



Washington State
Department of Transportation

SR 520 Bridge Replacement and HOV Program



SR 520 Bridge Net Toll Revenue Report

Floating Bridge and Eastside Project

Prepared by

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in collaboration with

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and the Washington State Department of Transportation

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Acronyms and Abbreviations

ACH	Automated Clearing House
ATM	Active Traffic Management
AET	All-Electronic Tolling
CAGR	Compound Annual Growth Rate
CSC	Customer Service Center
CSTV	Closed Circuit Television
ETCC	Electronic Transaction Consultants Corporation
GEC	General Engineering Consultant
HAR	Highway Advisory Radio
HMA	Hot Mix Asphalt
NOCP	Notice of Civil Penalty
O&M	Operations and Maintenance
OCR	Optical Character Recognition
PB	Parsons Brinckerhoff
PCC	Portland Cement Concrete
R&R	Repair and Replacement
SR	State Route
T&R	Traffic and Revenue
TCS	Toll Collection System
TNB	Tacoma Narrows Bridge
YOE	Year of Expenditure
VMS	Variable Message Signs
WSA	Wilbur Smith Associates
WSDOT	Washington State Department of Transportation

Disclaimer

This report was prepared by Parsons Brinckerhoff (PB) as a subcontractor to HDR Engineering Inc. (HDR), in accordance with the SR 520 General Engineering Consultant (GEC) agreement with the Washington State Department of Transportation (WSDOT). This report is subject to the terms and conditions of that agreement, and is meant to be read as a whole and in conjunction with this disclaimer.

The contents of this report, including the net revenue projections and associated expenditure forecasts, are the product of collaboration between WSDOT, the GEC team supporting the SR 520 Corridor Project, and other consultant firms providing support to the WSDOT Toll Division. WSDOT has been actively engaged throughout the process, and the contents reflect the input and views of many different engineering, finance, and other professionals. In the preparation of this report the authors and contributors make certain assumptions with respect to such conditions that may exist or events that may occur in the future that are subject to change. Unless a source is otherwise noted, these assumptions were made by the consensus of professionals representing the parties noted above.

The facilities operations and maintenance (O&M) costs, as well as the periodic repair and replacement (R&R) expenditure estimates, were developed by a Maintenance Task Force convened by WSDOT for this purpose. The Task Force consisted of WSDOT engineering and maintenance experts as well as engineering and finance professionals from the GEC team, including staff from the firms of HDR, Parametrix, and PB. The toll collection O&M and R&R costs were prepared and refined over an extended period of time by WSDOT and various consultants. They were prepared using vendor bid prices, a toll transaction-based model, WSDOT's existing experience with the Tacoma Narrows Bridge, and information from other toll facilities, and were compiled and tabulated by PB.

PB, other GEC team members, and WSDOT believe that the work has been properly summarized and that the projections and other forward-looking statements contained within the report are based on reasonable assumptions as of the date of the report. Such forward looking statements involve risks and uncertainties that may cause actual results to differ materially from the results predicted. Any entities using this report and the data presented herein are hereby advised that the use of these materials shall be at their own risk, and no guarantee or warranty as to the actual outcome of any revenue projected by this report is being offered.

Introduction and Summary

Background

This report summarizes the preparation of the net toll revenue projections for the tolling of the State Route (SR) 520 Bridge across Lake Washington. It is intended to accompany the *SR 520 Bridge Investment Grade Traffic and Revenue Study* (August 29, 2011), prepared by Wilbur Smith Associates (WSA), which provides the underlying forecasts for toll traffic and gross revenues on the SR 520 Bridge. Together, these two reports provide the foundation of data to inform and support the toll financing envisioned to fund a portion of the SR 520 capital investments.

The Washington State Department of Transportation (WSDOT) plans to toll the existing SR 520 Bridge across Lake Washington beginning no later than January 1, 2012. Toll revenues will be leveraged to finance a portion of the funds required to replace the floating bridge across the lake plus make other corridor improvements between the bridge and I-405 to the east.

As described further in the WSA study, the SR 520 corridor stretches nearly 13 miles between I-5 in Seattle to the west and SR 202 to the east, crossing I-405 at about the halfway point, and serving various Eastside communities, including Bellevue, Kirkland and Redmond. Time of day variable tolling will be used to manage congestion on the corridor. Toll collection will be all-electronic with no toll booths.

The proposed SR 520 corridor improvements authorized by the State Legislature in 2010 represent \$2.43 billion of investments that were the basis for the investment-grade traffic and revenue study. The improvements, which have received environmental clearance for construction, include:

- Building a new floating bridge, plus east approach and interim west approach structures;
- Widening the corridor to six lanes (two general-purpose and one HOV lane in each direction) between the west landing of the new floating bridge and I-405 in the east;
- Adding a pedestrian/bike lane in the widened corridor; and
- Making a series of other investments for safety, reliability, and transit and HOV operations.

For financial planning purposes, this \$2.43 billion package of investments is referred to as the "SR 520 Floating Bridge and Eastside Project" (Project). The Project represents the funded portion of the larger \$4.65 billion "SR 520 Corridor Program" that will ultimately widen and/or improve the entire SR 520 corridor between I-5 and SR 202. The unfunded "Westside Project" builds upon the Floating Bridge and Eastside Project by constructing a replacement Montlake Boulevard interchange, a new Portage Bay Viaduct, and a new west bridge approach. Because the Westside Project is not funded, these additional improvements in Seattle between I-5 and the floating bridge have not been included in the *SR 520 Bridge Investment Grade Traffic and Revenue Study*, and the Westside section of SR 520 has been modeled in its existing four-lane configuration.

For more information about the SR 520 Floating Bridge and Eastside Project or the entire SR 520 Corridor Program, including the program's purpose and need, costs, and benefits, and a series of

maps and photos, the reader is referred to the SR 520 Bridge Replacement and HOV Program website at: <http://www.wsdot.wa.gov/Projects/SR520Bridge/>.

Purpose

Whereas the *SR 520 Bridge Investment Grade Traffic and Revenue Study* provides the annual traffic and gross toll revenue projections, this report is focused on providing information about the net toll revenue projections, and how the various expenditure items and deductions to the gross toll revenue forecasts were estimated. Net toll revenues represent the cash flow available for debt service on toll bonds, deposits to required reserves, and other uses after: (1) accounting for revenue deductions and adjustments, including leakage in collecting revenues with all electronic toll collection; and (2) expenditures for all of the routine costs of operating and maintaining the SR 520 Bridge as a toll facility. Net toll revenues will also be used to pay deferred sales tax on construction, contribute to periodic capital repair and replacement (R&R) expenditures, and provide for the funding of required reserve accounts. The projections provided herein were prepared for a 45-year financing horizon from fiscal year (FY) 2012 through FY 2056.

The detailed traffic and net revenue (T&R) table located in Appendix A provides the annual toll transactions and the annual dollar projections for each of the revenue adjustment and expenditure items identified in the calculation of net revenues, shown in numbered columns. The numbered columns of the T&R table are then referred to in the body of this report as the projection for each item is described. The columns can be grouped topically as follows.

- Columns 2-11 provide information on the annual toll transactions and “Gross Toll Revenues” that come directly from WSA’s *SR 520 Bridge Investment Grade Traffic and Revenue Study*.
- Columns 12-18 present the revenue deductions, adjustments, and uncollectible account leakages that yield the “Adjusted Gross Toll Revenues” projection.
- Columns 19-25 provide the various operating and maintenance expenditures paid from Adjusted Gross Toll Revenues to yield the “Net Toll Revenues Before R&R / Deferred Sales Tax” (net revenue).
- Columns 26-28 show the other, project-related expenditures of net toll revenues that would occur after debt service.

Key Assumptions

The projections for net toll revenues are provided to inform and support the forthcoming toll financing that comprises a key component of the SR 520 financial plan. In order to forecast net revenues, it is necessary to prepare projections for those expenditure items that would be paid first out of the adjusted gross toll revenues. Below are selected key assumptions regarding the net revenue forecasts that warrant summarizing.

- Toll collection will be all electronic, with a base toll for the majority of customers who will use a *Good To Go!* prepaid account for payment, and a \$1.50 (initially) higher toll for infrequent users who will be billed based upon a photo of their license plate. Tolls will be collected in each direction. There will be no toll plaza or cash payment option.
- The variable toll schedule, with a maximum peak period toll of \$3.50 initially, is assumed to escalate annually through FY 2017. No further toll increases after FY 2017 are assumed in the net revenue projections. WSDOT has three tolled routes that share a single back office facility. Toll collection costs are allocated to SR 520 and the existing SR 167 and Tacoma Narrows Bridge (TNB) toll facilities based on each facility's share of toll transactions or revenues.
- Tolls will pay for 100 percent of SR 520's share of routine toll collection operations and maintenance (O&M) costs, beginning when tolling commences in FY 2012. Starting in FY 2017 after the new bridge and related improvements are completed, tolls will also fund 100 percent of the routine facility O&M costs associated with the \$2.43 billion project. These routine O&M costs are assumed to be deducted from adjusted gross toll revenues in arriving at the net toll revenues available for debt service.
- Tolls are assumed to pay for 100 percent of the toll collection system (TCS) equipment periodic R&R costs, including cameras and transponder tag readers. Tolls would also pay for 76% of the periodic facility R&R costs, including all such expenditures for the SR 520 corridor Active Traffic Management (ATM) system, the floating bridge, and the interim west approach structure. These periodic R&R costs are assumed to be paid from net revenues after debt service and deposits to required reserves.

Key Findings

As part of the collaborative effort in preparing this report, PB, other GEC team members, and WSDOT find that the future cost projections are based on reasonable-to-conservative inputs and assumptions. The aforementioned group further concludes that the net revenue projections are reasonable, as based on the gross revenue projections provided by others. Additional firms under contract to the WSDOT Toll Division provided input to this work, including WSA, Jacobs Engineering, and the IBI Group. Specific key findings are provided below.

- Net toll revenues exhibit steady growth through the construction period when the adopted toll schedule is anticipated to increase annually.
- Beyond the last planned toll increase in FY 2017, projected growth in annual net toll revenue is driven solely by traffic volume. FY 2018 annual growth in net revenue of 2.8 percent gradually declines to zero by FY 2039, and exhibits slight negative growth thereafter. This is due the growth in the traffic projections slowing over time, combined with continuing O&M cost inflation, which makes these expenditures an increasing share of adjusted gross toll revenues.

- Outside of the startup year, the net toll revenue projections during the construction period are expected to comprise about 79 percent of the adjusted gross toll revenues (FY 2013 through FY 2016). The net revenue share is lower (57%) in startup FY 2012 due to only six months of revenue in that year, combined with traffic ramp-up effects, and relatively fixed O&M costs.
- Following project completion in FY 2017 through FY 2039, net toll revenues are projected to comprise a relatively steady 74 percent of adjusted gross toll revenues. The smaller net revenue share compared with the construction period is attributable to the addition of facility O&M costs being paid from tolls starting in FY 2017.
- Beyond FY 2039, the net revenue share of adjusted gross toll revenues declines from 72 percent in FY 2040 to just under 64 percent by FY 2056. This is due to the growth in net revenue tapering off to zero by FY 2039, with net revenue actually decreasing slightly each year thereafter. The net revenue trend is the outcome of a slowing in the rate of growth in traffic and the State does not plan any toll increases after FY 2017. As a result, gross revenues increase at a rate less than the inflation in O&M expenditures.
- Put another way, routine O&M costs and associated expenditures are projected to require about 21 percent of adjusted gross revenues during construction, and 26 percent of adjusted gross revenues in FY 2017, rising to 36 percent by FY 2056.

Gross Toll Traffic and Revenue Forecasts

Project Definition and Investment Grade Traffic and Revenue Study

Wilbur Smith Associates (WSA) prepared the toll traffic and gross revenue projections, which are documented in the *SR 520 Bridge Investment Grade Traffic and Revenue Study* and will be used to obtain financing for a portion of the authorized improvements within the SR 520 corridor. The study provides a 45-year projection for annual bridge traffic and gross toll revenues, from fiscal year (FY) 2012 through FY 2056. (The State's fiscal year begins on July 1 of the preceding calendar year and ends on June 30.)

Ultimately, the full SR 520 Corridor Project will include improvements extending from I-5 in Seattle to SR 202 in Redmond, consisting of the following three geographic sections from east to west.

- Eastside Improvements: Transit and HOV improvements between the eastern shore of Lake Washington and SR 202 in Redmond, including the widening of SR 520 to six lanes between the floating bridge and I-405.
- Floating Bridge: Replacement of the existing four lane floating bridge with a new six lane floating bridge, including construction of the underlying pontoons, a pontoon construction site, and the bridge landings.
- Westside Improvements: Replacement of the west approach to the floating bridge, the Montlake Boulevard Interchange, and the Portage Bay Viaduct with a new six lane facility between the floating bridge and I-5. The Westside improvements also include a new bascule bridge across the Montlake ship canal north of the Montlake Boulevard Interchange.

In 2010, the State Legislature authorized funding of up to \$2.62 billion for the first two sections noted above, collectively referred to as the Floating Bridge and Eastside Project (Project). The Project will widen the corridor to six lanes (two general-purpose and one HOV 3+ lane in each direction) from the west landing of the floating bridge to I-405 on the Eastside. Aside from an interim west approach structure to connect the new bridge to the existing roadway, the Westside improvements are not included in the authorized construction contracts as full funding has not yet been identified.

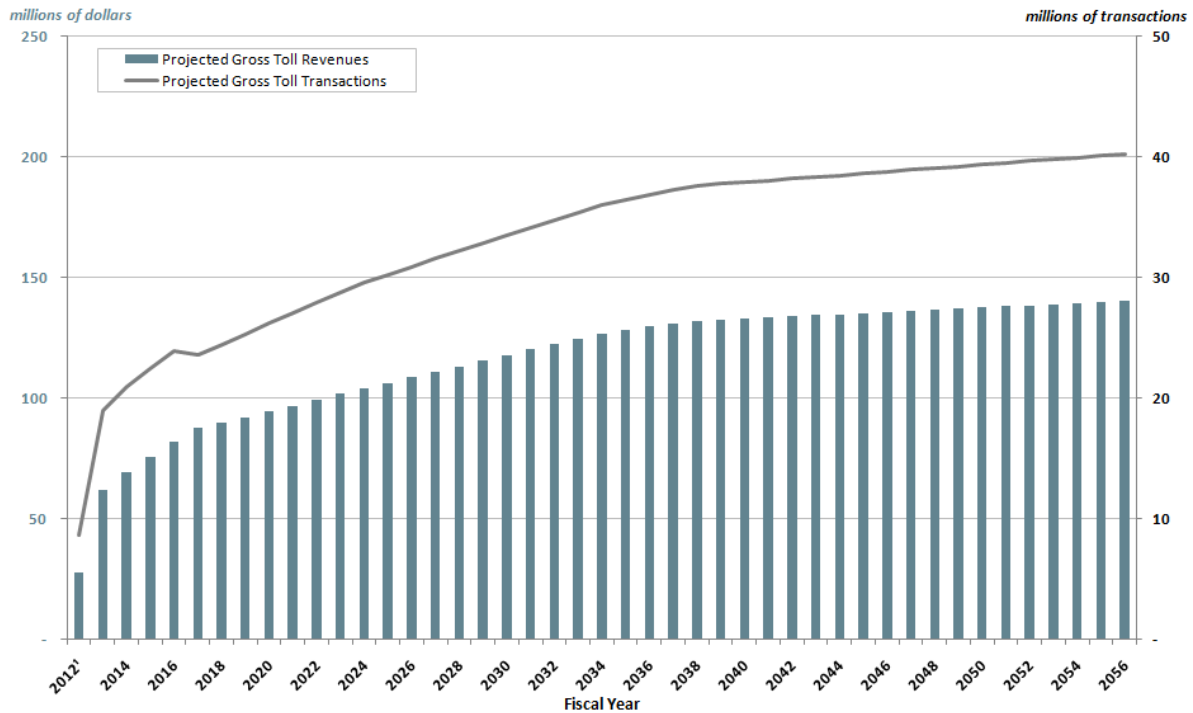
The forecasts provided in this document are based on the corridor configuration of the initial \$2.43 billion Floating Bridge and Eastside Project, and not the ultimate full build-out of the corridor. Specifically, WSA modeled the post-construction SR 520 corridor as four lanes from I-5 to the new floating bridge, where two additional 3+ HOV lanes are assumed to be added, widening the remainder of the corridor to six lanes.

The toll traffic projections, in conjunction with customer payment method assumptions, drive certain operating costs and revenue adjustments that vary with traffic levels. Descriptions of how traffic and customer payment methods ultimately influence the net revenue projections are provided in subsequent sections in the same order that they are presented in the T&R table found in Appendix A.

Gross Toll Traffic and Revenue Projections

The primary set of inputs used in preparing the net revenue forecasts are the traffic and gross revenue forecasts produced by WSA. Exhibit 1 illustrates projected gross toll traffic and revenue trends through FY 2056. For purposes of this report, tolling is assumed to begin January 1, 2012, which results in six months of revenue operations in FY 2012. The actual tolling start date may occur prior to January 1, 2012.

EXHIBIT 1: PROJECTED GROSS TOLL TRAFFIC & REVENUE



Source: Wilbur Smith Associates

¹ Forecasts assume six months of tolling operations in FY 2012 from January 1, 2012 to June 30, 2012; start date subject to change.

The annual forecast detail for the traffic and gross revenue projections by forecast year can be found in columns 2-11 of the T&R table in Appendix A.

Payment and Toll Transaction Types

The second key input to preparing the net revenue projections is the distribution of toll-paying vehicles (toll transactions) and associated revenue by toll payment method. This information is used to estimate the costs of collection that differ between users with and without prepaid accounts, as described later in this report. The WSA forecasts were prepared for two main categories of customers: *Good To Go!* prepaid account holders and non-account customers. Within each of these categories are additional payment options that result in minor revenue adjustments to the WSA numbers, as described in further detail below. To facilitate toll collection across all of the payment methods, the toll collection system takes a front and rear license plate photo of every vehicle. The images are then deleted once payment has been successfully recorded.

Good To Go! Prepaid Account Transactions

When customers set up a prepaid *Good To Go!* account, they have two options on how to pay their toll: they can purchase a pass (transponder) for their vehicle(s); or, enroll in “Pay By Plate” in which a picture of the vehicle’s license plate is captured and linked to their account for payment.

- **Transponder (Pass)**
Good To Go! customers have an option to purchase five different types of transponders for their vehicle(s) which range in cost of \$5.00 to \$12.00. The *Good To Go!* toll rate is automatically deducted from their pre-paid account when they cross the bridge. The majority of *Good To Go!* account holders are projected to use this payment option.
- **Pay By Plate**
 The Pay By Plate payment method is provided as an option for *Good To Go!* customers who, for various reasons, do not want to acquire a pass for their vehicle but still want the convenience of having a pre-paid account. When a vehicle that is registered for Pay By Plate uses SR 520, the license plate image will be used to identify the account holder, and the *Good To Go!* toll rate plus a \$0.25 fee per transaction will be deducted from their account. For example, when a *Good To Go!* Pay By Plate customer crosses the bridge between 7:00 AM and 9:00 AM, their account will be charged a toll of \$3.50 plus a \$0.25 fee, totaling \$3.75.

Non-Account Transactions

Customers who do not have a *Good To Go!* account, primarily infrequent users, will be charged a higher toll using a photo tolling system. The revenues associated with the higher toll schedule are reflected in WSA’s traffic and gross revenue forecasts, and will cover the additional costs of collection, including uncollectible revenue or leakage.

- **Pay By Mail**
 Vehicles not associated with a *Good To Go!* customer account will trigger the Pay By Mail (photo toll) billing process, in which license plate photos are matched with vehicle registration data from the Washington State Department of Licensing (DOL) or from the corresponding agency of other states or provinces. A bill will then be mailed to the registered owner, who is legally responsible for paying the applicable Pay By Mail toll rate plus any additional fees incurred. Pay By Mail customers will have 80 days from the time of travel to pay their toll before the transaction becomes a violation. In the opening year, the Pay By Mail toll rate will be \$1.50 higher than the applicable *Good To Go!* rate for each time of day.
- **Customer-Initiated Payment Incentive**
 Infrequent users, out-of-town visitors, and other short-term toll customers may initiate payment via photo tolling up to 10 days before or three days after travel, and receive a \$0.50 discount off the Pay By Mail toll rate. This discount is tied to reduced collection costs.

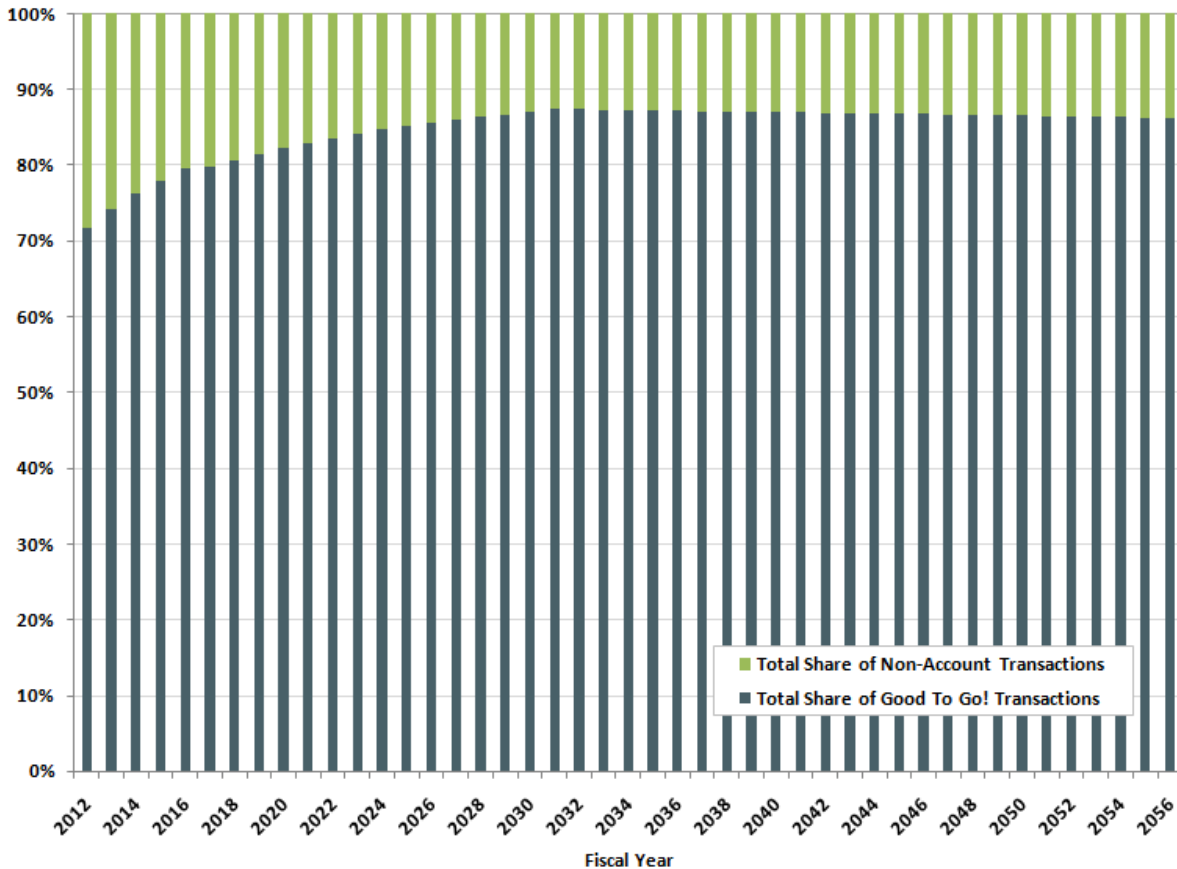
The majority of non-account transactions are projected to use the Pay By Mail method; most customers are expected to wait for a bill before paying their toll. Car rental agencies that do not equip their fleets with transponders will be held liable for Pay By Mail tolls due and are expected to pass these costs on to their customers.

Projected Gross Toll Revenue and Transactions by Payment Type

Projections for the percentage of *Good To Go!* and non-account toll transactions resulting from the Investment Grade Study are provided in Exhibit 2 below. Over time, it is estimated that the share of *Good To Go!* account customers will increase from 72 percent initially to 87 percent by FY 2030. Many factors will ultimately determine the split between *Good To Go!* and non-account toll transactions, including marketing efforts, the expansion of tolling to other WSDOT facilities, technology advancements, and customers’ willingness to establish prepaid accounts to avoid the higher toll without an account.

For a given level of traffic, net revenues are expected to be insensitive to the distribution of payment method because the higher cost of collecting from customers without accounts will be offset by the higher toll charged.

EXHIBIT 2: PROJECTED MARKET SHARE BY PAYMENT METHOD (FY 2012-56)



Adjusted Gross Revenues

This section documents the adjustments that are made to gross toll revenues to yield the adjusted gross toll revenues, which represent the actual receipts expected from tolling. The adjustments include projected fee revenues, toll discounts, and leakage or uncollectible transactions that are not reflected in the WSA gross toll revenue projections. These revenue adjustments—provided in columns 12-17 of the T&R table in Appendix A—are described throughout this section. The adjusted gross toll revenue stream resulting from these adjustments is provided in column 18 of the T&R table.

Fees and Discounts

Pay By Plate Fee (Column 14)

WSDOT will assess a fee for *Good To Go!* account holders who choose to pay via pre-registered license plate (Pay By Plate) rather than via a transponder. This fee, which amounts to \$0.25 per transaction on top of the standard *Good To Go!* toll rate, has been sized to offset the marginally higher cost of processing a license plate transaction and the small potential for losses due to unreadable plate images, and is expected to be net revenue neutral. The Pay By Plate fee is not assumed to escalate with inflation.

Based on the Investment Grade analysis prepared by Wilbur Smith Associates, it is estimated that 11 percent of all transactions—or about 16 percent of the *Good To Go!* account transactions—will be subject to the \$0.25 photo toll fee in FY 2012, the year in which tolling begins. The percentage of *Good To Go!* photo toll transactions is expected to decline throughout the forecast horizon as customers switch to the less expensive transponder option.

In FY 2013—the first complete year of operations—Pay by Plate fee revenues are projected to total approximately \$500,000, decreasing to \$200,000 by FY 2056. A full forecast through FY 2056 can be referenced in column 14 of the traffic and revenue table in Appendix A.

Late Payment / Reprocessing Fee (Column 15)

Pay By Mail customers are bridge users who choose to be billed by mail. Those customers who do not remit payment within the first billing cycle will be subject to a late payment fee of \$5.00 upon receiving a second invoice. Because the fee applies to late payment for any toll transaction, even an invoice with one or more new toll transactions will have the \$5.00 fee if it also represents a second billing for outstanding toll transactions. The fee amount, which is not assumed to escalate with inflation, was developed to offset the additional cost of processing and mailing a second invoice.

Most Pay By Mail customers—an estimated 72 percent—who have a valid address and receive their first invoice will pay within the first billing cycle. The remaining 28 percent are projected to become delinquent and incur a late payment fee on the second billing. These projected payment rates are consistent with trends observed at other comparable tolling operations. For the purpose of the net

revenue projections, the share of Pay By Mail customers paying on the first invoice is not anticipated to change over the forecast horizon.

The revenue adjustments due to late payment fees are primarily a function of the estimated number of Pay By Mail customers who do not pay after the first bill. Based on the SR 520 Investment Grade Study, it is expected that Pay By Mail transactions will initially increase with overall traffic during the traffic ramp-up period (FY 2012-14), then decline over time as more customers opt for *Good To Go!* accounts. By FY 2031, when the *Good To Go!* account market share is assumed to reach a plateau, the total number of Pay By Mail transactions is projected to slowly increase with traffic growth for the remainder of the forecast period (through FY 2056).

Revenue projections for late payment fees are provided in column 15 of the SR 520 T&R table provided in Appendix A.

Other Fees

Other than the fees described above, WSDOT will charge customer fees that are not included in the net revenue projections herein, including inactive account and paper statement/reprinting fees. Revenues from these items are not expected to have a material impact on net revenues, and are simply intended to offset administration and processing costs incurred by the state.

Customer Incentives & Discounts (Columns 12 and 13)

WSDOT offers a \$0.50 discount (per transaction) to customers who initiate payment prior to or within 72 hours of traveling on SR 520. The reason for offering this discount is to incentivize prompt payment, thereby reducing the number of Pay By Mail transactions and accelerating the receipt of revenue. Pay By Mail transactions, on average, are expected to cost approximately \$0.50 more for materials, handling, and postage. The discount is assumed to remain at a constant \$0.50 per transaction over time.

It is estimated that 10 percent of non-account customers will choose to initiate payment and avoid receiving a bill. In FY 2013—the first year of full operations--discounts are projected to total \$220,000, increasing to \$250,000 by FY 2056. A full forecast through FY 2056 can be referenced in column 13 of the traffic and revenue table in Appendix A.

In the spring of 2011, WSDOT also offered a one-time incentive program to further encourage local residents and frequent users to establish a prepaid *Good To Go!* tolling account. The incentive program provided \$10 of free travel to *Good To Go!* customers for each transponder (pass) purchased prior to April 15, 2011. The cost of providing this program will not exceed \$1.5 million, and will be incurred as non-revenue toll transactions in FY 2012. This incentive is non-recurring, and its revenue adjustment is shown in column 12 of the traffic and revenue table in Appendix A.

Uncollectible Transactions / Revenue Leakage

Uncollectible transactions, or revenue leakage, are losses attributable to toll evasion, electronic toll collection errors, or insufficient vehicle registration information. Forecasts for uncollectible revenue

have been developed using an activity-based workflow, which estimates the probability that a toll transaction will become uncollectible under a variety of scenarios.

Good To Go! Leakage

Despite *Good To Go!* accounts being prepaid, it is possible that a small percentage of transponder and Pay By Plate transactions will become uncollectible.

Industry experience with the dedicated short-range communication transponder technology used in electronic toll collection has a 99.9% read accuracy. When a transponder is detected, the TCS software will automatically link the transaction with a *Good To Go!* account and deduct the applicable toll. Occasionally, *Good To Go!* transponders, which rely upon radio-frequency identification (RFID) technology, may not be accurately detected by toll collection equipment due to improper transponder installation by the customer or toll equipment malfunction. In this event, the toll collection system is designed to simultaneously capture a license plate image for all toll transactions, which acts as a backup system for the transponder equipment.

A potential though low probability outcome is that neither the transponder nor the license plate will be correctly identified, which would result in the transaction becoming uncollectible. In such a case, there would be no way to identify the (uncollectible) transaction as belonging to a *Good To Go!* account holder, and the transaction would therefore be classified as a non-account transaction and grouped with the other types of non-account revenue leakage.

Unlike transponders, *Good To Go!* Pay By Plate transactions are completely dependent upon license plate recognition equipment combined with a manual review process for plate images that cannot be automatically read as a backup identification system. If a license plate number is not accurately identified, the transaction cannot be linked with a *Good To Go!* account, and it would therefore be classified as an uncollectible non-account transaction.

Recent tests in July 2011 resulted in the license plate state name being accurately read 98.1 percent of the time and the plate number being accurately read 97.7 percent of the time.

Non-Account Leakage / Uncollectible Transactions (Column 16)

The vast majority of uncollectible transactions or revenue leakage will be associated with non-account customer transactions. Total revenue leakage associated with unreadable license plates, invalid addresses, and non-payment is estimated at 8.8 percent of gross toll revenues in the first year of operations. This figure is projected to decline to 3.9 percent by FY 2031, due to an increasing share of *Good To Go!* account transactions over time. For the 45-year financing horizon, projected uncollectible revenue averages less than 5.0 percent of gross toll revenue.

Unreadable License Plates

Non-account transactions will be processed using license plate recognition equipment and software. In some cases, a user's license plate is unreadable due to obstructed sightlines, a blurry image, severe weather, or other equipment error and is not able to be processed further. From other comparable tolling operations, a conservative assumption is that 10 percent of non-account license plate transactions will be unreadable after manual review, and therefore treated as uncollectible. In

the first year of operation, uncollectible transactions resulting from unreadable license plates are projected to be approximately 2.8 percent of total transactions.

Invalid Address

After a license plate is identified, the system will initiate the Pay By Mail process and attempt to obtain a valid address by cross-referencing registration records from the Department of Licensing (DOL). WSDOT's experience at Tacoma Narrows Bridge indicates that 14 percent of license plate look-ups will be returned without a valid address. SR 520 forecasts use a slightly more conservative estimate of 15 percent. License plate transactions without a valid address are assumed to be uncollectible for the purpose of forecasting net revenue, and would be turned over to a collection agency. In FY 2012, it is estimated that uncollectible accounts resulting from invalid addresses will total approximately 3.4 percent of all transactions.

Non-Payment

The majority of non-account toll transactions will be correctly identified and linked with a valid address; approximately 87 percent of customers receiving an invoice are expected to pay it on the first or second billing. The remaining 13 percent of customers, however, will not pay their first or second toll bill and will ultimately receive a notice of civil penalty (NOCP). A toll transaction effectively becomes a civil penalty, and the vehicle owner will be sent an NOCP if payment is not received within 80 days of travel. The vehicle owner becomes liable for the toll, the late payment/reprocessing fee for the second invoice, and a \$40 civil penalty per unpaid toll transaction. All transactions that reach the NOCP step are considered uncollectible, totaling 2.6 percent of total transactions. Vehicle owners may request a hearing to challenge the penalty, and a portion of uncollectible accounts may be recovered through the hearing process, described in "Recovered Toll and Fee Revenues" section below. Failure to pay or otherwise resolve an NOCP places a hold on the owner's annual vehicle registration at the time of renewal.

HOV Violations Beginning in FY 2017

For the purpose of estimating revenues, it has been assumed that when the new corridor opens with a six-lane configuration in FY 2017—which will include an HOV lane in each direction—vehicles with three or more occupants (HOV 3+), transit vehicles, and vanpools, will be exempt from paying tolls. The gross revenue projections from WSA's *SR 520 Bridge Investment Grade Traffic and Revenue Study* reflect this assumption. If the Washington State Transportation Commission or Legislature decides to exempt 3+ HOVs in FY 2017, then there may be some cases where non-exempt vehicles could attempt to use the HOV lanes to evade a toll charge. Though not explicitly estimated, these violations are assumed to be included in the more general "non-payment" category of uncollectible transactions.

It is assumed that enforcement mechanisms—including existing Washington State Patrol HOV enforcement—would be used to reduce and prevent revenue leakage associated with HOV violations. Currently, an HOV lane violation in Washington State is considered a "moving violation" and carries a fine of \$124. If HOV lane violation for purposes of toll evasion became a significant problem, WSDOT would further engage the Washington State Patrol to enhance enforcement efforts. Note that violation revenue and the costs of enforcement are external to WSDOT.

If future toll policies do not provide exemptions for 3+ HOVs, gross and net toll revenues would likely be a few percentage points higher.

Recovered Toll and Fee Revenues (Column 17)

A portion of uncollectible toll revenues and fees are assumed to be recovered through the civil penalty adjudication process. Violators who fail to pay their tolls through the 80 day regular billing process will receive a notice of civil penalty (NOCP), and will have the opportunity to remit payment for delinquent tolls and fees, or request a hearing to avoid having their motor vehicle registration suspended.

In total, 21 percent of transactions subject to the civil penalty are estimated to be recovered, with an average lag of six months from the original transaction dates. These tolls and late payment fees are shown as a revenue adjustment in the T&R table. Note that civil penalty revenues are not included in the net revenue projections; instead, they are required by statute to cover the cost of the NOCP process. The remaining 79 percent of violations will either be dismissed through the civil penalty process, or, more likely, referred to a collection agency due to NOCP non-response.

Because revenues are not assumed to be recovered until six months after the original transaction occurs, there are no recovered toll revenues projected for FY 2012's half year of revenue operations.

Net Leakage Forecasts

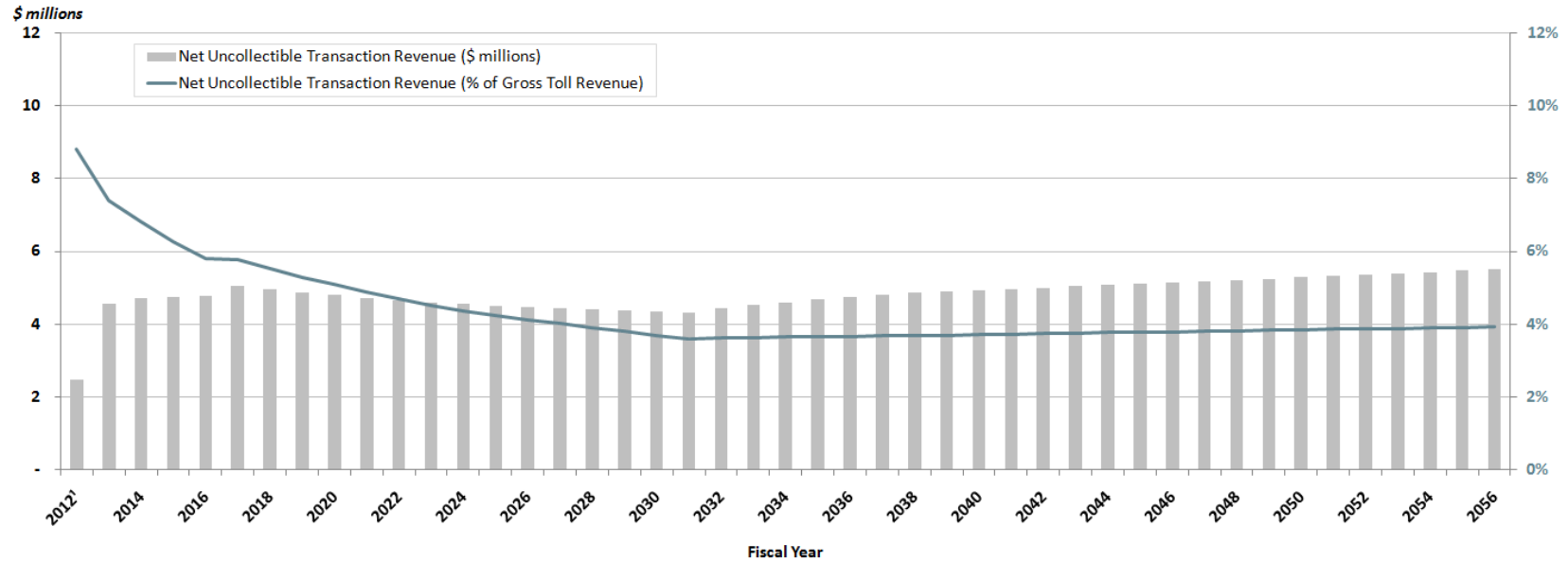
Net uncollectible transactions and associated revenue leakage are calculated as:

- The loss in revenue for toll transactions where the vehicle owner cannot be identified as well as where the vehicle owner fails to pay by mail in response to two invoices within the 80 day payment window; less
- The portion of this revenue subsequently recovered through the civil penalty adjudication process.

Exhibit 3 provides the annual projections for net leakage of gross revenues for the 45-year forecast horizon. The above two components of net leakage correspond to columns 16 and 17 of the T&R table in Appendix A. Note that leakage decreases over time as more bridge users obtain transponders and fewer use Pay By Mail.

Taking into account recovered toll and fee revenues, net leakage is projected to reach its minimum share of gross revenues of 3.6 percent in FY 2031.

EXHIBIT 3: PROJECTED NET LEAKAGE / UNCOLLECTIBLE TRANSACTIONS NET OF RECOVERED REVENUE (FY 2012-56)



Fiscal Year:	2012 ¹	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Uncollectible Transaction Revenue (\$ millions)	2.45	4.99	5.16	5.18	5.21	5.52	5.42	5.33	5.25	5.18	5.11	5.04	4.98	4.94	4.90	4.86	4.83	4.79	4.76	4.73	4.84	4.94	5.03
Recovered Toll Revenue (\$ millions)	-	0.42	0.44	0.45	0.45	0.46	0.47	0.46	0.46	0.45	0.45	0.44	0.44	0.43	0.43	0.42	0.42	0.42	0.41	0.41	0.41	0.42	0.43
Net Uncollectible Transactions (\$ millions)	2.45	4.57	4.72	4.73	4.76	5.06	4.95	4.87	4.79	4.72	4.66	4.60	4.55	4.51	4.47	4.44	4.40	4.37	4.34	4.32	4.42	4.52	4.60
<i>as a % of potential gross toll revenue</i>	8.8%	7.4%	6.8%	6.3%	5.8%	5.8%	5.5%	5.3%	5.1%	4.9%	4.7%	4.5%	4.4%	4.2%	4.1%	4.0%	3.9%	3.8%	3.7%	3.6%	3.6%	3.6%	3.6%
<i>continued from above</i>		2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056
Uncollectible Transaction Revenue (\$ millions)		5.12	5.19	5.26	5.32	5.36	5.40	5.44	5.47	5.51	5.55	5.59	5.62	5.66	5.70	5.74	5.78	5.82	5.86	5.90	5.94	5.98	6.02
Recovered Toll Revenue (\$ millions)		0.44	0.45	0.45	0.46	0.46	0.47	0.47	0.47	0.48	0.48	0.48	0.49	0.49	0.49	0.50	0.50	0.51	0.51	0.51	0.52	0.52	0.52
Net Uncollectible Transactions (\$ millions)		4.68	4.75	4.81	4.86	4.90	4.93	4.97	5.00	5.03	5.07	5.10	5.14	5.17	5.21	5.24	5.28	5.32	5.35	5.39	5.43	5.46	5.50
<i>as a % of potential gross toll revenue</i>		3.6%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%

¹ Forecasts assume six months of tolling operations in FY 2012 from January 1, 2012 to June 30, 2012; start date subject to change.

Net Revenue Projections

This section documents the anticipated operating expenditures and other uses of adjusted gross revenues, which determine the net toll revenues available for debt service (before R&R and deferred sales tax payments).

Uses of Adjusted Gross Revenues

Operational expenditures typically paid from adjusted gross revenues include: credit card fees, toll collection operations and maintenance costs, facility operations and maintenance costs, and insurance premiums. Additional detail regarding each of these deductions is provided below, with the annual projections provided in columns 19-24 of the T&R table in Appendix A.

Credit Card / Banking Fees (Column 21)

WSDOT will accept credit and debit cards for the payment of tolls on SR 520, as well as for the purchase of *Good To Go!* transponders. WSDOT's experience at the Tacoma Narrows Bridge has been that 85 percent of revenue transactions are collected via credit and debit cards. For forecasting purposes, the fees for these forms of payment are assumed to be 2.5 percent of "adjusted gross toll revenues," or revenues received after deductions for uncollectible accounts.

This assumed fee percentage is consistent with WSDOT's experience in operating the Tacoma Narrows Bridge. This method also reflects trends in credit card and banking fees for the E-470 in Denver, Colorado, after the facility transitioned to all-electronic tolling operations in 2009 and eliminated cash payment at toll booths.¹ The projections for credit card fees take into account the percentage of revenue collected via credit cards, bank fee rates, and an allowance for fees associated with customer account refunds, which are paid when a customer's prepaid account is closed and the remaining balance is refunded. As customers become accustomed to the *Good To Go!* system, it is anticipated that account refunds will be requested by fewer than 2 percent of account holders per year.

It is expected that 85 to 90 percent of toll revenues—net of uncollectible transactions—will be tied to a payment by a credit or debit card, and thus subject to banking fees of 2.5 percent. The 85-90 percent range reflects an expected start-up share of 85 percent in FY 2012, increasing by one percentage point annually until reaching 90 percent in FY 2017. The remainder of revenue will be collected by check, or for some cases of automatic *Good To Go!* account replenishment, by an automated clearinghouse (ACH) transaction linked to a customer's bank account.

For *Good To Go!* accounts, credit card fees are tied to periodic account replenishment payments rather than individual toll transactions. Since customers can use any state toll facility (SR 520, TNB, and SR 167) with the same *Good To Go!* account, the total credit card receipts resulting in bank fees paid by the state will be allocated back to the individual toll facilities based on their share of system-wide toll revenues.

¹ Based on information provided by the E-470 Public Highway Authority in September 2010.

An additional fee increment is included for fiscal years 2012 and 2013 to account for unknowns during start-up. After tolling commences, these estimates will be revised to reflect actual toll experience on SR 520. Projections by fiscal year through 2056 can also be found in column 21 of the traffic and revenue table in Appendix A.

Routine Toll Collection Operations and Maintenance (Column 22)

Toll collection operations and maintenance (O&M) includes all administrative and technical functions required for processing toll transactions and collecting revenue from customers. Beginning with the task of identifying a transaction on the roadway, to recording the transaction, to ultimately collecting payment, the toll collection process requires involvement and coordination by three distinct operating units:

- The WSDOT Toll Division (state operations);
- The Customer Service Center (CSC) vendor; and
- The Toll Collection System (TCS) vendor.

Costs associated with the state and CSC services are conducted on a state-wide basis, and will be allocated according to the share of total toll transactions at each facility. In addition to the planned tolling on SR 520, two other Washington State corridors are currently tolled: Tacoma Narrows Bridge (TNB) and SR 167. Support for these corridors is overseen by the WSDOT Toll Division. Current toll transaction forecasts for planning and operational estimation purposes yield a projected distribution of costs between SR 520, TNB, and SR 167 of 65 percent, 34 percent, and 1 percent, respectively. The TNB share is considerably less than that for SR 520 because tolls are only collected in one direction on TNB. SR 167 is a single lane high occupancy toll (HOT) lane facility adjacent to two, toll-free general-purpose lanes in each direction, and as such, has a relatively low share of toll transactions.

TCS vendor costs are not allocated on a state-wide basis, and are not subject to this distribution.

Further detail regarding the functions performed by each of these entities and their costs are provided in this section, with the annual cost projection provided in column 22 of the T&R table in Appendix A.

State Operations

Oversight functions performed by state staff include the following activities.

Management

Toll Division management will provide leadership and operations oversight. Duties also include monitoring vendor operations, coordinating staff, and reporting to the Legislature, Transportation Commission, and WSDOT executives.

Accounting/Audit/Finance

Accounting and finance staff will oversee the reporting of costs and revenues associated with SR 520 tolling operations, and will also track trends in the general financial health of the facility. Staff will

work with the customer service center back office to ensure state accounting systems properly interface with the CSC system. Routine audits will also be conducted to verify revenues and costs have been properly categorized.

Marketing

Communications staff will primarily help bridge users understand tolling, choose the appropriate payment option, and provide support for toll rate setting efforts.

In addition to staffing for management, accounting, and marketing, state operations costs also include standard business expenses for rent, office supplies, computers, and communication equipment. In addition, the state will also incur all printing and postage costs. The assumptions included in the state operations cost projections reflecting the shares of cost items allocated to SR 520 are summarized in Exhibit 4.

EXHIBIT 4: STATE OPERATIONS COST ASSUMPTIONS — SR 520 SHARE OF TOTAL COST

Cost Item	Key Assumptions
Salaries	17 staff members (Full Time Equivalents, or FTEs)
Benefits	30% of salary cost
Office Supplies / Materials	Office supplies for 17 FTEs
Rent	Office space for 17 FTEs
Printing / Postage	Printing and postage costs for customer bills, marketing materials and transponders
Computers / Equipment	Computer equipment for 17 FTEs
Phone / Communications	Phone system for 17 FTEs
Vehicle Operations	Vehicle operating costs (fuel, maintenance, etc.)
Miscellaneous Goods / Services	Other goods/services costs incurred for SR 520 operations
Private Sector Consulting	Quarterly forecasting, marketing, baseline assessments, and traffic operations

Costs for the items shown above are based on standard unit costs used by the State of Washington. The Office of Financial Management (OFM) and Legislature routinely review budgets on an annual basis to determine appropriate staffing levels and operating expenditure levels. Beginning with the development of the 2013-15 biennial budget, a consulting engineer will certify the state operations budget.

Annual state costs are projected to be \$4.8 million in FY 2012, increasing to \$15.3 million in FY 2056. Over the 45-year forecast horizon, the compound annual growth rate (CAGR) of state costs is projected to be 2.6 percent, which is consistent with general inflation assumptions.

Customer Service Center

Customer service center (CSC) costs have been projected for two time periods: the near-term period for the current contract (through FY 2014) and the long-term forecast period (FY 2015 forward). This section provides additional detail on cost estimates for each of these time periods.

CSC Costs for the Current Vendor Contract Period (FY 2012-14)

At the end of 2009, WSDOT awarded a four-year statewide CSC vendor contract for operations on

SR 520, SR 167 and the Tacoma Narrows Bridge. Projected CSC contract costs will be distributed according to the volume of toll transactions on each facility.

The current CSC contract, which expires in FY 2014, is structured such that the majority of services are provided at a fixed-price, with the only variable cost component linked to broad range intervals for the number of customer *Good To Go!* accounts. The contract provides a single price for processing both pre-paid transponder and pre-paid license plate accounts, based on the total number of such established accounts. The contract also includes processing all non-account, photo toll/Pay By Mail transactions, with the exception of postage and materials costs that will be covered by the State. As a result, the vendor costs for this contract period are very predictable under a variety of toll and traffic scenarios.

The CSC vendor contract is currently priced as a step function, where each step represents a pre-defined range of "permanent" pre-paid (*Good To Go!*) accounts. For zero to 500,000 prepaid *Good To Go!* accounts, a single monthly cost would be paid by WSDOT. When 500,000 accounts are reached, a new threshold would be crossed, prompting an increase to the next monthly pricing level, and so on up to a maximum cost associated with one million or more accounts. As of August 2011, a total of approximately 243,000 customer accounts are held by users of SR 520, TNB, and SR 167.

While the precise number of customer accounts will vary over time, the toll collection cost projections herein conservatively assume that CSC costs will be at the highest contract pricing tier with the maximum number of customer accounts.

CSC contract costs for FY 2012, FY 2013, and FY 2014 are projected to be \$2.7 million, \$3.9 million, and \$4.3 million, respectively. The FY 2012 forecast assumes six months of toll revenue operations from January 1, 2012 to June 30, 2012. Initial set-up costs are funded by another source. After the Secretary of Transportation certifies that the back office is fully functional and tolling commences in FY 2012, CSC vendor costs will be funded by toll revenues.

CSC Contract Cost Projections Beyond FY 2014

Forecasts have been developed for future CSC contract costs beginning with FY 2015. Projections are based on the distribution of transactions by payment method, with different costs applied depending on the type and number of steps required to collect each toll. Transactions requiring minimal effort will incur the lowest cost to collect, while transactions requiring additional efforts will incur higher processing costs.

This forecasting process is consistent with some of the other bids received by WSDOT during the CSC procurement process in 2009, which included pricing on a per-transaction basis by customer payment method. Over time, it is projected that CSC costs will increase with traffic and/or customer account growth, plus general inflation. There is considerable uncertainty regarding future CSC costs, as evidenced by the wide range of bids received from proposing CSC vendors in late 2009. Accordingly, the forecasted net revenue projections beyond the initial vendor contract period were based on a more conservative (higher) CSC cost trend than the current CSC contract.

In FY 2015, costs are projected to increase to approximately \$8 million, and gradually escalate to \$17 million by FY 2056, the end of the forecast period. This increase is attributable to inflation in certain

CSC cost components, as well as to the anticipated SR 520 traffic growth, which is expected to outpace growth on TNB and SR 167, the two other facilities that share the cost of state-wide CSC operations. The full forecast of CSC costs is included in the “Routine Toll Collection O&M Costs” column of the traffic and revenue table, or column 22, in Appendix A.

Toll Collection Systems

Toll collections systems (TCS) include all equipment and software required for identifying a toll transaction and transmitting data about that transaction to the customer service center for processing. Sometimes referred to as “lane systems,” this equipment includes transponder readers, cameras, and other communication devices that need regular maintenance to ensure the system is functioning properly.

Through 2020, routine TCS maintenance activities on SR 520 will be performed by a private contractor, Telvent, in conjunction with WSDOT maintenance staff. The vendor contract, awarded in late 2009, specifies that Telvent will provide the initial set-up and ongoing maintenance of the toll collection equipment. WSDOT will perform any necessary maintenance to equipment gantries or other roadside equipment. After the contract expires, the state will have the option to re-bid the contract or assume responsibility for all TCS maintenance functions. Examples of these duties include:

- Aligning/recalibrating transponder readers and cameras
- Cleaning camera lenses
- Maintaining equipment connections
- Monitoring/auditing equipment performance

Based on the vendor contract costs for TCS O&M, projections for FY 2021 through FY 2056 were extrapolated from the contract costs through FY 2010, which include annual escalation of about 3.7 percent per year.

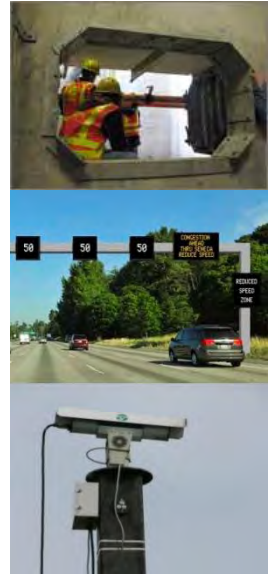
Forecasted costs for TCS functions are provided in the “Routine Toll Collection O&M Costs” column of the T&R table, or column 22, in Appendix A.



Routine Facility Operations and Maintenance (Column 23)

Routine operation and maintenance (O&M) of the SR 520 physical assets are critical to providing continuous, uninterrupted toll revenue generation. Proper maintenance of the facility also ensures that the expected level of service is provided to motorists. Typically, facility O&M activities include:

- Paving and patching repair;
- Maintaining drainage systems, culverts and slopes;
- Roadside and landscape maintenance;
- Weed control;
- Movable and floating bridge operations;
- Snow and ice control;
- Disaster maintenance including road closures, detours and emergency repair not involving major construction; and
- Maintenance of pavement striping and markings, guardrails, highway lighting systems, traffic signs, lane restriping, routine bridge repairs, pothole repair, traffic operations, signage, and litter pickup.



These activities help to preserve safety and travel reliability along the corridor.

A task force of engineering, maintenance, and design staff was convened in 2010 to conduct a full review of the Program's projected O&M costs and update estimates to accurately reflect the facility's proposed design. A summary of the task force efforts and resulting facility O&M estimates is provided in this section.

SR 520 Maintenance Task Force

The maintenance task force used a bottom-up approach, relying on the new facility design and 2010 WSDOT unit costs, resulting in a reliable facility O&M forecast consistent with other WSDOT structures. Members of the task force included representatives from WSDOT's Bridge Office, maintenance superintendents, toll engineers, and SR 520 design and construction engineers.

Expenditure Levels and Funding Sources

Prior to FY 2017, all SR 520 O&M costs on the existing facility will continue to be paid from WSDOT's maintenance program budget or deferred until construction is completed.

Beginning in FY 2017, toll revenues will cover all facility O&M costs in the corridor associated with the completed Floating Bridge and Eastside Project, including the wider footprint, lids, storm water retention systems, bike/pedestrian path, active traffic management, etc. Facility O&M costs associated with the project improvements total approximately \$2.6 million in FY 2017 in year of expenditure (YOE) dollars, rising to nearly \$7.4 million by FY 2056, with an assumed inflation rate of 2.5 percent per year. Inflation projections prepared for and used by the State of Washington have

generally been at or below 2.5 percent per year for the past decade, with recent forecasts trending lower. Nonetheless, the projection for O&M inflation has been maintained at 2.5 percent per year due to the level of uncertainty with a 45 year forecast horizon. A full forecast of routine facility O&M costs is provided in column 23 of the T&R table found in Appendix A.

Bridge Insurance (Column 24)

The following provides information on the projected bridge insurance premiums and coverage provisions, based upon preliminary discussions with insurance brokers and underwriters, as well as WSDOT's experience insuring the Tacoma Narrows Bridge.

Insurance Objectives and Assumptions

WSDOT intends to insure against revenue loss, also known as business interruption insurance, for events that could partially or completely impede the flow of toll revenue generated by the facility. The geographic area for covered business interruption events would be the SR 520 corridor between the I-5 and I-405 interchanges, plus an area surrounding and including these two interchanges. This coverage would replace the lost revenue up to the established coverage limit, which would be set to match the projections for adjusted gross revenues. The duration of coverage is assumed to be up to one year, based upon the likely time required to make emergency roadway or structure repairs under a variety of cases. The deductible for loss of revenue coverage is assumed to be 10 days.

In addition to revenue loss, WSDOT intends to insure against certain property damage losses caused by forces of nature (e.g., earthquakes, storms, flooding), component failure, or acts of terrorism. The sections of the corridor covered against property damage losses may vary by structural component (e.g., earthquake coverage is not likely necessary for the floating bridge). The premium would provide a replacement cost coverage benefit up to a set limit per occurrence, subject to a deductible. It is anticipated that WSDOT would periodically review construction cost trends and revise the policy limit accordingly. In practice, the coverage limit would always be a fraction of the total construction cost based upon higher risk sections, as a total and complete loss of all corridor components is highly unlikely.

Construction Period Insurance Coverage

From FY 2012 through the construction period ending in FY 2016, WSDOT will acquire business interruption insurance to protect the corridor against toll revenue losses resulting from a bridge failure or other event resulting in roadway closure or reduced toll traffic. The revenue loss limit for the first 12 months of coverage is anticipated to be \$45 million, with the limit escalating as traffic, and thus, adjusted gross revenues, increases. Coverage will be limited to one year of toll revenues, consistent with the estimated timeframe in which revenue operations could be restored in an emergency situation for the vast majority of SR 520 failure scenarios.

With the revenue stream insured, there is no need to insure against failure or other property damage to the existing floating bridge or east approach, as the replacement of these structures are part of the fully funded SR 520 Eastside and Floating Bridge Project. However, because the existing west approach structure is not part of the funded project, WSDOT will insure this section against

property damage loss. The policy property loss limit will be set at \$150 million, which is the estimated construction cost for a temporary four lane west approach replacement structure leading to the floating bridge. (The full SR 520 Corridor Project will eventually replace the west approach and Portage Bay Viaduct structures and make other improvements to complete the widening of the Westside to six lanes.)

Based on a preliminary quotation from an insurance broker, the estimated premium for both \$45 million in revenue loss coverage and \$150 million in west approach damage loss coverage is projected to be \$625,000 in FY 2012. This amount is quoted to increase by \$25,000 annually to account for increasing business interruption limits associated with a growing revenue stream during the construction period.

Post-Completion Insurance Coverage

As with the construction period, WSDOT will continue paying annual insurance premiums for business interruption coverage in the corridor between I-5 and I-405 to protect against events that could lead to revenue losses. Coverage limits will be regularly adjusted to reflect the current adjusted gross toll revenue projections.

Beginning in FY 2017, following the completion of the Floating Bridge and Eastside Project, WSDOT will also procure property damage coverage on the new facility structures and components, as well as for the existing west approach and Portage Bay Viaduct. As noted above, the types of covered losses by facility section may vary based upon each section's relative risks.

The new floating bridge is designed to withstand a 100-year storm, which means wind speeds of 98 mph sustained over 20 seconds. In addition, the other structures in the corridor (in addition to the floating bridge) are designed for a 1,000 year seismic event, which in the Seattle area is an earthquake of about 9.0 on the Richter scale.

Given that the new floating bridge and other structure designs and construction methods have not yet been finalized, it is too early to get a premium quotation for this coverage. Rather, a premium assumption was developed based on preliminary discussions with insurance underwriters as well as WSDOT's five years of experience paying insurance premiums for the Tacoma Narrows Bridge, which covered one year of business interruption and property damage losses for earthquake, flooding and acts of terrorism.

Beginning in FY 2017, the combined annual premium for business interruption and property damage losses is assumed to step up to \$2.5 million. This premium is estimated to increase each fiscal year with the projected growth rate in gross toll revenues. Under this escalation forecast, the annual premium will grow to \$4 million per year by FY 2056.

Transponder Purchase and Inventory (Columns 19 and 20)

SR 520 will operate as an all-electronic toll (AET) facility. The majority of regular SR 520 users are expected to establish a pre-paid account, which requires the use of a *Good To Go!* pass (transponder) in the customer's vehicle(s) or registering the vehicle's license plate for Pay



By Plate photo tolling recognition. Because an additional \$0.25 fee will apply to license plate recognition transactions to offset higher processing costs, it is anticipated that most *Good To Go!* account holders will opt for obtaining a transponder for the vehicles that they drive frequently across the bridge.

WSDOT will purchase and maintain an inventory of transponders for its customer service centers. Projections for the transponder purchase and inventory costs are provided in columns 19 and 20 on the T&R table in Appendix A.

The effect of transponder purchase and inventory costs on the net revenue projections are minimal, since transponders will be priced to generally recover the costs incurred by WSDOT to acquire and sell them. The forecast for revenue earned from the sale of transponders matches projections for purchase and inventory costs. The net revenue effect of the lag between sales and inventory replenishment is expected to be negligible.

Summary of Uses of Adjusted Gross Revenues

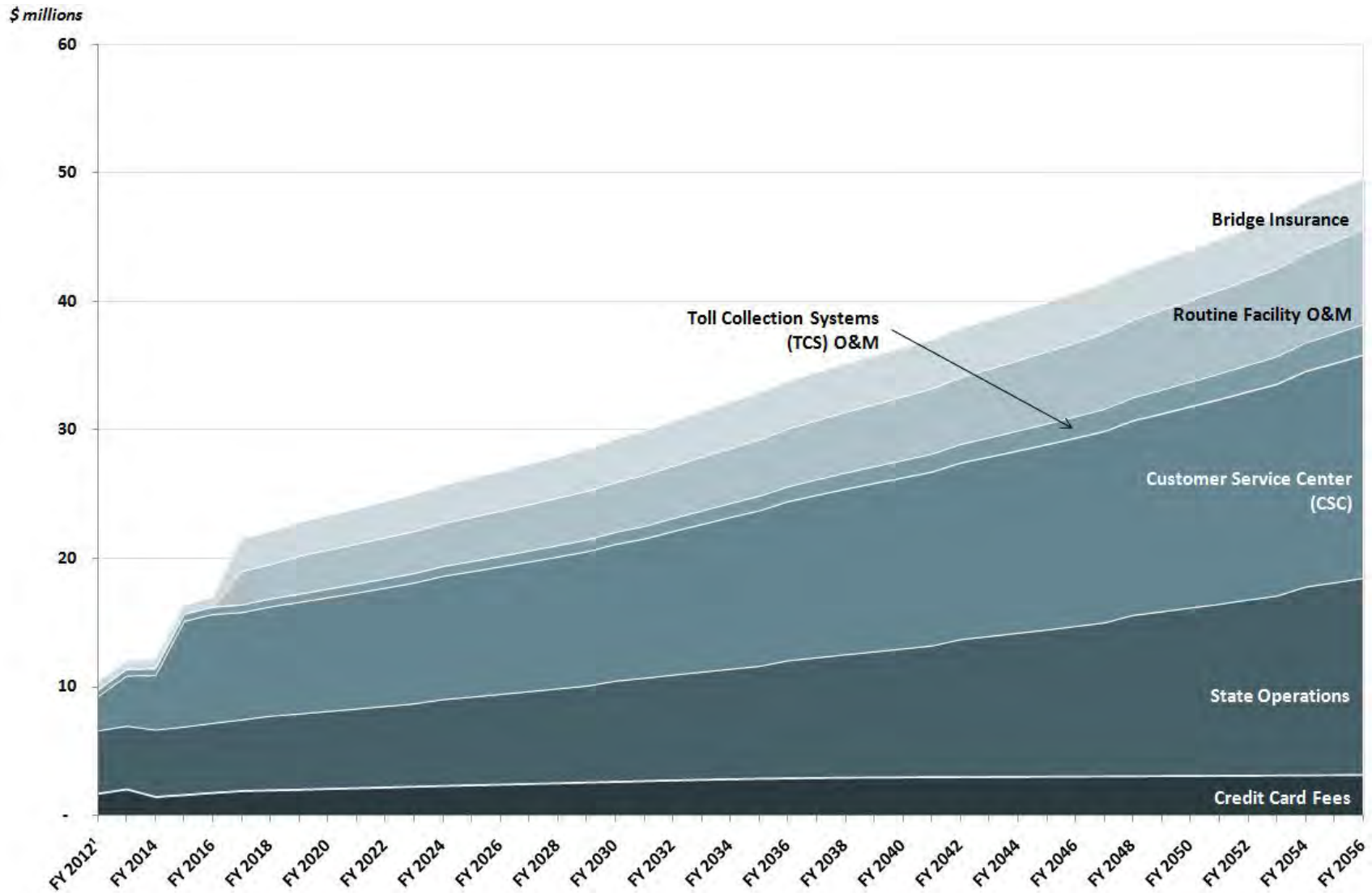
Credit card fees, routine toll collection O&M costs, facility O&M costs, and bridge insurance premiums are estimated to be \$12 million in FY 2013—the first year of full tolling operations—increasing to \$48 million by FY 2056 due to inflation and a series of step increases in projected O&M costs. The compound annual growth rate (CAGR) associated with these costs is approximately 3.3 percent over the period from FY 2013 to FY 2056, and reflects growth in costs related to traffic increases, general inflation, and anticipated higher CSC vendor costs over time.

Costs are projected to experience two major step increases in FY 2015 and FY 2017. The first step, in FY 2015, corresponds to a projected increase in CSC vendor costs with the procurement of a new vendor or a renewed contract with the current vendor. The existing CSC vendor contract is set to expire in FY 2014.

The second step results from the transition to tolls paying for the facility O&M costs starting with FY 2017 once the Floating Bridge and Eastside project is completed at the end of FY 2016.

Exhibit 5 on the following page illustrates the six categories of expenditures to be made from the adjusted gross toll revenues.

EXHIBIT 5: PROJECTED USES OF ADJUSTED GROSS TOLL REVENUES



¹ Forecasts assume six months of tolling operations in FY 2012 from January 1, 2012 to June 30, 2012; start date subject to change.

Net Revenues

Summing columns 18 through 24 in the T&R table located in Appendix A deducts the various expenditures of adjusted gross toll revenues that result in column 25, labeled as “Net Toll Revenues Before R&R / Deferred Sales Tax”. This annual projection represents the cash flow available to pay for debt service, required reserves, and other project uses of net revenues.

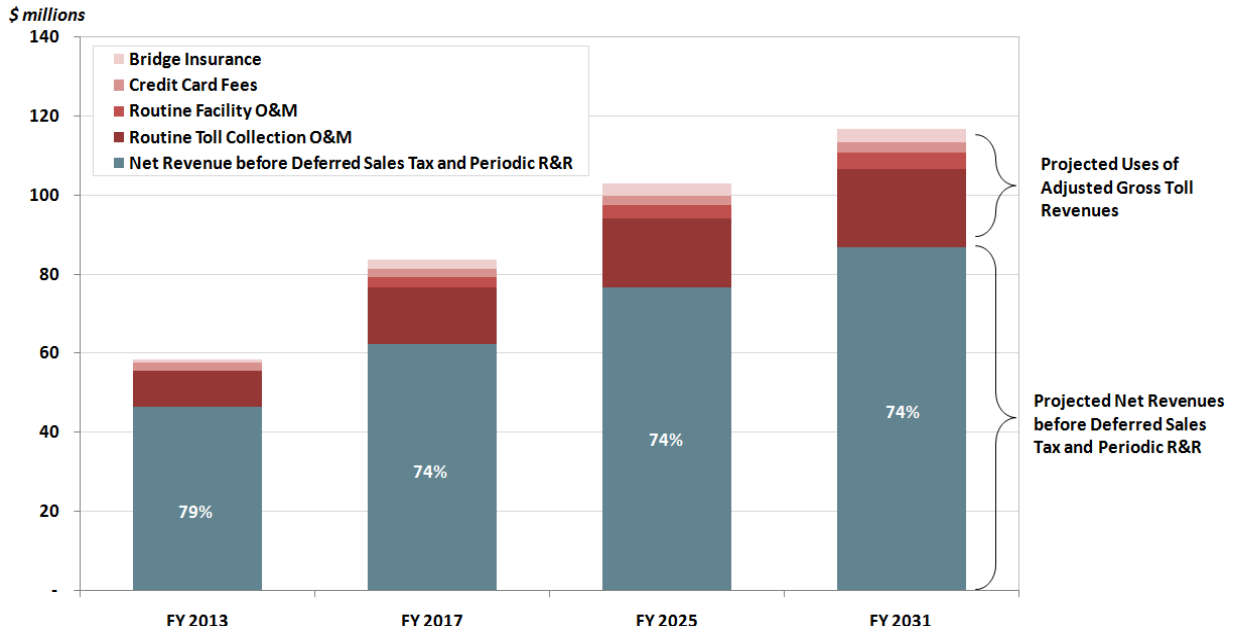
In FY 2012, six months of net revenues are projected to be \$13.99 million based on an assumed tolling start date of January 1, 2012. In the first full year of tolling operations, FY 2013, net toll revenues are projected to be \$46.31 million. By FY 2039, net toll revenues have grown to a peak of \$94.12 million, followed by a gradual decline to \$87.77 million by FY 2056.

Because toll rates are not assumed to increase after FY 2017, growth in gross, and thus, net toll revenues are driven only by the forecasted traffic growth. However, as WSA's traffic projections flatten out in the latter years of the forecast horizon, continuing inflation in O&M costs eventually causes net revenues to decline, as shown in Exhibit 7 on page 27.

Over the period from FY 2013-16, the compound annual growth rate (CAGR) of projected net revenues equates to approximately seven percent due to planned toll escalation and traffic growth. Post-completion net revenues exhibit a CAGR of about 2.0 percent FY 2017-39, and they are projected to decline at an annual rate of -0.3 percent thereafter, absent any toll increases.

Exhibit 6 demonstrates the projected net toll revenues as a percentage of adjusted gross revenues for four select years. In FY 2013, as well as the rest of the construction period through FY 2016, net revenues are projected to comprise about 79 percent of the adjusted gross toll revenues. Beginning in FY 2017 project completion, and extending through FY 2039, net toll revenues are projected to comprise a relatively steady 74 percent of adjusted gross toll revenues.

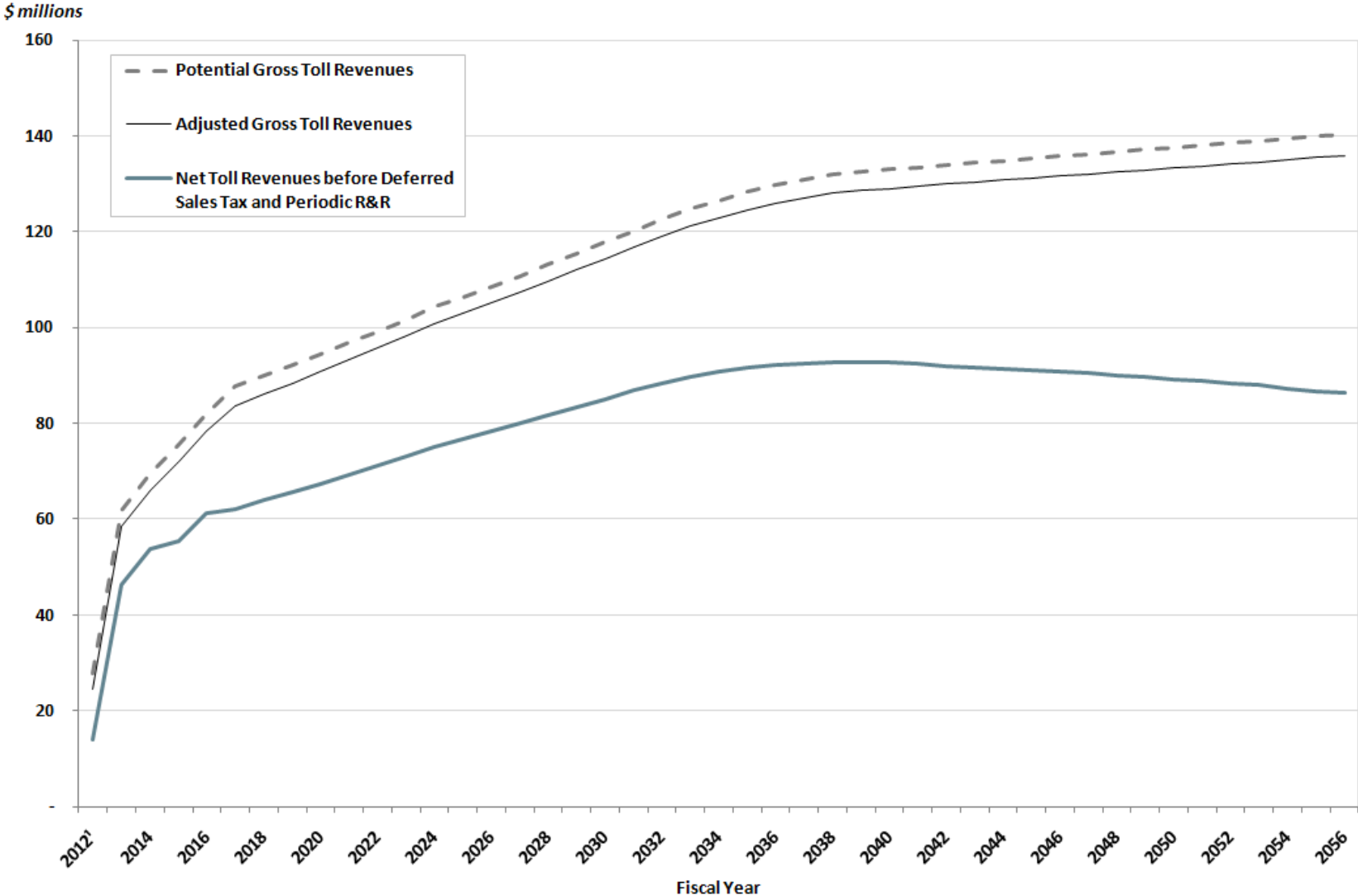
EXHIBIT 6: PROJECTED NET TOLL REVENUES AS A PERCENTAGE OF ADJUSTED GROSS REVENUES



During the project construction period, facility O&M costs will not be funded by toll revenues. As such, the ratio of net revenues to adjusted gross revenues is higher through FY 2016 compared with post-completion, when toll revenues are assumed to fully fund facility O&M expenses for the \$2.43 billion corridor investments. The exception to this occurs in the startup year, FY 2012, where the net revenue share is lower (57%) due to only six months of revenue in that year, traffic ramp-up effects, and relatively fixed O&M costs.

A comparison of gross, adjusted gross, and net toll revenues over the 45-year forecast horizon is provided in Exhibit 7 on the following page.

EXHIBIT 7: PROJECTED GROSS, ADJUSTED GROSS, AND NET TOLL REVENUES



¹ Forecasts assume six months of tolling operations in FY 2012 from January 1, 2012 to June 30, 2012; start date subject to change.

Other Project Uses of Toll Revenues

Certain non-routine project uses of toll revenues are anticipated to be made downstream of the net toll revenues after debt service and deposits to required reserves. These temporary or periodic expenditures include ten years of construction sales tax payments—deferred until after completion—and periodic repair and replacement (R&R) cost for both the facility and toll collection equipment. Assumptions and projections for these other project uses are provided below.

Deferred Sales Tax on Construction

The 2008 Washington State Legislature, through ESHB 3096 codified as RCW 47.01.412, granted the SR 520 Program the ability to defer a portion of the state and local sales tax payable on construction until five years after substantial completion. At this future date, the sales tax must be paid in ten equal annual installments. The State plans to defer sales tax on almost the entire taxable construction amount, with the exception of sales tax paid in Grays Harbor County that applies to the floating bridge pontoon construction site development. In total, \$124 million in sales tax will be deferred under the provisions of ESHB 3096.

Payment of Deferred Sales Tax (Column 26)

Based on the expected schedule for completion of the overall \$2.43 billion Floating Bridge and Eastside Project, the first of ten equal payments of \$12.4 million will be made in FY 2022, with the last payment coming in FY 2031. Column 26 of the T&R table in Appendix A shows the schedule for the actual deferred sales tax payments to the state, and may not match the timing and amounts of net revenue deposits to a deferred sales tax reserve account.

Periodic Toll Collection Equipment and Facility Repair and Replacement

Column 27 of the T&R table represents the sum of periodic repair and replacement (R&R) costs over the forecast period. Column 27 includes both toll collection system and the facility R&R costs. In YOE dollars, these amounts are projected at \$17 million and \$216 million, respectively, for a total of \$233 million through FY 2056.

Toll Collection Equipment R&R Costs (Column 27)

Tolls are assumed to pay for 100 percent of the toll collection system (TCS) equipment periodic R&R costs. Costs associated with TCS equipment repair and replacement (R&R) include upgrades to cameras, antennas and transponder readers, as well as replacement of fiber optic communication lines, other toll equipment components, and system software.

The replacement cycle for the toll collection equipment is anticipated to be once every ten years, beginning in FY 2024. Repair and replacement costs are assumed to escalate at a rate of 2.5 percent per year. Toll collection equipment R&R for the single-point toll system (i.e., tolls collected at one location in the corridor) is estimated to cost \$2.1 in million (2010 dollars) per replacement cycle.

Projected toll collection equipment R&R costs are included in the “Periodic Repair & Replacement (R&R) Costs” column of the T&R table, or column 27. A summary of assumptions is also provided in Exhibit 8 below.

EXHIBIT 8: SUMMARY OF TOLL COLLECTION SYSTEM R&R ASSUMPTIONS

Summary of TCS R&R Assumptions	
Periodic R&R Amount (2010 \$)	\$2.1 million
First Scheduled R&R Expense	FY 2024
Assumed Cost Inflation Rate	2.5% per year
Replacement Cycle	10 years
Total TCS R&R Amount FY 2017-56 (YOE \$)	\$17 million

Facility R&R Costs (Column 27)

Through FY 2056, total facility repair and replacement expenditures for the Floating Bridge and Eastside Project are projected to be \$283 million, expressed in inflated or year of expenditure dollars. Facility R&R expenditures are for activities incurred on an infrequent or periodic cycle, and are expected to include the following major capital upgrades and/or improvements:

- Structural bridge repair;
- Pavement rehabilitation;
- Bridge surface rehabilitation;
- Anchor cable replacement;
- Expansion joint replacement;
- Ramp meter replacement; and,
- Cable and data station replacement.

Cost estimates for periodic facility R&R are dependent upon design characteristics of the facility, including the type of construction materials and structural attributes. The maintenance task force was convened by the SR 520 project office to review and update R&R cost estimates for the preferred design of the Floating Bridge and Eastside Project.

Tolls are projected to contribute the majority of the funding for the above facility R&R expenditures over the forecast period. Specifically, toll revenues are assumed to fund all of the R&R for the floating bridge and interim west approach, plus all of the corridor’s active traffic management (ATM) and data systems’ R&R. The ATM and data systems are critical to providing drivers with information about tolls and travel conditions, and are not readily severable by segment within the corridor. Collectively, these R&R expenditures comprise 76 percent, or \$216 million of the total periodic facility R&R over the forecast period.

The remaining R&R costs for the Eastside roadway between the lake and I-405, including the east approach structure, are assumed to be funded by WSDOT’s preservation program (“P Program”). These forecasted expenditures represent 24 percent share of the total R&R, or \$67 million.

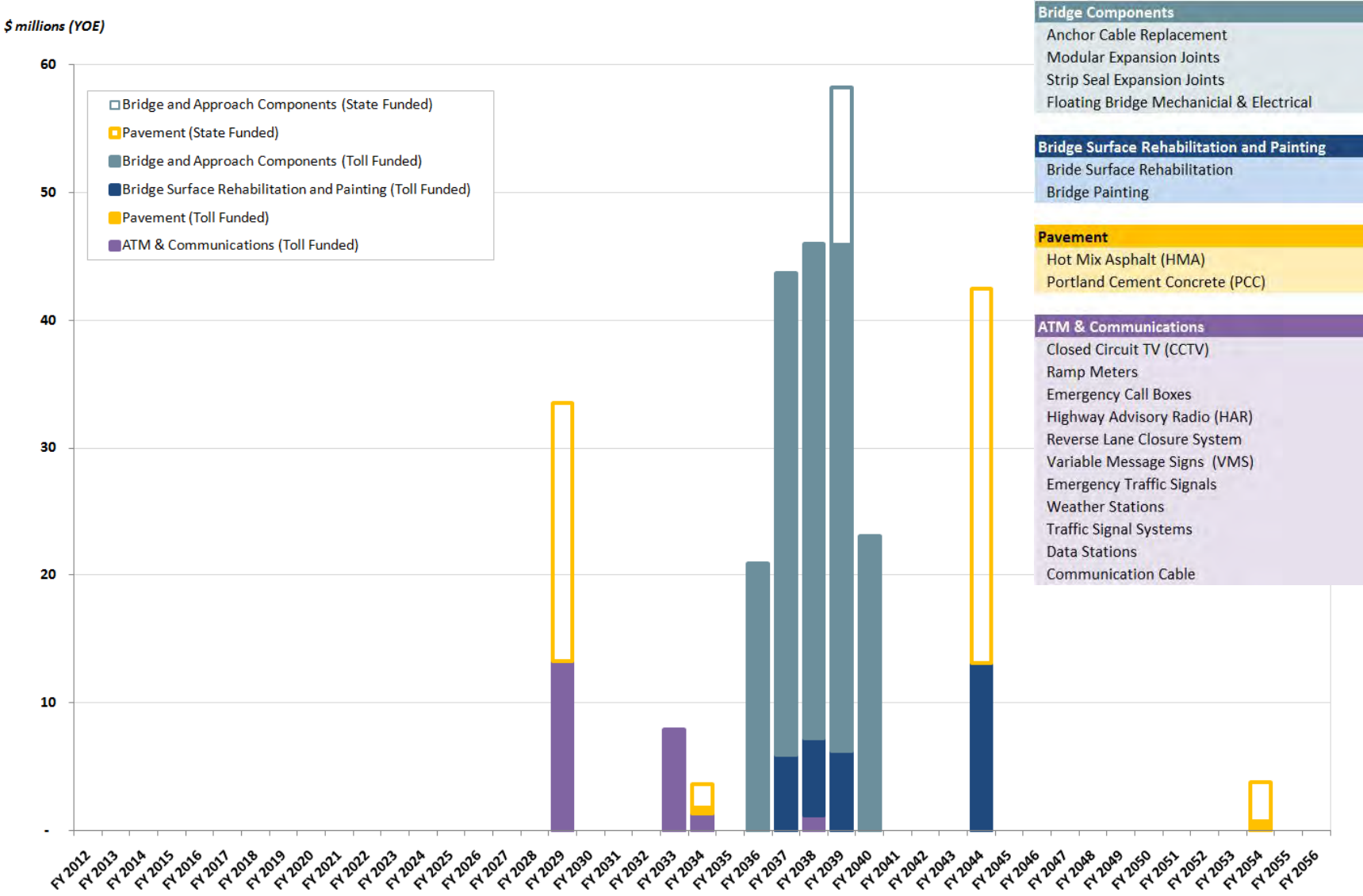
A summary of the facility R&R assumption follows in Exhibit 9, and the full detail of the R&R cost schedule and categories are shown in Exhibit 10 on the following page. Note that a series of major capital replacement activities are anticipated over the five years from FY 2036 through FY 2040. During this period, the floating bridge surface will be rehabilitated, anchor cables will be replaced, modular and strip seal expansion joints will be replaced, and mechanical and electrical systems will be updated.

The forecast for the toll funded portion of R&R costs—excluding costs paid from the State’s P Program sources—can be found in column 27 of the T&R table in Appendix A. These amounts represent actual payment projections, and do not reflect net revenue deposits to an R&R reserve account that would likely be employed to fund these expenditures.

EXHIBIT 9: SUMMARY OF FACILITY R&R ASSUMPTIONS

Summary of Facility R&R Assumptions	
First Scheduled R&R Expense	FY 2029
Assumed Cost Inflation Rate	2.5% per year
Total Facility R&R Amount FY 2017-56 (YOE \$)	\$283 million
Toll-Funded Facility R&R Amount FY 2017-56 (YOE \$)	\$216 million (76%)
State-Funded Facility R&R Amount FY 2017-56 (YOE \$)	\$ 67 million (24%)

EXHIBIT 10: FACILITY R&R SCHEDULE AND PROJECTED EXPENDITURES BY CATEGORY



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Appendix A: Toll Traffic & Revenue Projections

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SR 520 Toll Traffic and Revenue (T&R) Projections — Annual Transactions, Gross Revenue, and Net Revenue — FY 2012-56

Toll Revenue Stream Assumed to Begin January 1, 2012 — Net Revenue Projections Based on the SR 520 Bridge Investment Grade Traffic and Revenue Study, dated August 29, 2011

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
Fiscal Year		Good To Go! Accounts			Other Payment Types / No Account ⁵			Total Annual Gross Toll Transactions (millions) ⁴	Gross Toll Revenue Potential		Total Gross Toll Revenues (\$ millions) ⁴	Less: Free Trip Incentive (\$ millions) ⁷	Less: Self-Initiated Payment Incentives (\$ millions) ⁸	Plus: Good To Go! Pay By Plate Fees (\$ millions) ⁹	Plus: Late Payment Fees (\$ millions) ¹⁰	Less: Uncollectible Transactions / Leakage (\$ millions) ¹¹	Plus: Recovered Toll & Fee Revenue (\$ millions) ¹²	Subtotal: Adjusted Gross Toll Revenues (\$ millions)	Plus: Transponder Sales Revenue (\$ millions) ¹³	Less: Transponder Purchase & Inventory Costs (\$ millions) ¹³	Less: Credit Card Fees (\$ millions) ¹⁴	Less: Routine Toll Collection O&M Costs (\$ millions) ¹⁵	Less: Routine Facility O&M Costs (\$ millions) ¹⁶	Less: Bridge Insurance Premium (\$ millions) ¹⁷	Total Net Toll Revenues Before R&R / Deferred Sales Tax (\$ millions)	Less: Payment of Deferred Sales Tax (\$ millions) ¹⁸	Less: Periodic Repair & Replacement (R&R) Costs (\$ millions) ¹⁹	Remaining Net Toll Revenues After R&R / Deferred Sales Tax (\$ millions)			
		Wtd. Average Bridge Toll Rate (one-way) ¹	Annual Bridge Toll Transactions (millions) ²	Pass Car Equiv (PCE) Bridge Volumes (millions) ³	Wtd. Average Bridge Toll Rate (one-way) ¹	Annual Bridge Toll Transactions (millions) ²	Pass Car Equiv (PCE) Bridge Volumes (millions) ³		Good To Go! Pre-Paid Accounts (\$ millions) ⁵	Other Payment Types / No Account (\$ millions) ⁶																					
2010																															
2011																															
2012	Pre-Completion	\$2.60	6.21	6.60	\$4.11	2.45	2.61	8.66	17.12	10.72	27.84	(1.50)	(0.11)	0.24	0.40	(2.45)	24.42	2.00	(2.00)	(1.73)	(8.08)		(0.63)	13.99					13.99		
2013		\$2.65	14.07	15.00	\$4.20	4.91	5.25	18.97	39.76	22.05	61.81		(0.22)	0.51	0.85	(4.99)	58.38	1.33	(1.33)	(2.07)	(9.34)		(0.65)	46.31					46.31		
2014		\$2.71	15.98	17.09	\$4.29	4.99	5.36	20.97	46.40	22.99	69.39		(0.22)	0.52	0.90	(5.16)	65.86	1.11	(1.11)	(1.47)	(10.00)		(0.68)	53.72					53.72		
2015		\$2.78	17.52	18.80	\$4.39	4.94	5.32	22.46	52.19	23.32	75.51		(0.22)	0.50	0.92	(5.18)	71.97	1.14	(1.14)	(1.63)	(14.09)		(0.70)	55.56					55.56		
2016		\$2.84	19.08	20.52	\$4.48	4.88	5.28	23.96	58.28	23.64	81.92		(0.22)	0.45	0.94	(5.21)	78.33	1.16	(1.16)	(1.79)	(14.47)		(0.73)	61.35					61.35		
2017		\$3.09	18.85	20.37	\$4.77	4.77	5.18	23.62	62.95	24.69	87.64		(0.21)	0.45	0.92	(5.52)	83.73	1.19	(1.19)	(1.93)	(14.49)	(2.60)	(2.50)	62.20					62.20		
2018		\$3.06	19.74	21.36	\$4.77	4.73	5.15	24.48	65.31	24.52	89.83		(0.21)	0.45	0.93	(5.42)	86.04	1.22	(1.22)	(1.99)	(14.90)	(2.67)	(2.56)	63.92					63.92		
2019		\$3.03	20.63	22.36	\$4.76	4.70	5.12	25.33	67.75	24.33	92.08		(0.21)	0.46	0.92	(5.33)	88.38	1.25	(1.25)	(2.04)	(15.21)	(2.96)	(2.63)	65.54					65.54		
2020		\$3.01	21.52	23.35	\$4.74	4.67	5.08	26.19	70.27	24.12	94.39		(0.21)	0.46	0.92	(5.25)	90.76	1.29	(1.29)	(2.10)	(15.55)	(3.03)	(2.69)	67.38					67.38		
2021		\$2.99	22.41	24.35	\$4.72	4.63	5.05	27.05	72.88	23.88	96.76		(0.21)	0.45	0.91	(5.18)	93.19	1.32	(1.32)	(2.16)	(15.89)	(3.11)	(2.76)	69.28					69.28		
2022		\$2.98	23.30	25.35	\$4.70	4.60	5.02	27.91	75.57	23.61	99.18		(0.21)	0.44	0.90	(5.11)	95.66	1.35	(1.35)	(2.21)	(16.24)	(3.18)	(2.83)	71.19	(12.42)				58.77		
2023		\$2.97	24.20	26.34	\$4.67	4.57	4.99	28.76	78.35	23.32	101.67		(0.21)	0.43	0.90	(5.04)	98.19	1.38	(1.38)	(2.27)	(16.59)	(3.26)	(2.90)	73.16	(12.42)				60.74		
2024		\$2.97	25.09	27.34	\$4.63	4.54	4.96	29.62	81.22	22.99	104.21		(0.20)	0.41	0.89	(4.98)	100.76	1.42	(1.42)	(2.33)	(17.09)	(3.35)	(2.97)	75.02	(12.42)	(2.83)			59.77		
2025		\$2.97	25.76	28.14	\$4.65	4.50	4.93	30.26	83.44	22.92	106.36		(0.20)	0.40	0.88	(4.94)	102.93	1.45	(1.45)	(2.38)	(17.42)	(3.43)	(3.03)	76.66	(12.42)				64.24		
2026		\$2.96	26.44	28.93	\$4.66	4.47	4.90	30.91	85.71	22.84	108.55		(0.20)	0.38	0.87	(4.90)	105.13	1.49	(1.49)	(2.44)	(17.77)	(3.51)	(3.10)	78.31	(12.42)				65.89		
2027		\$2.96	27.12	29.73	\$4.66	4.43	4.88	31.55	88.05	22.73	110.78		(0.20)	0.36	0.86	(4.86)	107.37	1.53	(1.53)	(2.49)	(18.13)	(3.60)	(3.16)	79.98	(12.42)				67.56		
2028		\$2.96	27.79	30.53	\$4.67	4.40	4.85	32.19	90.45	22.61	113.06		(0.20)	0.34	0.85	(4.83)	109.65	1.57	(1.57)	(2.54)	(18.50)	(3.69)	(3.23)	81.69	(12.42)				69.27		
2029		\$2.97	28.47	31.32	\$4.66	4.37	4.82	32.84	92.92	22.46	115.38		(0.20)	0.32	0.85	(4.79)	111.97	1.60	(1.60)	(2.60)	(18.88)	(3.79)	(3.29)	83.42	(12.42)	(13.27)			57.73		
2030		\$2.97	29.15	32.12	\$4.66	4.33	4.79	33.48	95.45	22.29	117.74		(0.19)	0.29	0.84	(4.76)	114.33	1.65	(1.65)	(2.65)	(19.43)	(3.88)	(3.36)	85.01	(12.42)				72.59		
2031		\$2.98	29.82	32.92	\$4.64	4.30	4.76	34.12	98.05	22.10	120.15		(0.19)	0.26	0.83	(4.73)	116.73	1.69	(1.69)	(2.71)	(19.82)	(3.98)	(3.43)	86.80	(12.42)				74.38		
2032		\$2.98	30.40	33.55	\$4.64	4.40	4.87	34.80	99.90	22.62	122.52		(0.20)	0.26	0.85	(4.84)	119.01	1.73	(1.73)	(2.76)	(20.39)	(4.08)	(3.49)	88.29					88.29		
2033		\$2.98	30.93	34.12	\$4.64	4.50	4.97	35.43	101.57	23.09	124.66		(0.20)	0.26	0.87	(4.94)	121.07	1.77	(1.77)	(2.81)	(20.93)	(4.18)	(3.56)	89.60		(7.89)			81.71		
2034		\$2.98	31.40	34.63	\$4.64	4.58	5.07	35.99	103.05	23.52	126.57		(0.21)	0.27	0.88	(5.03)	122.91	1.82	(1.82)	(2.85)	(21.47)	(4.28)	(3.61)	90.70		(5.40)			85.30		
2035		\$2.97	31.82	35.08	\$4.64	4.66	5.15	36.48	104.35	23.91	128.26		(0.21)	0.27	0.90	(5.12)	124.54	1.86	(1.86)	(2.89)	(21.99)	(4.39)	(3.66)	91.61					91.61		
2036		\$2.97	32.18	35.46	\$4.64	4.73	5.23	36.91	105.45	24.26	129.71		(0.21)	0.26	0.91	(5.19)	125.93	1.91	(1.91)	(2.92)	(22.70)	(4.50)	(3.70)	92.10		(20.88)			71.22		
2037		\$2.97	32.47	35.78	\$4.64	4.79	5.30	37.26	106.34	24.56	130.90		(0.22)	0.26	0.93	(5.26)	127.07	1.96	(1.96)	(2.95)	(23.22)	(4.61)	(3.73)	92.56		(43.72)			48.83		
2038		\$2.97	32.70	36.02	\$4.64	4.85	5.35	37.55	107.04	24.82	131.86		(0.22)	0.26	0.94	(5.32)	127.98	2.00	(2.00)	(2.97)	(23.72)	(4.73)	(3.76)	92.80		(45.97)			46.83		
2039		\$2.97	32.87	36.20	\$4.63	4.89	5.40	37.77	107.53	25.03	132.56		(0.22)	0.26	0.94	(5.36)	128.64	2.05	(2.05)	(2.99)	(24.19)	(4.85)	(3.78)	92.84		(45.93)			46.90		
2040		\$2.97	32.98	36.31	\$4.63	4.93	5.44	37.91	107.80	25.20	133.00		(0.22)	0.25	0.95	(5.40)	129.05	2.11	(2.11)	(3.00)	(24.67)	(4.97)	(3.79)	92.63		(23.05)			69.58		
2041		\$2.97	33.09	36.41	\$4.63	4.96	5.48	38.05	108.08	25.37	133.45		(0.22)	0.25	0.96	(5.44)	129.47	2.16	(2.16)	(3.01)	(25.14)	(5.09)	(3.81)	92.42					92.42		
2042		\$2.97	33.19	36.52	\$4.63	5.00	5.51	38.19	108.36	25.54	133.90		(0.22)	0.25	0.97	(5.47)	129.89	2.21	(2.21)	(3.02)	(25.90)	(5.22)	(3.82)	91.93					91.93		
2043		\$2.97	33.30	36.63	\$4.63	5.04	5.55	38.34	108.64	25.71	134.35		(0.23)	0.24	0.97	(5.51)	130.31	2.27	(2.27)	(3.03)	(26.40)	(5.35)	(3.83)	91.70					91.70		
2044		\$2.96	33.41	36.74	\$4.63	5.07	5.59	38.48	108.92	25.88	134.80		(0.23)	0.24	0.98	(5.55)	130.73	2.32	(2.32)	(3.04)	(26.92)	(5.48)	(3.85)	91.43		(17.77)			73.66		
2045		\$2.96	33.52	36.85	\$4.63	5.11	5.63	38.63	109.20	26.05	135.25		(0.23)	0.24	0.99	(5.59)	131.14	2.38	(2.38)	(3.05)	(27.45)	(5.62)	(3.86)	91.16					91.16		
2046		\$2.96	33.63	36.96	\$4.63	5.15	5.67	38.77	109.49	26.22	135.71		(0.23)	0.23	1.00	(5.62)	131.57	2.44	(2.44)	(3.07)	(28.01)	(5.76)	(3.87)	90.87					90.87		
2047		\$2.96	33.73	37.06	\$4.63	5.18	5.71	38.92	109.77	26.40	136.17		(0.23)	0.23	1.00	(5.66)	132.00	2.50	(2.50)	(3.08)	(28.57)	(5.90)	(3.88)	90.56					90.56		
2048		\$2.96	33.84	37.17	\$4.62	5.22	5.75	39.06	110.05	26.57	136.62		(0.23)	0.23	1.01	(5.70)	132.41	2.57	(2.57)	(3.09)	(29.46)	(6.05)	(3.90)	89.91					89.91		
2049		\$2.96	33.95	37.28	\$4.62	5.26	5.79	39.21	110.34	26.75	137.09		(0.24)	0.22	1.02	(5.74)	132.85	2.63	(2.63)	(3.10)	(30.05)	(6.20)	(3.91)	89.59					89.59		
2050		\$2.96	34.06	37.39	\$4.62	5.30	5.83	39.36	110.62	26.93	137.55		(0.24)	0.22	1.03	(5.78)	133.28	2.70	(2.70)	(3.11)	(30.67)	(6.36)	(3.92)	89.22					89.22		
2051		\$2.96	34.17	37.50	\$4.62	5.34	5.87	39.51	110.91	27.11	138.02		(0.24)	0.22	1.03	(5.82)	133.71	2.76	(2.76)	(3.12)	(31.28)	(6.52)	(3.94)	88.86					88.86		
2052		\$2.96	34.28	37.62	\$4.62	5.38	5.91	39.66	111.20	27.29	138.49		(0.24)	0.21	1.04	(5.86)	134.15	2.83	(2.83)	(3.13)	(31.95)	(6.68)	(3.95)	88.44					88.44		
2053		\$2.95	34.40	37.73	\$4.62	5.42	5.95	39.81	111.48	27.47	138.95		(0.24)	0.21	1.05	(5.90)	134.57	2.90	(2.90)	(3.15)	(32.60)	(6.85)	(3.96)	88.02					88.02		
2054		\$2.95	34.51	37.84	\$4.62	5.45	5.99	39.																							

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Appendix B: List of Facility Maintenance Activities

SR 520 MAINTENANCE CATEGORIES & ACTIVITIES

Maintenance Activity	Unit of Measure
Pavement Patching, Repair & Crack Sealing	Lane Mile
Shoulder Maintenance	Shoulder Mile
Sweeping and Cleaning	Shoulder Mile
Maintain Ditches	Linear Feet of Ditch
Maintain Culverts	Each
Maintain Catch Basins and Inlets	Each
Maintain Detention/Retention Basins	Stormwater Treatment Facility (Each)
Litter Pickup	Shoulder mile
Noxious Weed Control	Acres (25% of Roadside Restoration)
Landscape Maintenance (3 yr plant establish.)	Acres
Bridge Deck Repair	Square Feet of Bridge Deck
Structural Bridge Repair	Square Feet of Bridge Deck
Bridge Cleaning	Square Feet of Bridge Deck
Movable and Floating Bridge Operations	Bridges (Each)
Urban Tunnel Systems Operations	Urban Tunnel Systems (Each)
Snow and Ice Control Operations	Lane Mile
Pavement Striping Maintenance	Lane Mile (*future & immediate)
Raised/Recessed Pavement Marker Maintenance	
<i>Raised</i>	<i>Each (*25% immediate & 75% future)</i>
<i>Recessed</i>	<i>Each</i>
Pavement Marking Maintenance	Each
Regulatory Sign Maintenance	Each
Guide Sign Maintenance	Each
Guidepost Maintenance	Each
Guardrail Maintenance	
<i>Cable Guardrail</i>	<i>Linear Feet of Cable Guardrail</i>
<i>Beam Guardrail</i>	<i>Linear Feet of Beam Guardrail</i>
<i>Concrete Barrier</i>	<i>Linear Feet of Concrete Barrier</i>
<i>Attenuator</i>	<i>Each</i>
Traffic Signal Systems Operations	Each (*75% immediate & 25% future)
Highway Lighting Systems Operations	Lighting System/Electrical Service(*85/15)
Intelligent Transportation Systems Operations	(*60% immediate and 40% future)
<i>Ramp Meter</i>	<i>Each</i>
<i>Closed Circuit Television</i>	<i>Each</i>
<i>Variable Message/Changeable Sign</i>	<i>Each</i>
<i>Highway Advisory Radio Transmitter/Sign</i>	<i>Each</i>
<i>Express Lane Gate/Sign/Barrier</i>	<i>Each</i>
<i>Roadway Weather Information Station</i>	<i>Each</i>
<i>Data Station System</i>	<i>Each</i>
<i>HUB (fiber optic)</i>	<i>Each</i>
<i>Weigh Station/Weigh in Motion System</i>	<i>Each</i>
<i>Emergency Phone</i>	<i>Each</i>
<i>Radio Rebroadcast System</i>	<i>Each</i>
Rest Area Operations	Rest Area (Each)
3rd Party (unknown) Damages	Lane Mile
Roadside Restoration	Acres (*Future-next biennium)
Wetland Mitigation Sites	Acres (*Future-10 years later)