IT security management activities, examining 37 OCIO requirements for compliance. Additionally, we observed system settings, physical security controls and system safeguards designed to protect system reliability. We then interviewed WSDOT's Information Technology Division staff responsible for OCIO and PCI compliance, and WSDOT's Internal Audit Division, to determine their efforts to enforce contractual requirements.

Determining what caused the toll processing, transaction, reporting and security issues we found

Generally Accepted Government Auditing Standards require that we identify the causes of issues the audit finds to aid in the development of recommendations that address those causes. To address this requirement, we applied an analytical process used to identify the systems or processes that caused

current or recurring problems. We held initial individual meetings with WSDOT and toll system vendor staff, and asked them to identify current or persistent challenges. We summarized them under various categories, such as system development, payment processing, information security, and communication and engagement issues.

We then sought additional input from multiple internal stakeholders that Toll Division management identified as the best people to discuss circumstances driving toll system issues; we included executive, mid-level, staff and in-house contractor positions from within WSDOT, the Toll Division and the toll system vendor. We summarized the results of the individual interviews using a technique called "Five Whys."

Sources for desirable management practices

We obtained information on desirable management activities from the National Performance Advisory Commission, the U.S. Government Accountability Office, leading public management experts participating in a symposium on Leading Practices in Public Management (held in San Jose, California in June 2014), and the Institute for Internal Auditors.

Our analysis did not stop at the identification of causal factors for toll system issues described in this report. Had we done so, our analysis may not have been complete. As suggested by industry methodological guidance, we further linked the causal factors that stakeholders identified to leadership and management activities expected of public agencies. These activities include defined structures and processes that facilitate transparency and accountability.

Finally, we asked a panel of State Auditor's Office performance auditors to replicate our analysis. Each panelist reviewed a summary of causal factors toll program stakeholders identified and linked the factors to applicable leadership and management activities expected of public agencies. We then compared the results of our root cause analysis with the work performed by the panel to validate our initial work.

To further understand the concerns around the toll system's processing, collection, reporting and security, we conducted meetings with external stakeholders of the tolling program, including elected officials, legislative committee staff, the Office of Financial Management, the Office of the Chief Information Officer and the Attorney General's Office.

Limitations to our analysis

We did not test the accuracy of individual toll transactions, because the information system cannot generate historical reports for a specific time period. A next-best alternative to transaction testing would be to examine reports on the application controls built into the toll system; these application controls – such as edit checks or validations – detect inappropriate input, processing or output of data, and are designed to prevent errors in transaction processing. However, we were unable to use reports on these types of system controls because the toll system was not configured to track the results of key system edits.

Given these limitations, we analyzed the completeness and sufficiency of various toll system functions and controls designed to ensure accuracy. Additionally, we analyzed indicators of operational issues with the system – such as system completeness, data controls and business processes – to gain an understanding of potential problems that could affect accuracy.

If auditors form conclusions based on the data used in the audit, auditing standards require us to assess its reliability. The assessment may be qualitative or quantitative depending on the nature of the data. We conducted a qualitative assessment of the data, and found variability in the controls to ensure data accuracy and reliability. Where we had concerns about data accuracy, we met with WSDOT stakeholders for proper resolution. We found the data accuracy controls over customer complaint data were not sufficient because of the absence of processes to check data entry. We reported customer satisfaction results in meetings with Toll Division management but excluded the data from this audit report.

In this audit report, we present the results of the toll system's compliance with security standards at a high level because of the sensitive nature of information that could pinpoint or inadvertently expose system vulnerabilities. We have communicated the detailed issues and concerns to these agencies.

This audit did not comprehensively examine the accuracy of the equipment at the toll lane facility, which is also used to collect information needed for toll transaction processing.

Appendix C: Payments WSDOT Made to the Toll System Vendor

WSDOT paid its toll system vendor about $38.9 million for the development and ongoing operation of the statewide electronic toll system since the contract began in 2009. **Figure 1** details the agency's expenditures.

Figure 1 – Payments WSDOT made to the toll system vendor (May 2010 – July 2015)

Description	Amount	Percentage of expenditures
Operations and system development, support staff for State Route 520	$22,633,452	58.2%
Adjudication module and support	$3,804,380	9.8%
Reconciliation services from contractor	$95,436	0.2%
New tolling facility scoping	$150,000	0.4%
Registration holds manual processing	$395,132	1.0%
Additional Roadway Toll Systems (ARTS) development and implementation for Interstate 405	$4,469,051	11.5%
Additional cost for manual image review from unmet Optical Character Recognition (OCR) autopass rate	$939,765	2.4%
Expense reimbursement for postage and Law Enforcement Systems (LES)	$6,406,826	16.5%
Total	$38,894,042	100%

Source: Auditor analysis based on toll system vendor invoices submitted to the Toll Division for payment.

Appendix D: Toll System Roles and Responsibilities

(Executive Order E 1093.00)

Washington State Department of Transportation

Secretary's Executive Order Number: E 1093.00

Signature on file
Lynn Peterson
Secretary of Transportation

October 13, 2014
Date

Tolling Roles and Responsibilities

I. Introduction

A. Purpose

This Secretary's Executive Order defines the roles and responsibilities of the Washington State Department of Transportation (WSDOT) Toll Division and other agency units to implement WSDOT's *Good To Go!* tolling program.

B. Background

The State Auditor's Office (SAO) published a performance audit of WSDOT's implementation of tolls on SR 520 in August 2013 that included the following recommendations:

> *To improve WSDOT's management of future tolling projects and to minimize the risk of project delays, we recommend:*
>
> 1. *The Secretary ensure roles, responsibilities, and decision-making authority are clear for projects managed by the Toll Division.*
> 2. *The Assistant Secretary for Tolling establish policies and procedures to guide the development and implementation of tolling projects.*
> 3. *The Department of Transportation report on its progress implementing these recommendations to House and Senate Transportation Committees and the Office of Financial Management, required in the 2013-2015 budget.*

This Secretary's Executive Order, along with changes to an existing Secretary's Executive Order defining agency delegations of authority, complies with that recommendation.

II. Secretary's Executive Order

A. Purpose

The Assistant Secretary for the Toll Division is responsible for the decisions needed in developing, constructing, and operating toll facilities on the Washington State Highway System. The responsibility includes collaborating with other Assistant Secretaries and program directors who are responsible for accounting and finance, information technology, engineering, contracting, and transportation planning. This Secretary's Executive Order clarifies the authority, responsibility, support, collaboration, and communication needed for the Assistant Secretary for the Toll Division to effectively lead and manage the tolling program.

B. Context

The Toll Division benefits from being part of the larger Department of Transportation. The division is one of six divisions within the department reporting to the Deputy Secretary. It depends on central administrative services provided by functions directed by the Assistant Secretary for Strategic, Enterprise and Employee Services and the Assistant Secretary for Financial Administration/Chief Financial Officer, as well as services related to transportation capital improvements under the Assistant Secretary for Engineering and Regional Operations. The work of the Toll Division is also related to the responsibilities of the Assistant Secretary for Community and Economic Development. The Toll Division works at a peer level with these divisions and conforms to the policies and procedures of the department and the authorities of Assistant Secretaries. These authorities are broad and generally apply to hiring, employee performance, discipline and discharge, budgeting, contracting, and other matters that keep the divisions operationally efficient and effective and in compliance with laws and regulations. Relationships with other divisions are collaborative, especially related to project planning, design, construction, and operation of toll facilities. The Assistant Secretary for the Toll Division uses a consensus approach when reaching decisions on projects when other divisions have roles and responsibilities related to project development and implementation. If consensus is not realized, the Assistant Secretary for the Toll Division consults with the Deputy Secretary of Transportation in reaching a final decision. Final project decisions are made by the Secretary of Transportation.

C. Roles and Responsibilities Matrix

To effectively clarify roles and responsibilities across a broad array of services, WSDOT used the Lean-based Responsibility Assignment Matrix. The matrix, commonly referred to as RACI Matrix, creates a process to track responsibilities across departmental organizations, reduces confusion, and increases efficiency of implementation. The matrix beginning on page 4 of this order identifies the tolling functions and the roles played by other WSDOT entities. Tolling functions are shown in the left column, and roles played by the Toll Division and agency divisions are listed for each using a letter key shown at the upper left of the table. It is important that each organization maintain the same understanding of definitions and apply the roles consistently.

D. Conflict Avoidance and Resolution

Conflicts will be avoided where possible by working collaboratively, communicating openly, and consulting early with all parties affected by decisions. Policies and procedures will be established in advance between parties detailing how coordination will occur and how conflicts will be resolved if they occur.

III. Contact for More Information

For questions or concerns about this Secretary's Executive Order, contact the office of the Assistant Secretary for the Toll Division at 206-464-1220.

IV. References

- *Washington's Tolling Program: Lessons Learned from Project Delays*, State Auditor's Office, August 2, 2013
- Secretary's Executive Order E 1012 *Delegation of Authority*

V. Appendix

A. Tolling Roles and Responsibilities Matrix

VI. Review and Update Requirements

When changes are necessary to update this document, inform the Assistant Secretary for the Toll Division. The Assistant Secretary reviews this document periodically and proposes updates to the Secretary of Transportation for approval.

Americans with Disabilities Act (ADA) Information

This material can be made available in an alternate format by emailing the WSDOT Diversity/ADA Compliance Team at wsdotada@wsdot.wa.gov or by calling toll free, 855-362-4ADA (4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

Appendix A: Tolling Roles and Responsibilities Matrix

Definitions Accountable – Individual who is ultimately accountable and has approval authority. Only one 'A' can be assigned to each activity. It is the responsibility of this person to provide the necessary direction and working environment, such that strong team development occurs between all related organizations. The Accountable individual does not make unilateral decisions. The Assistant Secretary uses a consensus approach when reaching decisions on projects when other divisions are 'R' related to project development and implementation. If consensus is not realized, the Assistant Secretary consults with the Deputy Secretary of Transportation in reaching a final decision. Final project decisions are made by the Secretary of Transportation. Responsible – Individual(s) assigned to perform a task; responsible for action / implementation. Multiple R's can be assigned to a task. It is the responsibility of this person to provide the necessary direction and working environment, such that strong partnering occurs between the organizations. Consulted – Individual(s) who will be involved and informed throughout the process and need to provide input prior to final decisions. Informed – Individual(s) who need to be informed after a decision or action is taken.	Assistant Secretary for the Toll Division	Assistant Secretary for Strategic, Enterprise and Employee Services	Assistant Secretary for Financial Administration	Assistant Secretary for Community and Economic Development	Assistant Secretary for Engineering and Regional Operations
Activity					
Policy and Planning					
• Support the Washington State Transportation Commission rate setting policy and process	A, R		C	I	I
• Develop tolling policy	A, R		C	C	C
• Evaluate feasibility of toll facility proposals	A, R	I	C	C	
• Integrate tolling elements into WSDOT long range multimodal plan and corridor studies	R		C	A, R	I
• Develop pricing (VMT, RUC) policy development	C		A, R	C	
Program Management					
• Report on toll program performance	A, R	C	C	I	I
• Use Management Accounting to support business decisions of the Toll Program	A, R		C		
• Perform toll program management (B Program)	A, R	C	C	I	

Project Development and Implementation					
• Develop tolling concept of operations	A, R	C	C	C	C
• Develop roadway toll systems infrastructure	A, R	R	C		C
• Develop IT/PCI Standards	R	A, R	R		
• Develop back office systems	A, R	R	R		
• Develop and manage capital program and budget for tolling components within design and construction projects	R		R		A, R
Budget					
• Develop toll budget (B Program)	R		A, R		
• Prepare fiscal note submittals and budget allotments	R		A, R		
• Prepare agency request legislation pertaining to tolling when					
o pertains to accounting and financing	R		A, R		
o pertains to toll operations and development	A, R		C		
Financial Planning					
• Develop and conduct traffic and revenue forecasting	A, R		C	I	
• Adopt Quarterly Traffic and Revenue Forecast	C		A, R		
• Prepare toll facility financial plans	R		A, R		
• Comply with bond finance requirements	R		A, R		
Operations					
• Manage the priced lanes for expected throughput	A, R			I	R
• Develop business rules and standard operating procedures	A, R	C	C	I	C
• Operate toll collections	A, R	C	C		
• Manage customer notifications prior to referral to third party collector	A, R		C		
• Operate roadway toll systems	A, R	R			C
• Operate back office systems (computers, phones, system interfaces)	A, R	R	R		
• Implement IT/PCI Standards	R	A, R	R		
• Manage internal controls	R	C	A		
• Manage toll enforcement program	A, R		C		C
• Develop and manage toll roadway facility maintenance program and budget for work performed by regions	A, R		C		R

Education / Marketing					
• Communicate with toll customers, stakeholders, and the public	A, R	C	I	I	I
• Develop Toll program brands	A, R	C		I	I
• Implement new marketing programs	A, R	C	C	I	I
Financial Accounting and Reporting					
• Conduct traffic and revenue reporting	A, R	I	I	I	C
• Deliver Program accounting (e.g., Toll Division staff)	A, R		C		
• Toll Facility Accounting to include:					
o Accounting policies, procedures, and methodologies	I		A, R		
o Applicable system requirements and design necessary to comply with accounting standards and policies	C		A, R		
o Transactional and financial reconciliations	C		A, R		
o Transactional accounting responsibilities in subsidiary and general ledger	I		A, R		
o Cost Allocation	C		A, R		
• Produce accurate and compliant financial statements	C		A, R		
• Manage contracted collection services	C		A, R		
• Pursue Active Management Coordination with Third Party Collectors	A, R		R		
• Develop Settlement and Write-off Proposals	A, R		R		
• Approve Settlement or Write-off	C		A, R		