



Washington State
Department of Transportation

SR 520 Bridge Replacement and HOV Program



SR 520 Bridge Net Toll Revenue Report 2016 Update

Prepared for:

Washington State Department of Transportation

Lead Author:

WSP | Parsons Brinckerhoff

in association with the

SR 520 General Engineering Consultant Team

February 24, 2017

Title VI Notice to Public

It is the Washington State Department of Transportation's (WSDOT) policy to assure that no person shall, on the grounds of race, color, national origin or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated, may file a complaint with WSDOT's Office of Equal Opportunity (OEO). For additional information regarding Title VI complaint procedures and/or information regarding our non-discrimination obligations, please contact OEO's Title VI Coordinators, George Laue at (509) 324-6018 or Jonte Sulton at (360) 705-7082.

Americans with Disabilities Act (ADA) Information

This material can be made available in an alternate format by emailing the WSDOT Diversity/ADA Affairs 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.

Table of Contents

1 Introduction	5
Background and Purpose	5
September 2011 Forecast.....	5
September 2012 Forecast.....	5
October 2013 Forecast	6
November 2014 Forecast.....	6
November 2015 Forecast.....	6
November 2016 Forecast.....	6
Project Description	9
Key Changes in the November 2016 Net Revenue Projections.....	10
Traffic and Gross Revenues	11
Revenue Adjustments.....	11
Operating and Maintenance Costs	12
Net Revenues.....	13
Other Project Uses of Toll Revenues	13
2 Traffic and Revenue Overview.....	15
Toll Traffic and Gross Toll Revenue Potential	15
Payment and Toll Transaction Types	17
<i>Good To Go!</i> Account Transactions	17
Pay By Mail / Non-Account Transactions.....	17
Projected Gross Toll Revenue and Transactions by Payment Type.....	18
Gross to Net Toll Revenue	19
3 Actual Net Revenue Performance in FY 2016	21
4 Summary of Changes in Projected Net Revenue	25
5 Changes to Revenue Adjustments	27
Toll Payment Fees and Discounts (Column 12).....	27
Pay By Plate Fee	27
Short-Term Account Discounts	28
Other Fees and Discounts	29
Uncollectible Revenue (Columns 13 & 14)	29
Revenue Not Recognized (Column 13)	30

Unpaid Toll Revenue (Column 14)	32
Overall Changes in Uncollectible Revenue (Columns 13 & 14)	32
Recaptured Toll Revenue at <i>Good To Go!</i> Rates (Column 15)	32
Miscellaneous Pledged Revenues (Column 17)	33
Transponder Sales Revenue (Column 18)	34
Pay By Mail Rebilling Fees (Column 19)	35
Toll Revenue Recovered at Pay By Mail Rates via NOCP (Column 20)	36
6 Changes to Operating and Maintenance Costs	37
Credit Card / Banking Fees (Column 22)	37
Toll Collection Operations and Maintenance (Column 23).....	39
Transponder Sales and Inventory Costs	40
State Operations (WSDOT Toll Division / Accounting and Financial Services)	41
Customer Service Center	46
Roadway Toll Systems.....	48
Routine Facility Operations and Maintenance (Column 24).....	50
Bridge Insurance (Column 25).....	52
7 Changes to Other Project Uses of Toll Revenues	55
Total Net Revenue (Column 26).....	55
Deferred Sales Tax on Construction (Column 27).....	56
Periodic Facility Repair and Replacement Costs (Column 28)	56
Toll-Related Repair and Replacement Costs (Column 29)	59
Roadway Toll Systems Repair and Replacement Costs	59
Customer Service Center Repair and Replacement Costs	60
Appendix A: Annual Toll Traffic & Revenue Projections	67
Appendix B: Toll Payment Activity Workflow	71
Appendix C: List of Facility Maintenance Activities	73

List of Exhibits

Exhibit 1: Timeline of SR 520 Traffic, Gross Revenue, and Net Revenue Forecasts	7
Exhibit 2: Weekday <i>Good To Go!</i> Pass Toll Rate Schedules by Fiscal Year	8
Exhibit 3: Weekend <i>Good To Go!</i> Pass Toll Rate Schedules by Fiscal Year	8
Exhibit 4: SR 520 Bridge Replacement and HOV Program Map.....	10
Exhibit 5: Gross to Net Revenue Comparison—September 2011 vs November 2016 (FY 2017-56).....	10
Exhibit 6: Gross to Net Revenue Comparison—November 2015 vs November 2016 (FY 2017-56).....	11
Exhibit 7: CDM Smith Toll Transaction Forecast Comparison (FY 2017-56)	16
Exhibit 8: CDM Smith Gross Toll Revenue Potential Forecast Comparison (FY 2017-56).....	16
Exhibit 9: Projected Market Shares by Payment Method (FY 2017-56)	18
Exhibit 10: Net Revenue Waterfall.....	19
Exhibit 11: Actual Revenue and November 2015 Forecast Comparison for FY 2016	21
Exhibit 12: Actual Revenue and September 2011 Forecast Comparison for FY 2016	23
Exhibit 13: Net Revenue Component Comparison—November 2015 / November 2016 (FY 2017-56).....	25
Exhibit 14: Annual Shares of Total Transactions by Payment method (Selected Fiscal Years)	28
Exhibit 15: Projected Credit Card Fees in YOE \$ (FY 2017-56).....	39
Exhibit 16: Transponder Sales and Inventory Costs in YOE \$ (FY 2017-56)	41
Exhibit 17: State Operations Assumptions in the November 2016 forecast – SR 520 Values.....	44
Exhibit 18: State Operations Escalation Assumptions in the November 2016 Forecast	45
Exhibit 19: SR 520 Share of CSC Cost Projection in YOE \$ (FY 2017-56)	48
Exhibit 20: Roadway Toll Systems O&M Costs in YOE \$ (FY 2017-56).....	49
Exhibit 21: Projected Facility O&M Costs for the toll funded segments in YOE \$ (FY 2017-56).....	51
Exhibit 22: Projected Insurance Costs in YOE \$ (FY 2017-56).....	53
Exhibit 23: Projected Gross and Net Toll Revenues (FY 2017-56)	55
Exhibit 24: Toll-Funded Facility Repair & Replacement Costs by Forecast in YOE \$ (FY 2017-56)	58
Exhibit 25: Toll Collection Repair and Replacement Cost Estimates by Forecast in YOE \$ (FY 2017-56) ...	65
Exhibit 26: November 2016 Forecast for Toll Collection Repair & Replacement Costs by Component in YOE \$ (FY 2017-56)	66
Exhibit 27: Changes in the T&R Table Format across the Five Annual Net Revenue Forecasts	68
Exhibit 28: SR 520 Traffic and Revenue Table—November 2016 Forecast	69
Exhibit 29: SR 520 Toll Transaction Activity Workflow—November 2016 Forecast.....	71
Exhibit 30: SR 520 Maintenance Categories and Activities	73

Disclaimer

This report was prepared by WSP | Parsons Brinckerhoff as a member of the SR 520 General Engineering Consultant (GEC) Team in accordance with an 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.

Information and statements contained in this report are based on information provided to WSP | Parsons Brinckerhoff by, and obtained from, WSDOT, WSDOT's General Toll Consultant (GTC), and other sources. In the preparation of this report and the opinions contained herein, WSP | Parsons Brinckerhoff, in collaboration with WSDOT and the GTC, makes certain assumptions with respect to 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 are attributable to WSDOT, the GTC, and/or the SR 520 GEC Team.

While WSP | Parsons Brinckerhoff believes that the projections or other forward-looking statements contained within the report are based on reasonable assumptions and correctly represent the inputs and estimates provided by WSDOT and the GTC 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.

WSP | Parsons Brinckerhoff, Inc. is not a registered Municipal Advisor, and is not subject to the fiduciary duty a Municipal Advisor has to a municipal entity client as established in Section 15B (c)(1) of the Securities Exchange Act (Revised). We acknowledge that WSDOT, through the Office of the State Treasurer, is currently represented by registered Municipal Advisors Piper Jaffray, Public Finance Management, Inc. (PFM), Montague DeRose and Associates, LLC (MDA), and the Public Resources Advisory Group (PRAG), and that the state will rely on those advisors, or their successors, prior to taking action regarding municipal securities as it may derive from or in any way depend upon any work performed by WSP | Parsons Brinckerhoff related to the SR 520 Net Revenue Projections.

This report does not constitute a recommendation on the part of WSP | Parsons Brinckerhoff, the GEC, the GTC, or WSDOT.

1 | Introduction

Background and Purpose

This report documents the preparation of the “November 2016 forecast” of net toll revenues for the State Route (SR) 520 Bridge across Lake Washington. The forecasts presented herein reflect the changes to forecast period toll rates and policies proposed by the Washington State Transportation Commission (WSTC) in March 2016 for subsequent adoption in May 2016, with changes going into effect on July 1, 2016 and July 1, 2017. This *SR 520 Net Toll Revenue Report—2016 Update* builds upon previous annual forecasts, including the most recent “November 2015 forecast” and accompanying *SR 520 Bridge Net Toll Revenue Report—2015 Update*, dated April 29, 2016. As with the previous forecast cycles, updated investment-grade traffic and gross toll revenue potential forecasts prepared by CDM Smith are key inputs to the November 2016 net toll revenue projections. New information about future traffic, toll revenues, expenditures, and various revenue adjustments are incorporated into the updated net revenue projections. This report documents the updated projections, describing the changes in key assumptions, inputs, and influences of operating experience compared to the previous November 2015 forecast, with select comparisons back to the initial projections from September 2011.

The net toll revenue projections are used to update the project’s financial plan and represent the operating cash flow that would be available to pay debt service on toll financing, pay deferred sales tax on construction, and contribute to other reserve accounts, including one for periodic capital repair and replacement of facility and toll collection components. Specifically, the projections are used to demonstrate that tolls on the SR 520 Bridge are predicted to produce revenues in each fiscal year of the forecast in amounts sufficient for the state to comply with the bond covenants in Section 7.02(a) of Master Resolution number 1117.

All annual amounts in this document are expressed in terms of the state fiscal year (FY), which runs from July 1 to June 30. The SR 520 forecast horizon covers 40 years, extending from FY 2017 through FY 2056.

September 2011 Forecast

For purposes of this document and related materials, the initial CDM Smith investment-grade traffic and gross toll revenue potential forecasts and accompanying net toll revenue projections that were used to support the initial October 2011 bond financing are collectively referred to as the “September 2011 forecast.”

September 2012 Forecast

In September 2012, as part of ongoing financial planning and the negotiation of a loan from the United States Department of Transportation (USDOT) through the Transportation Infrastructure Finance and Innovation Act (TIFIA), CDM Smith completed a revised traffic and gross toll revenue potential forecast. Accompanying net revenue projections were also prepared, along with memoranda covering these revisions. During their subsequent toll rate setting process, the WSTC opted to round toll rates to the nearest nickel (\$0.05) for the July 1, 2013 (FY 2014) and future planned toll increases.

For purposes of this document and related materials, the traffic and gross toll revenue potential forecasts, along with the accompanying net toll revenue projections—inclusive of the minor revision for nickel rounding—are collectively referred to as the “September 2012 forecast.”

October 2013 Forecast

CDM Smith performed a comprehensive traffic and gross toll revenue forecast update in 2013. Detailed updates to the facility operations and maintenance (O&M) costs, toll collection O&M costs, and revenue adjustments were also prepared in late summer 2013 to yield updated net revenue projections. Collectively, these traffic and gross toll revenue forecasts, along with the net toll revenue projections, are referred to as the “October 2013 forecast.”

November 2014 Forecast

CDM Smith performed another comprehensive traffic and gross toll revenue forecast update in 2014. As in 2013, a detailed review of the facility O&M costs, toll collection O&M costs, and revenue adjustments were made in the summer and fall of 2014, ultimately leading to revised inputs and assumptions to select forecast components. Collectively, these current traffic and gross toll revenue forecasts, along with the accompanying net toll revenue projections, are referred to as the “November 2014 forecast.”

November 2015 Forecast

In preparation for the September 2016 final bond sale, another comprehensive traffic and gross toll revenue forecast update was prepared by CDM Smith in 2015. Their update incorporates new socio-economic forecasts, additional model years, traffic and tolling performance trends to date, and a revised construction closure schedule and roadway configuration related to the newly funded SR 520 “Rest of the West” improvements.

In the same manner as in previous forecasts, a detailed review of revenue adjustments, facility O&M and repair and replacement (R&R) costs, and toll collection O&M and R&R costs were made in the latter half of 2015, resulting in revised inputs, assumptions and net toll revenue projections.

Subsequent amendments to the 2015 traffic and revenue forecasts were completed in March 2016 to capture revised future toll rates and policies proposed and subsequently adopted by the WSTC. Specifically, previously planned step increases in weekday toll rates ranging from 12 to 18 percent by time of day plus a 2.5 percent increase on weekends was replaced with two 5 percent toll increases in FY 2017 and FY 2018, covering both weekdays and weekends. In addition, the night tolling from 11 PM to 5 AM was deferred one year from FY 2017 to FY 2018. Finally, the WSTC opted to maintain the current transit and registered vanpool exemptions, but not extend a toll exemption to carpools with three or more occupants, as originally assumed when the new floating bridge with HOV lanes opened in April 2016. The net revenue projections were similarly amended on March 25, 2016 and provided in support of toll rate setting activities and an update to the SR 520 financial plan.

November 2016 Forecast

The updated, comprehensive traffic and revenue study prepared by CDM Smith in 2016, along with the accompanying net revenue projections documented herein, are intended for use in confirming the financial sufficiency of the forecast period revenues to meet all obligations as required by Master

Resolution number 1117, and to support the WSTC should they opt to revise any toll rates or policies beyond those already planned for FY 2018 starting on July 1, 2017.

CDM Smith’s 2016 traffic and gross toll revenue projections capture a number of minor refinements, including updated population and employment forecasts, actual patterns that reflect slight shifts in traffic by time of day and day of week, updated construction closure assumptions for FY 2017, the addition of impacts due to construction closures on the parallel I-90 bridge, and a slight reduction in the *Good To Go!* account share of total transactions. Overall, these changes result in lower traffic and revenue through FY 2025, and slightly higher values thereafter.

Collectively, the amended traffic and gross toll revenue forecasts and accompanying net toll revenue projections are referred to as the “November 2016 forecast.”

Exhibit 1 below illustrates the timeline for the series of SR 520 net toll revenue projections

Exhibit 1: Timeline of SR 520 Traffic, Gross Revenue, and Net Revenue Forecasts

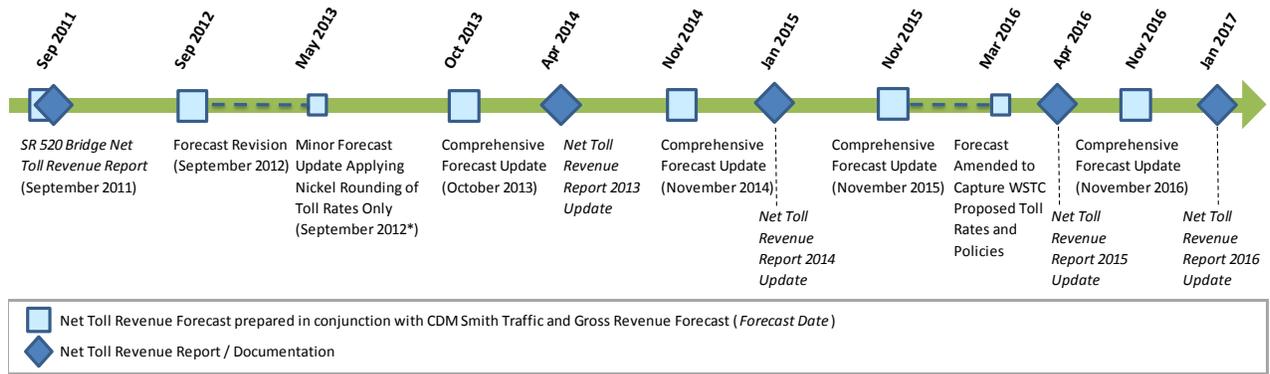


Exhibit 2 shows the weekday two-axle vehicle *Good To Go!* pass toll rate schedules over time, including the WSTC proposed rate increases in FY 2017 and FY 2018. Exhibit 3 provides the corresponding weekend rates for the same time periods.

Exhibit 2: Weekday *Good To Go!* Pass Toll Rate Schedules by Fiscal Year

2.5% Increases + Sequential Nickel Rounding through FY 2016 | 5% Increases in FY 2017 & FY 2018 | Night Tolling in FY 2018

Time Period	Actual and Planned Rate Assumptions	5-6 AM	6-7 AM	7-9 AM	9-10 AM	10 AM-2 PM	2-3 PM	3-6 PM	6-7 PM	7-9 PM	9-11 PM	11 PM-5 AM
FY 2012	Opening Rates	\$1.60	\$2.80	\$3.50	\$2.80	\$2.25	\$2.80	\$3.50	\$2.80	\$2.25	\$1.60	\$0.00
FY 2013	+2.5% (No Rounding)	\$1.64	\$2.87	\$3.59	\$2.87	\$2.31	\$2.87	\$3.59	\$2.87	\$2.31	\$1.64	\$0.00
		+2.5%	+2.5%	+2.6%	+2.5%	+2.7%	+2.5%	+2.6%	+2.5%	+2.7%	+2.5%	
FY 2014	+2.5% with Nickel Rounding	\$1.70	\$2.95	\$3.70	\$2.95	\$2.35	\$2.95	\$3.70	\$2.95	\$2.35	\$1.70	\$0.00
		+3.7%	+2.8%	+3.1%	+2.8%	+1.7%	+2.8%	+3.1%	+2.8%	+1.7%	+3.7%	
FY 2015	+2.5% with Nickel Rounding	\$1.75	\$3.00	\$3.80	\$3.00	\$2.40	\$3.00	\$3.80	\$3.00	\$2.40	\$1.75	\$0.00
		+2.9%	+1.7%	+2.7%	+1.7%	+2.1%	+1.7%	+2.7%	+1.7%	+2.1%	+2.9%	
FY 2016	+2.5% with Nickel Rounding	\$1.80	\$3.10	\$3.90	\$3.10	\$2.45	\$3.10	\$3.90	\$3.10	\$2.45	\$1.80	\$0.00
		+2.9%	+3.3%	+2.6%	+3.3%	+2.1%	+3.3%	+2.6%	+3.3%	+2.1%	+2.9%	
FY 2017	+5.0% with Nickel Rounding	\$1.90	\$3.25	\$4.10	\$3.25	\$2.55	\$3.25	\$4.10	\$3.25	\$2.55	\$1.90	\$0.00
		+5.6%	+4.8%	+5.1%	+4.8%	+4.1%	+4.8%	+5.1%	+4.8%	+4.1%	+5.6%	
FY 2018+	+5.0% and Night Tolling with Nickel Rounding	\$2.00	\$3.40	\$4.30	\$3.40	\$2.70	\$3.40	\$4.30	\$3.40	\$2.70	\$2.00	\$1.25
		+5.3%	+4.6%	+4.9%	+4.6%	+5.9%	+4.6%	+4.9%	+4.6%	+5.9%	+5.3%	

Note: • Pay By Mail toll rates are higher than the *Good To Go!* rates above, ranging from \$1.50 in FY 2012 to \$2.00 higher for FY 2017 and beyond.

Exhibit 3: Weekend *Good To Go!* Pass Toll Rate Schedules by Fiscal Year

2.5% Increases + Sequential Nickel Rounding through FY 2016 | 5% Increases in FY 2017 & FY 2018 | Night Tolling in FY 2018

Time Period	Actual and Planned Rate Assumptions	5-8 AM	8-11 AM	11 AM-6 PM	6-9 PM	9-11 PM	11 PM-5 AM
FY 2012	Opening Rates	\$1.10	\$1.65	\$2.20	\$1.65	\$1.10	\$0.00
FY 2013	+2.5% (No Rounding)	\$1.13	\$1.69	\$2.26	\$1.69	\$1.13	\$0.00
		+2.7%	+2.4%	+2.7%	+2.4%	+2.7%	
FY 2014	+2.5% with Nickel Rounding	\$1.15	\$1.75	\$2.30	\$1.75	\$1.15	\$0.00
		+1.8%	+3.6%	+1.8%	+3.6%	+1.8%	
FY 2015	+2.5% with Nickel Rounding	\$1.20	\$1.80	\$2.35	\$1.80	\$1.20	\$0.00
		+4.3%	+2.9%	+2.2%	+2.9%	+4.3%	
FY 2016	+2.5% with Nickel Rounding	\$1.25	\$1.85	\$2.40	\$1.85	\$1.25	\$0.00
		+4.2%	+2.8%	+2.1%	+2.8%	+4.2%	
FY 2017	+5.0% with Nickel Rounding	\$1.30	\$1.95	\$2.50	\$1.95	\$1.30	\$0.00
		+4.0%	+5.4%	+4.2%	+5.4%	+4.0%	
FY 2018+	+5.0% and Night Tolling with Nickel Rounding	\$1.40	\$2.05	\$2.65	\$2.05	\$1.40	\$1.25
		+7.7%	+5.1%	+6.0%	+5.1%	+7.7%	

Note: • Pay By Mail toll rates are higher than the *Good To Go!* rates above, ranging from \$1.50 in FY 2012 to \$2.00 higher for FY 2017 and beyond.
• The weekend toll schedule will apply on the following holidays when occurring on a weekday: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Note that the November 2016 forecast assumes all of the same toll rates and policies of the previous forecast, including no further toll increases over the forecast horizon beyond FY 2018. While WSTC may opt to revise the toll schedule or policies at a future date between now and FY 2056, if current net revenue projections are met, then the SR 520 financial plan does not require any further toll increases.

Project Description

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. The SR 520 Bridge Replacement and HOV Program includes the portion of the corridor between I-5 and I-405, and is comprised of five major components, the first four of which include construction funding supported by tolls:

- 1) Pontoon Construction;
- 2) Eastside Transit and HOV Project;
- 3) Floating Bridge and West Connection Bridge Project;
- 4) West Approach Bridge North; and
- 5) I-5 to Lake Washington (Rest of the West), which includes the West Approach Bridge South.

The total program cost is currently estimated at \$4.56 billion, all of which is now funded. The \$2.90 billion portion of the program that includes toll funding is currently under construction, with the first three elements complete and the fourth, the West Approach Bridge North, to be complete in the summer of 2017. Essentially, these program components with toll funding replace the existing four-lane floating bridge and upgrade the corridor to six lanes (two general purpose lanes and one high occupancy vehicle lane in each direction) between the west approach to the floating bridge in Seattle and the I-405 interchange on the Eastside.

In mid-2015, the State Legislature passed legislation establishing new transportation revenue (the Connecting Washington account) and included \$1.64 billion in funding to complete SR 520's planned improvements between I-5 and the western shore of Lake Washington, referred to as the Rest of the West.¹ Additionally, the SR 520 Corridor Program received the \$24 million balance of needed funding as \$14 million authorized in 2015 and \$10 million in existing agency resources authorized in 2014.² The Rest of the West improvements are not assumed to include any toll funding; however, construction activity associated with these improvements will lead to additional lane and full bridge closures through the projected completion of the corridor in FY 2026. These closures are accounted for in the traffic and revenue forecasts, including overnight closures that previously did not have a revenue impact but will cause a slight decrease in gross toll revenues when night tolling commences between 11:00 PM and 5:00 AM starting in FY 2018.

¹ See Chapter 44, Washington Laws of 2015 (2ESSB 5987) and Chapter 43, Washington Laws of 2015 (2ESSB 5988). Annual appropriated amounts can be found here: http://leap.leg.wa.gov/leap/Budget/Detail/2015/CTLEAPDoc2015NL-1_0629.pdf, project M00400R on page 8.

² See Chapter 10, Washington Laws of 2015 (2ESHB 1299) and Chapter 222, Washington Laws of 2014 (ESSB 6001)

Exhibit 4: SR 520 Bridge Replacement and HOV Program Map



Note: this Project Map does not identify the cities of Aberdeen, Kenmore, and Tacoma elsewhere in the state where pontoon development and construction previously occurred under the SR 520 Floating Bridge design-build contract.

WSDOT began tolling the existing SR 520 Bridge across Lake Washington in late December 2011 to help pay for a replacement floating bridge across the lake and other corridor improvements. Time of day variable tolling was implemented to manage congestion on the corridor, using all-electronic tolling with no toll booths.

More information including costs, benefits, maps, and photos can be found on the SR 520 Bridge Replacement and HOV Program website: <http://www.wsdot.wa.gov/Projects/SR520Bridge/>.

Key Changes in the November 2016 Net Revenue Projections

This section highlights the key changes to the November 2016 net revenue forecast results compared with the previous November 2015 and initial September 2011 projections, measured over a common forecast horizon from FY 2017 through FY 2056. Exhibit 5 compares the primary components of the November 2016 forecast with the initial September 2011 forecast.

Exhibit 5: Gross to Net Revenue Comparison—September 2011 vs November 2016 (FY 2017-56)

Forecast Category (#) = T&R table column reference	Sep 2011 Forecast (\$ millions)	Nov 2016 Forecast (\$ millions)	Variance (\$ millions)	Variance (%)
Total Toll Transactions (8)	1,394.7	1,426.2	31.5	+2.3%
Gross Toll Revenue Potential (11)	4,907.9	4,882.4	(25.4)	-0.5%
Subtotal: Revenue Adjustments	(74.0)	(78.9)	(4.9)	+6.6%
Subtotal: O&M Costs	(1,456.9)	(1,294.9)	162.0	-11.1%
Net Toll Revenue (26)	3,377.0	3,508.7	131.7	+3.9%
Subtotal: R&R Costs + Deferred Sales Tax	(357.6)	(578.3)	(220.7)	+61.7%
Total after Deferred Sales Tax and R&R	3,019.4	2,930.4	(89.0)	-2.9%

Exhibit 6 compares the primary components of the November 2016 forecast with the most recent November 2015 forecast.

Exhibit 6: Gross to Net Revenue Comparison—November 2015 vs November 2016 (FY 2017-56)

Forecast Category (#) = T&R table column reference	Nov 2015 Forecast (\$ millions)	Nov 2016 Forecast (\$ millions)	Variance (\$ millions)	Variance (%)
Total Toll Transactions (8)	1,424.0	1,426.2	2.2	+0.2%
Gross Toll Revenue Potential (11)	4,817.6	4,882.4	64.8	+1.3%
Subtotal: Revenue Adjustments	(91.3)	(78.9)	12.4	-13.6%
Subtotal: O&M Costs	(1,224.6)	(1,294.9)	(70.3)	+5.7%
Net Toll Revenue (26)	3,501.7	3,508.7	7.0	+0.2%
Subtotal: R&R Costs + Deferred Sales Tax	(558.8)	(578.3)	(19.5)	+3.5%
Total after Deferred Sales Tax and R&R	2,942.9	2,930.4	(12.5)	-0.4%

Traffic and Gross Revenues

- Total toll transactions for CDM Smith’s current November 2016 forecast over the FY 2017-56 forecast horizon are 2.3 percent higher than projected in September 2011 and 0.2 percent higher than the previous November 2015 forecast.
 - Over the forecast horizon, Pay By Mail transactions are 4.0 percent higher, while *Good To Go!* account transactions are 0.4 percent lower, than the previous forecast.
 - Over the near-term five years (FY 2017-21), the current toll transaction forecast is 1.3% below the previous forecast.
- Gross toll revenue potential for the current November 2016 forecast is 0.5 percent lower than the initial September 2011 forecast, compared with 1.3 percent higher than the previous November 2015 forecast over the forecast horizon.
- Compared to the initial September 2011 forecast, the November 2016 traffic and revenue forecast assumes fewer trucks (which pay higher multiples of the base two-axle toll) and higher weekend traffic as a share of annual traffic (paying lower weekend toll rates), with both factors contributing to lower forecast period gross toll revenue potential despite the current forecast’s higher levels of toll transactions.
- Additionally, the November 2016 forecast takes into account the Rest of the West improvements that were funded by the passage of Connecting Washington in 2015. Periodic lane and bridge closures associated with the construction work on the Rest of the West will slightly dampen traffic and revenue until project completion in FY 2026. This contributes to reduced traffic and gross toll revenue compared to the September 2011 forecast in the near term, with both traffic and gross toll revenue potential anticipated to exceed the September 2011 forecast levels by FY 2023.
- Additional information regarding the changes in the November 2016 traffic and gross toll revenue potential forecasts can be found in CDM Smith’s report, *SR 520 Bridge Investment Grade Traffic and Revenue Study Update*, dated February 17, 2017.

Revenue Adjustments

- Revenue adjustments in the November 2016 forecast total \$78.9 million, which is \$4.9 million or 6.6 percent more over the forecast horizon than the initial September 2011 forecast, and \$12.4 million or 13.6 percent less than the November 2015 forecast.

- The share of *Good To Go!* account holders using the Pay By Plate option in FY 2020 was estimated in the September 2011 forecast to be 8.5 percent of *Good To Go!* Transactions, providing approximately \$0.46 million in Pay By Plate fees. Updates since the September 2011 forecast include a significant increase in the number of *Good To Go!* account holders using the Pay By Plate option and corresponding revenue generated from the \$0.25 Pay By Plate fee. The Pay By Plate shares of total annual transactions were further revised upwards in the November 2016 forecast to better align with actual experience, with a projected 19.5 percent Pay By Plate share of total *Good To Go!* transactions in FY 2020 that would yield approximately \$1.25 million in Pay By Plate Fees
- The November 2016 forecast assumptions for uncollectible revenue (leakage) associated with revenue not recognized due to unreadable license plates and unidentified owners/addresses were revised upward primarily in the short term. This revision captures recent actual experience and assuming that significant improvement could be delayed until new customer service center (CSC) vendor contracts for both systems software and operations are procured and fully executed in FY 2020.
 - The percentage share of unreadable license plates was increased to 6 percent in FY 2017, 5.5 percent in FY 2018 and FY 2019, and 5 percent in FY 2020, up from 4.5 percent in all years previously. The assumption for FY 2021 and beyond remains at 4.5 percent.
 - The percentage share of unidentified owners/addresses increased for FY 2017 through FY 2019 to 10.5 percent of readable license plates, dropping to 7.5 percent in FY 2020, and then 4.5 percent thereafter (previous values ranged from 10 to 8 percent through FY 2020 and 4 percent thereafter). While mostly higher than in the previous forecast, the current assumptions remain below the 15 percent unidentified owners/addresses rate assumed in the September 2011 forecast.
- Miscellaneous pledged revenues, the current forecast for which is limited to interest earnings, are \$3.8 million or 10.7 percent higher than forecast in November 2015, the first such year, which included a miscellaneous revenue projection.

Operating and Maintenance Costs

- Compared to the September 2011 forecast, overall O&M costs in the November 2016 forecast are \$162.0 million lower (11.1 percent) over the forecast horizon. Key changes include:
 - Lower toll collection O&M costs, including lower transponder costs.
 - Lower facility O&M costs.
 - Lower credit card fees.
 - Lower bridge insurance premiums.
- Compared to the November 2015 forecast, overall O&M costs for the November 2016 forecast including insurance and credit card fees, are \$70.3 million (5.7 percent) higher over the forecast horizon, with the following changes noted:
 - Increased customer demand for transponder passes and greater preference for the more expensive Flex Pass transponder used for HOV carpool declaration on I-405 result in higher transponder purchase and inventory costs, which are the primary cause for the

increase in toll collection costs (note that higher transponder costs are offset by higher offsetting transponder sales revenue projections).

- Higher toll collection costs are also the result of higher CSC vendor costs through FY 2020 when new vendor contract(s) will be in place, as well as higher state staffing costs.
- Higher credit card fees, reflecting actual experience trending higher on the share of revenue collected with a bank card and higher actual transaction processing fees (up \$15.8 million over the forecast horizon).
- Lower facility O&M costs.
- Lower bridge insurance premiums.

Net Revenues

- As a result of changes in the traffic and gross toll revenue potential forecasts as well as revisions to the revenue adjustments and O&M costs, the November 2016 forecast for net toll revenues is \$3.51 billion over the forecast horizon.
 - This is 3.9 percent (\$131.7 million) higher than the original September 2011 forecast.
 - Compared to the November 2015 forecast, the current forecast is 0.2 percent (\$7.0 million) higher over the forecast horizon.

Other Project Uses of Toll Revenues

- The projected total deferred sales tax to be repaid with toll revenues was \$124.2 million in the September 2011 forecast, to be paid in 10 equal installments starting with FY 2022. This value was subsequently revised to reflect changes in the project scope due to addition of a new West Approach Bridge North for westbound traffic in 2012 and additional pontoon costs in 2013, bringing the total to \$159.4 million for the November 2013 and 2014 forecasts. The November 2015 forecast revised the 10-year payment schedule for deferred sales tax payments, deferring the first payment by one additional year to FY 2023. This change accounts for a revised completion schedule for the toll-funded West Approach Bridge North, with no change in the amount (deferred sales tax payments begin in the fifth full year following operational completion). There are no changes for the November 2016 forecast.
- Periodic facility repair and replacement (R&R) costs for the items specifically identified to be paid from toll revenues in the November 2016 forecast total \$302.8 million over the forecast horizon. This represents an increase of 40 percent (\$86.5 million) from the original September 2011 forecast, but a decrease of 2.8 percent (\$8.7 million) compared to the previous November 2015 forecast.
 - Changes in facility R&R estimates from the September 2011 forecast to subsequent forecasts are due to updates to required standard bridge inspections, higher projected costs for anchor cable replacement, and added costs for the aforementioned increase in project scope adding the West Approach Bridge North structure.
 - The November 2016 forecast reflects very minor downward revisions to facility R&R costs compared to the previous forecast.

- The November 2016 forecast for toll collection R&R costs totals \$116.1 million, which is significantly higher than both the original September 2011 and previous November 2015 forecasts.
 - A revised assumption that the State costs for periodically procuring, testing, and transitioning to new CSC systems software, CSC operations, and Roadway Toll Systems (RTS) vendor contracts would be paid from tolls (shared across all toll facilities) accounts for the \$99.0 million forecast period increase since the initial September 2011 forecast.
 - Upward revisions to the periodic procurement costs for CSC vendor contracts for both systems software and operations accounts for the vast majority of the 32.2 percent or \$28.2 million forecast period increase compared with the November 2015 forecast.

2 | Traffic and Revenue Overview

Toll Traffic and Gross Toll Revenue Potential

Annual toll traffic and gross toll revenue potential projections were prepared by CDM Smith based on the completion of the floating bridge and Eastside projects with six lanes (one HOV and two general purpose lanes in each direction) plus a phased schedule for completing the Rest of the West, which would complete six lanes from the floating bridge through the Montlake interchange and west to I-5 in FY 2026. These annual traffic and gross toll revenue potential forecasts extend out through FY 2056 and serve as inputs to the estimation of net toll revenues.

The following summarizes the key assumption changes for CDM Smith's November 2016 traffic and revenue forecasts that impact the net revenue projections. Additional detail can be found in their report, *SR 520 Bridge Investment Grade Traffic and Revenue Study Update*, dated February 17, 2017.

- A review of actual performance through FY 2016 led to reduction in the near-term rates of growth in weekday traffic and revenue, especially in FY 2017, and paired with a less than offsetting increase in the near-term weekend traffic and revenue growth rates.
- Refinements were made to the weekday and weekend time-of-day profiles, resulting in a shift of traffic from the peak periods to lower toll adjacent off-peak times, causing decreases in forecasted revenue.
- Upward revisions to the population and employment forecasts contribute toward higher forecast horizon traffic and revenue projections.
- Two additional SR 520 weekend closure days in FY 2017 were added to the otherwise unchanged construction closure assumptions from the November 2015 forecast, lowering revenue in FY 2017 only.
- Planned FY 2017 closures of the parallel I-90 bridge were also factored in, generating a slight increase in SR 520 traffic and revenue in that year.
- The *Good To Go!* account-based transaction share was revised slightly downward, thereby leading to an increase in the share of Pay By Mail transactions, and thus, overall revenue due to the higher Pay By Mail toll rates.
- There were no changes to the toll rate schedules or policies assumed in the November 2016 forecast.

As documented herein, both the volume of toll transactions and amount of gross toll revenue potential impact certain cost estimates, and thus, the net revenue projections. Exhibit 7 illustrates CDM Smith's projected toll transactions for the November 2016 forecast, compared to the previous November 2015 forecast. Exhibit 8 illustrates the corresponding gross toll revenue potential trends through FY 2056 for the same two forecasts.

The annual forecast detail for the November 2016 traffic and gross toll revenue potential by fiscal year can be found in columns 2-11 of the Exhibit 28 T&R table in Appendix A.

Exhibit 7: CDM Smith Toll Transaction Forecast Comparison (FY 2017-56)

millions of transactions

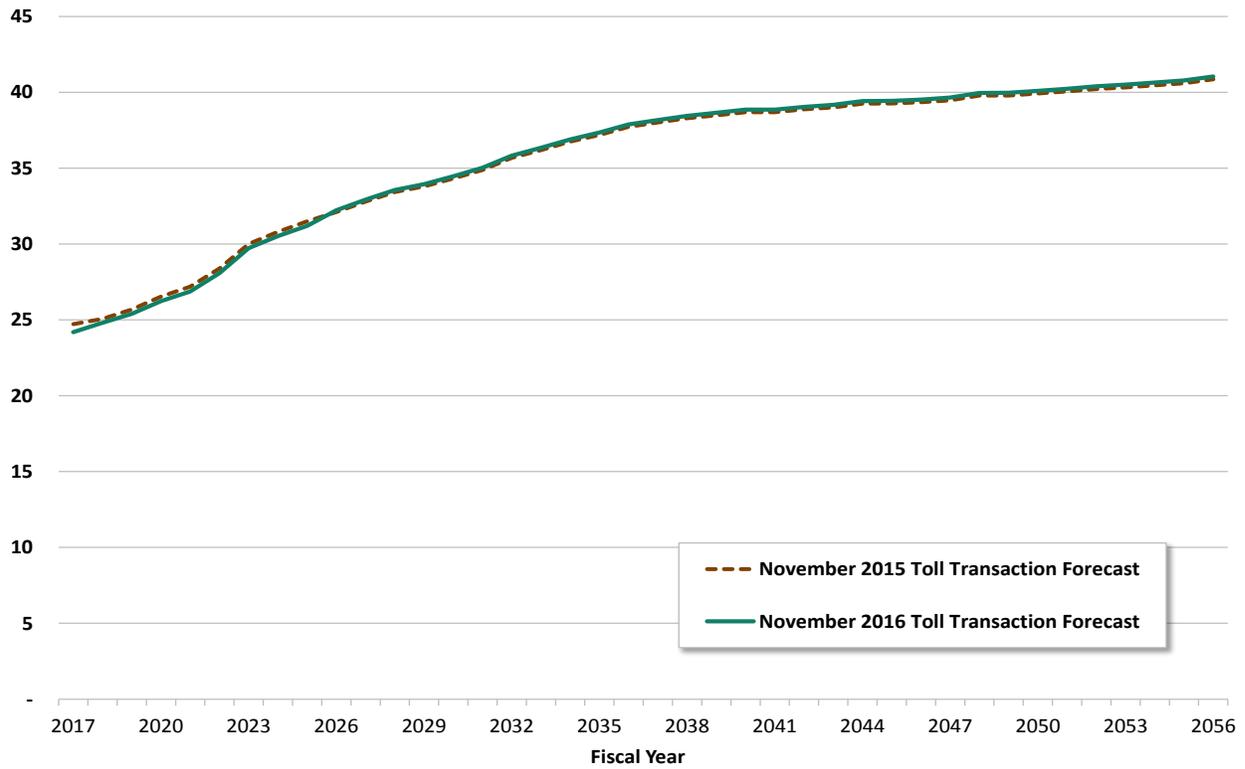
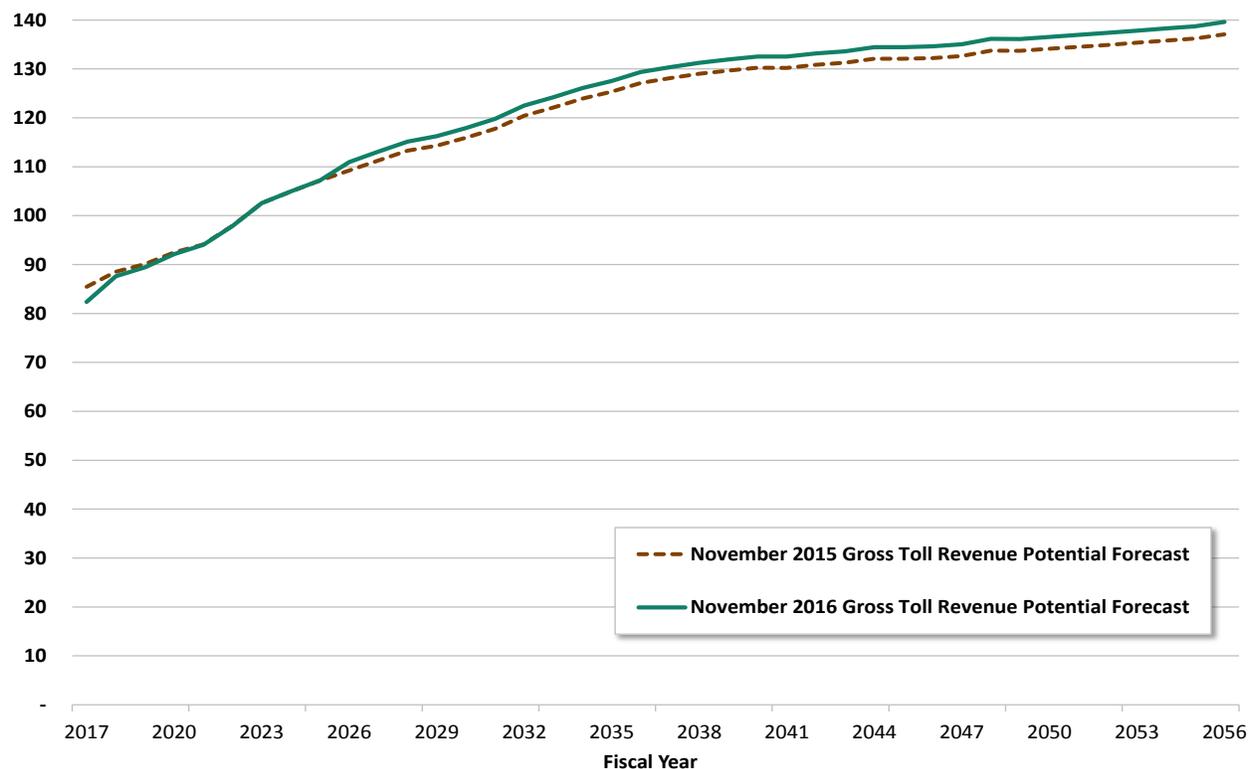


Exhibit 8: CDM Smith Gross Toll Revenue Potential Forecast Comparison (FY 2017-56)

\$ millions



Payment and Toll Transaction Types

The second key input received from CDM Smith is the output distribution of traffic (toll transactions) and revenue by toll payment method. This information is used to estimate the costs of collection that differ between user types, as described later in this report. CDM Smith prepares forecasts for two main categories of customers: prepaid *Good To Go!* account-holders and non-account customers. Within each of these categories are additional payment options, described in further detail below.

Good To Go! Account Transactions

When *Good To Go!* customers set up a prepaid account, they have two options for how to pay their toll: they can purchase a pass (transponder) for their vehicle(s), and/or they can enroll in “Pay By Plate” in which a picture of the vehicle’s license plate is captured and linked to their account for payment, with an additional \$0.25 processing fee.

A *Good To Go!* account requires a minimum opening balance of \$30. All accounts established on-line are automatically enrolled in auto-charge account replenishment. When an account reaches a minimum threshold, the account is replenished to a pre-selected amount of at least \$30, typically using automatic replenishment. Alternatively, a customer can contact the CSC and arrange for manual replenishment, though this is not common.

Pay By Mail / Non-Account Transactions

Customers who do not have a *Good To Go!* account will be billed for their toll using a photo tolling system and Pay By Mail billing process. Vehicles passing through the toll facility that are not linked to a *Good To Go!* account (via a transponder pass or license plate number) will trigger the Pay By Mail billing process. Using a photo of the license plate, the plate number will be read and matched with vehicle registration data to obtain an owner name and mailing address from the Washington State Department of Licensing (DOL) or from a contracted vendor in the case of other states. A bill will then be mailed to the registered owner for the applicable Pay By Mail toll rate (plus any additional fees that may incurred for late payment). Pay By Mail customers will have 80 days and two invoice cycles from the time of travel to pay their toll before the transaction is considered unpaid and becomes subject to a civil penalty. The Pay By Mail toll rate for two axle vehicles was initially \$1.50 higher than the applicable *Good To Go!* rate for each time of day. The Washington State Transportation Commission gradually increased this increment, and earlier this year, adopted a step up to \$2.00 for two axle vehicles, consistent with the previous forecast assumption. Like the base *Good To Go!* toll, the Pay By Mail increment is also a multiple of the number of axles for vehicles with three or more axles. The Pay By Mail toll increment is assumed to remain unchanged for the rest of the forecast period.

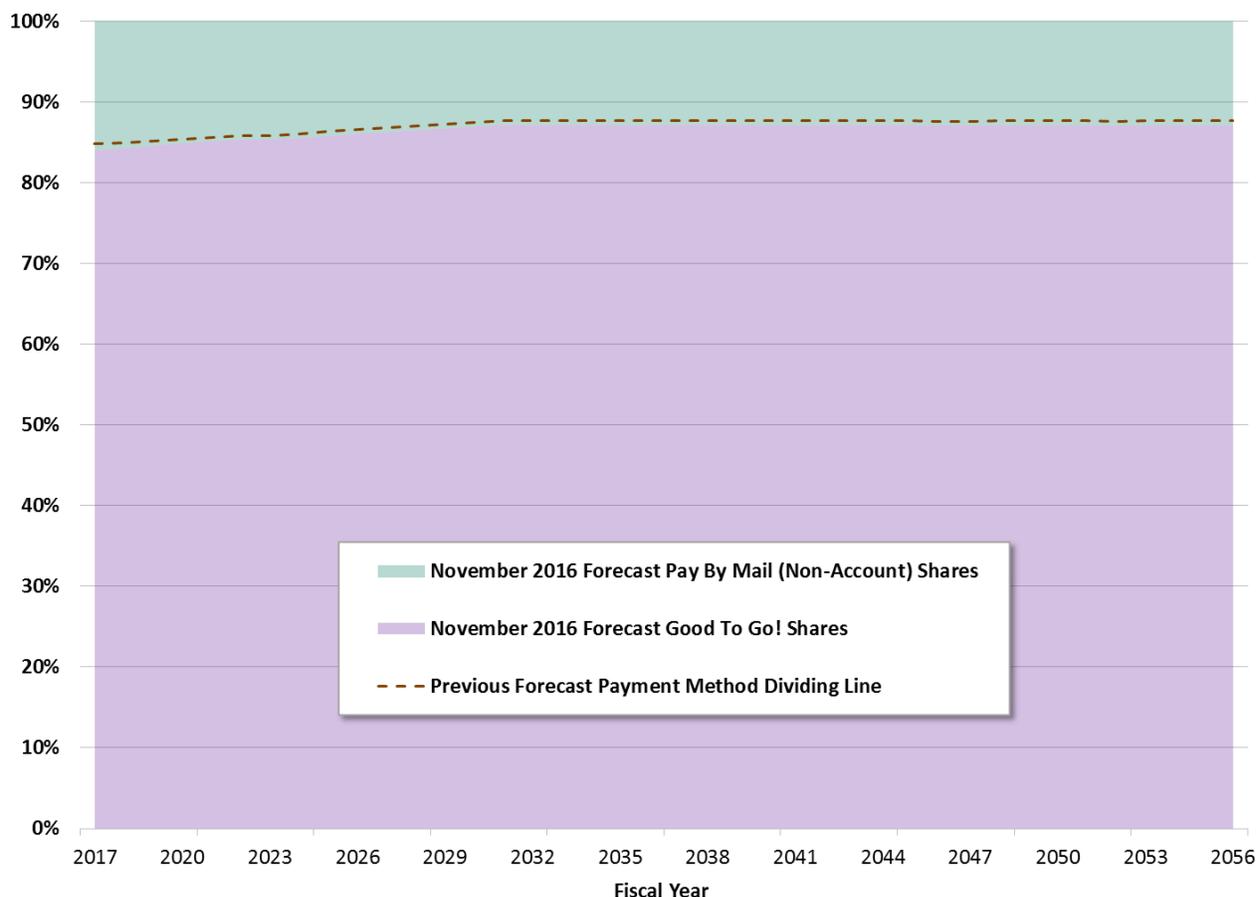
Although the incidence of use is very low, it is possible for customers without a *Good To Go!* account to self-initiate toll payment before or after travel via opening a Short-Term Account prior to receiving a bill in the mail. Customers that do this receive a \$0.50 discount off the Pay By Mail toll rate. This process effectively allows the user to establish a 14 day temporary account linked to a credit or debit card, which may be opened up to 10 days prior to, or up to three days after, the first travel day.

Virtually all of the toll trips by customers without a *Good To Go!* account are projected to be processed as Pay By Mail transactions in which the customer responds to a toll bill received in the mail, with less than one percent initiating payment via a Short-Term Account.

Projected Gross Toll Revenue and Transactions by Payment Type

Projections for the percentage shares of *Good To Go!* and non-account toll transactions provided by CDM Smith are shown in Exhibit 9. Over time, it is estimated that the share of *Good To Go!* account customers will increase to an assumed ceiling of approximately 87 percent — about 0.5% lower than in the previous forecast — while the share of non-account customers will decrease. Marketing efforts, the expansion of tolling to other WSDOT facilities, technology advancements, and customer incentives (the lower toll rate for account-based toll payments) are among the factors that will influence the market share distribution between account and non-account customers.

Exhibit 9: Projected Market Shares by Payment Method (FY 2017-56)



As part of the estimation of toll payment fees and discounts described later in this report, the CDM Smith projected market shares by payment method are further divided into sub-categories. *Good To Go!* transactions are subdivided into transponder pass transactions and Pay By Plate transactions, as shown in Exhibit 14 on page 28, with their percentage shares relative to total transactions. For *Good To Go!* accountholders, transponder pass usage is forecasted to comprise between 74 and 81 percent of all *Good To Go!* transactions.

Though not shown in Exhibit 9 or Exhibit 14 non-account transactions are further subdivided into normal Pay By Mail transactions and Short-Term Account transactions, with the latter comprising less than 0.2 percent of all non-account transactions, or less than 0.03 percent of total transactions.

Gross to Net Toll Revenue

Toll transactions and gross toll revenue potential forecast values by payment type are provided by CDM Smith as the initial inputs used in the net revenue forecasts.

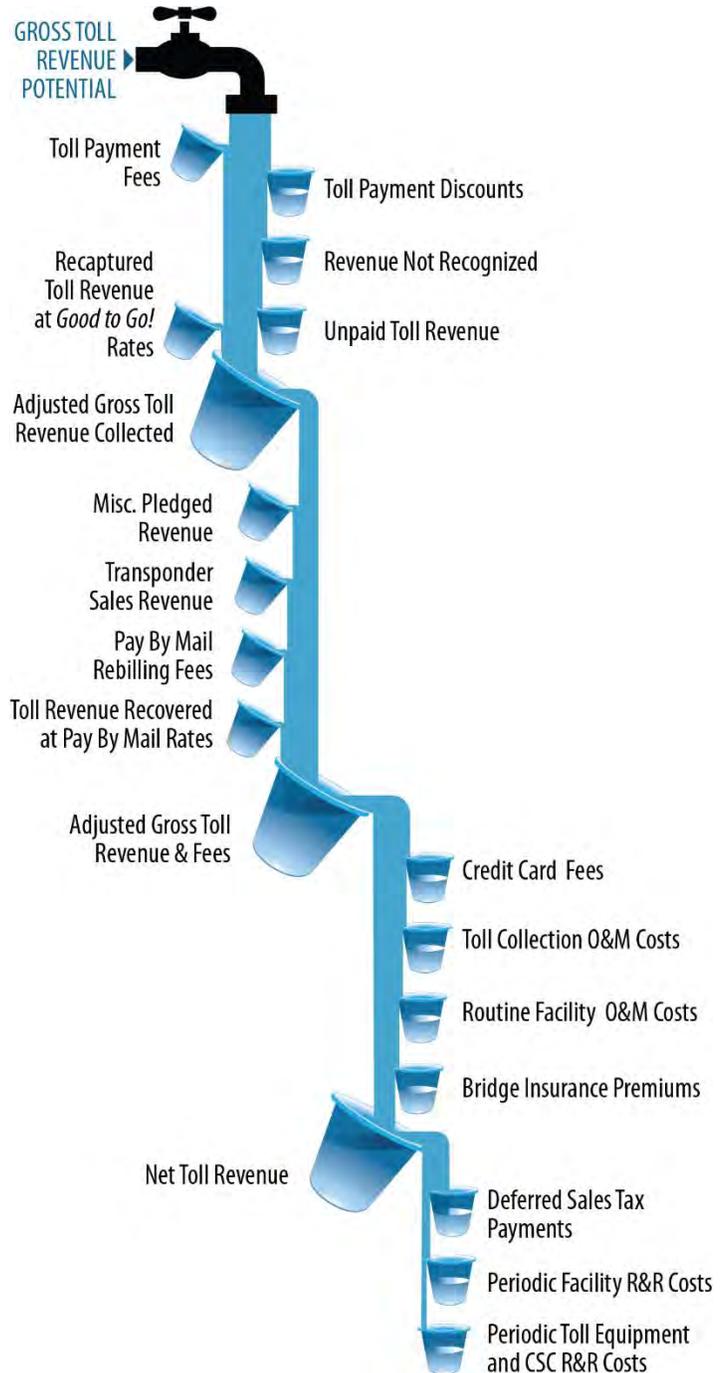
Exhibit 10 to the right illustrates the flow of funds or “waterfall” of revenue adjustments and expenditures that are projected to occur in transitioning from gross toll revenue potential to the net revenues available to support project financing.

The 2016 net toll revenue report is organized around this waterfall by presenting the revisions to assumptions and values for each “bucket.” Consistent with the toll traffic and gross revenue forecasts, the projections for the revenue adjustments and O&M expenditure items that yield net revenues were prepared for the FY 2017-56 forecast horizon.

A detailed T&R table provided as Exhibit 28 in Appendix A provides the annual toll transactions and the annual dollar projections for each of the waterfall elements listed in Exhibit 10, shown in numbered columns. As the sections of this report cover the net revenue components in the waterfall diagram, reference is made to annual values for each component in the Appendix A, Exhibit 28 T&R table by their column number.

Note that while the waterfall follows the structure of the T&R table, the subsequent uses of the net toll revenues in the bottom three buckets actually follow a separate flow of funds in the financial plan that account for annual contributions to debt service and various reserve accounts.

Exhibit 10: Net Revenue Waterfall



This page left intentionally blank

3 | Actual Net Revenue Performance in FY 2016

Exhibit 11 compares the actual performance in FY 2016, the fourth full fiscal year of operations, with the comparable forecast data from the previous November 2015 forecast.

Exhibit 11: Actual Revenue and November 2015 Forecast Comparison for FY 2016

Category	Forecast vs. Actual Comparison for Net Revenue Items			
	(\$ millions)			% Variance from Forecast
	Nov 2015 Forecast	Actual Values ¹	Variance from Forecast	
Gross Toll Revenue Potential	74.5	74.8	0.3	+0.4%
Toll Payment Discounts and Fees	1.2	1.2	0.0	+0.5%
Revenue Not Recognized	(3.1)	(3.7)	(0.6)	+18.5%
Unpaid Toll Revenue	(3.5)	(3.7)	(0.2)	+7.1%
Recaptured Toll Revenue at Good To Go! Rates	-	0.8	0.8	-
Subtotal: Adjusted Gross Toll Revenue Collected	69.1	69.4	0.3	+0.4%
Miscellaneous Pledged Revenues	0.6	0.7	0.1	+22.9%
Transponder Sales Revenue	0.8	0.8	0.0	+6.2%
Pay By Mail Rebilling Fees & Miscellaneous Fees ²	1.3	1.4	0.1	+5.4%
Recovered Toll Revenue	0.8	0.8	(0.0)	-0.0%
Credit Card Fees	(1.2)	(1.3)	(0.1)	+8.0%
Toll Collection O&M Costs ³	(11.9)	(9.9)	1.9	-16.3%
Routine Facility O&M Costs	(1.3)	(0.8)	0.5	-38.5%
Bridge Insurance Premiums	(2.3)	(2.3)	0.0	-
Net Toll Revenue	55.9	58.8	2.9	+5.1%

¹ Actual values calculated from CSC Data, the Unbilled Transaction Report, and Monthly Toll Business Report.

² Miscellaneous fees include NSF, account statement, and bank transaction fees, and are not forecasted.

³ Toll Collection O&M costs includes CSC and RTS vendor costs, State operations costs (printing/postage, accounting, marketing, vendor oversight, and transponders).

The following bullets summarize the key differences between actual FY 2016 performance and the November 2015 forecast.

- Toll transactions came in 1.4 percent and **gross toll revenue potential** came in 0.4 percent above CDM Smith’s November 2015 forecast for FY 2016. Note that an actual value for the forecast metric of gross toll revenue potential is not actually observed; rather it is estimated from adjusted gross toll revenue collected along with actual discounts, fees and unpaid tolls, plus estimates of revenue not recognized.
- **Adjusted gross toll revenue collected** was 0.4 percent above the November 2015 forecast for FY 2016.
 - Toll payment discounts and fees were higher due to higher than anticipated market share of *Good To Go!* Pay By Plate transactions which resulted in higher revenue attributable to the \$0.25 fee.

- The deduction for **revenue not recognized** was higher, in part due to higher overall reliance on license plate payment methods relative to the forecast and a slight reduction in transponder reader and camera accuracy resulting from a temporary toll collection system that was in place for FY 2016 during the transition from the old to the new floating bridge.
- The deduction for **unpaid toll revenue** after 80 days and two invoices was higher than forecasted; this is due in part to an increase in *Good To Go!* transactions that had insufficient account balances due to expired credit cards that were subsequently processed by mail and went unpaid.
- The combined total of recaptured and recovered toll revenue doubled that of the November 2015 forecast. Going forward, unpaid toll revenue after 80 days and two invoices that is subsequently collected from mailing a notice of civil penalty (NOCP) will be divided into two categories:
 - **Recaptured toll revenue at Good To Go! rates** accounts for toll revenue eventually collected from a NOCP transaction at the appropriate Good To Go! toll rate as a result of the Customer Program for Resolution (CPR), with no payment of the \$40 civil penalty. These revenues are associated with payment resolution whereby a new *Good To Go!* account is opened for the customer or a payment issue for an existing account is rectified. The revenue recovered through the CPR program is assumed to flow directly into the SR 520 Toll Account (16J) and is reported in the “Tolling Revenue” line within the SR 520 financial statements.
 - **Toll revenue recovered at pay by mail rates** accounts for toll revenue recovered from NOCPs at the Pay By Mail rates, with or without an adjudication hearing or payment of the accompanying civil penalty. These recovered revenues flow into the Civil Penalty Account (17P) and are assumed to be legislatively transferred to the SR 520 Toll Account (16J) in the subsequent biennium, where they are reported as an “Operating Transfer In” within the SR 520 financial statements.
- **Miscellaneous pledged revenue**, though small overall, came in 23 percent ahead of the November 2015 forecast, which was the first time that this revenue category was forecasted.
- In addition to higher overall toll revenue, **credit card fees** were higher as more customers opted to pay their tolls using a credit card, with rates closer to 92 percent compared to a forecast of 85 percent, and the effective fee rate for bank card transaction processing was slightly higher than forecasted.
- **Toll collection O&M costs** were lower than forecasted, primarily due to lower state staffing costs from unfilled open positions during FY 2016.
- **Routine facility O&M costs** were substantially lower than forecasted. Because the new bridge was scheduled to open in FY 2016, this was the first year in which tolls were assumed to pay for facility O&M costs. The forecast assumed one-half of the annual O&M estimate; however, the new bridge opened in April and actual O&M costs attributed to it were less than expected.
- **Net toll revenue** ended up 5.1 percent ahead of forecast due to the combination of higher other revenues and fees and lower than expected O&M costs.

Exhibit 12 compares the performance of the net revenue components in FY 2016 with the initial September 2011 forecast. While there have been many refinements to the inputs, assumptions, and underlying costs since the initial net revenue projections were prepared in September 2011 that have resulted in various puts and takes, the primary reason why actual net revenues for FY 2016 came in lower than the initial forecast is lower gross toll revenue potential. The September 2011 investment-grade traffic and gross toll revenue potential forecasts predicted a higher share of trucks and Pay By Mail users—both of which pay higher than average tolls—than was actually realized in FY 2016. However, much of the differential between the two gross toll revenue potential forecasts was offset by decreases in toll collection O&M costs.

Exhibit 12: Actual Revenue and September 2011 Forecast Comparison for FY 2016

Category	Forecast vs. Actual Comparison for Net Revenue Items			
	(\$ millions)			% Variance from Forecast
	Sep 2011 Forecast	Actual Values	Variance from Forecast	
Gross Toll Revenue Potential	81.9	74.8	(7.1)	-8.7%
Toll Payment Discounts and Fees	0.2	1.2	1.0	+415.6%
Revenue Not Recognized	(3.7)	(3.7)	(0.0)	+0.2%
Unpaid Toll Revenue	(1.5)	(3.7)	(2.2)	+146.5%
Recaptured Toll Revenue at Good To Go! Rates	-	0.8	0.8	-
Subtotal: Adjusted Gross Toll Revenue Collected	76.9	69.4	(7.6)	-9.9%
Miscellaneous Pledged Revenues	-	0.7	0.7	-
Transponder Sales Revenue	1.2	0.8	(0.3)	-28.7%
Pay By Mail Rebilling Fees & Miscellaneous Fees ²	1.1	1.4	0.3	+29.9%
Recovered Toll Revenue	0.3	0.8	0.5	+157.7%
Credit Card Fees	(1.8)	(1.3)	0.5	-26.8%
Toll Collection O&M Costs ³	(15.6)	(9.9)	5.7	-36.4%
Routine Facility O&M Costs	-	(0.8)	(0.8)	-
Bridge Insurance Premiums	(0.7)	(2.3)	(1.5)	+212.3%
Net Toll Revenue before R&R	61.4	58.8	(2.6)	-4.2%

¹ Actual values calculated from CSC Data, the Unbilled Transaction Report, and Monthly Toll Business Report.

² Miscellaneous fees include NSF, account statement, and bank transaction fees, and are not forecasted.

³ Toll Collection O&M costs includes CSC and RTS vendor costs, State operations costs (printing/postage, accounting, marketing, vendor oversight, and transponders).

This page left intentionally blank

4 | Summary of Changes in Projected Net Revenue

Exhibit 13 below compares the current November 2016 forecast with the previous November 2015 forecast. Starting with gross toll revenue potential, the table summarizes the revenue adjustments and expenditure deductions that yield net toll revenue. The dollar amounts in each column are totals over the current forecast horizon from FY 2017 through FY 2056. Each component in the table includes its column number reference (#) in the November 2016 T&R table located in Appendix A as Exhibit 28. Negative values in parentheses refer to costs or revenue deductions, both of which have the effect of lowering net revenues.

Exhibit 13: Net Revenue Component Comparison—November 2015 / November 2016 (FY 2017-56)

Forecast Category (#) = T&R table column reference	Nov 2015 Forecast (\$ millions)	Nov 2016 Forecast (\$ millions)	Variance (\$ millions)	Variance (%)
Gross Toll Revenue Potential (11)	4,817.6	4,882.4	64.8	+1.3%
Toll Payment Discounts and Fees (12)	58.0	61.0	3.0	+5.1%
Revenue Not Recognized (13)	(120.2)	(136.5)	(16.3)	+13.6%
Unpaid Toll Revenue (14)	(220.7)	(241.1)	(20.3)	+9.2%
Recaptured Tolls at <i>Good To Go!</i> Rates (15)	-	32.8	32.8	-
Miscellaneous Pledged Revenues (17)	35.7	39.5	3.8	+10.7%
Transponder Sales Revenue (18)	22.2	61.3	39.0	+175.5%
Pay By Mail Rebilling Fees (19)	75.0	67.2	(7.8)	-10.4%
Tolls Recovered at Pay By Mail Rates (20)	58.7	37.0	(21.7)	-36.9%
Subtotal: Revenue Adjustments	(91.3)	(78.9)	12.4	-13.6%
Credit Card Fees (22)	(79.6)	(95.4)	(15.8)	+19.8%
Toll Collection O&M (23)	(841.7)	(915.1)	(73.4)	+8.7%
<i>Transponder Purchase and Inventory Costs (23a)</i>	<i>(22.2)</i>	<i>(61.3)</i>	<i>(39.0)</i>	<i>+175.5%</i>
<i>State Operations Costs (23b)</i>	<i>(369.3)</i>	<i>(388.9)</i>	<i>(19.6)</i>	<i>+5.3%</i>
<i>Customer Service Center (CSC) Vendor Costs (23c)</i>	<i>(407.4)</i>	<i>(422.2)</i>	<i>(14.8)</i>	<i>+3.6%</i>
<i>Roadway Toll Systems (RTS) Costs (23d)</i>	<i>(42.7)</i>	<i>(42.7)</i>	<i>0.0</i>	<i>-0.1%</i>
Routine Facility O&M Costs (24)	(167.8)	(159.2)	8.6	-5.1%
Bridge Insurance Premiums (25)	(135.5)	(125.3)	10.2	-7.6%
Subtotal: O&M Costs	(1,224.6)	(1,294.9)	(70.3)	+5.7%
Net Toll Revenue (26)	3,501.7	3,508.7	7.0	+0.2%
Deferred Sales Tax (27)	(159.4)	(159.4)	-	-
Periodic Facility R&R (28)	(311.6)	(302.8)	8.7	-2.8%
Periodic Toll Equipment and CSC R&R (29)	(87.8)	(116.1)	(28.2)	+32.2%
Total after Deferred Sales Tax and R&R	2,942.9	2,930.4	(12.5)	-0.4%

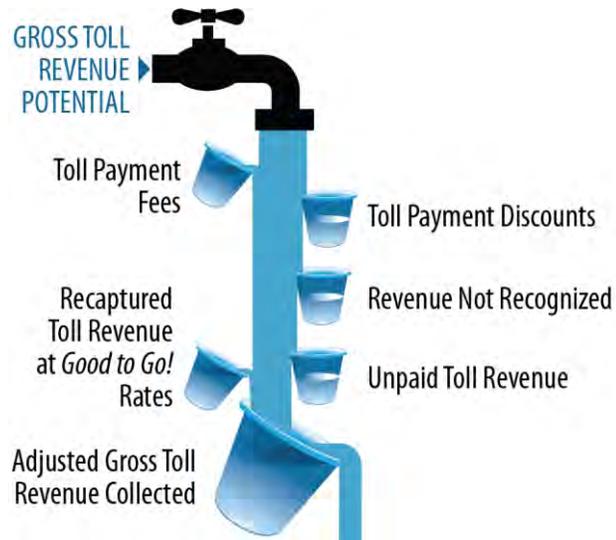
The forecast-to-forecast changes in the components of net revenue in the above table are described in the following three sections.

This page left intentionally blank

5 | Changes to Revenue Adjustments

Revenue adjustments for toll payment discounts and fees, revenue not recognized, unpaid toll revenue, and (new in the November 2016 forecast) recaptured toll revenue at *Good To Go!* toll rates can be found in columns 12-15 of the T&R table in Appendix A.

These items have been updated to reflect actual data from FY 2012-16, with changes made to key forecast assumptions noted in the following descriptions.



Toll Payment Fees and Discounts (Column 12)

Pay By Plate Fee

WSDOT applies a \$0.25 fee per transaction for *Good To Go!* customers who choose to pay via a pre-registered license plate (Pay By Plate) rather than with a transponder pass. This fee is not assumed to escalate with inflation.

The November 2016 forecast for Pay By Plate fees was revised \$2.96 million higher than the November 2015 forecast, due to continued higher utilization of Pay By Plate among account-holders, as shown in Exhibit 14 on the following page.

- Recent data shows that among *Good To Go!* account transactions, there continues to be a higher rate of growth in those using the Pay By Plate payment method than those using a transponder pass, with Pay By Plate use comprising one quarter of all *Good To Go!* transactions, or 21 percent of total transactions in FY 2016. There appear to be several contributing factors to this trend.
 - The Customer Program for Resolution (CPR), discussed in more detail on page 32, allows for non-account customers to resolve a notice of civil penalty without payment of the penalty if they open a *Good To Go!* account. Since this is typically handled over the phone, transponder passes are not always sold with these new accounts
 - With tolls on SR 520 having been in operation for five years now, there is some anecdotal evidence of customers attempting to transfer sticker tag passes to new vehicles (or new windshields). This often renders the pass non-functional, inadvertently changing the method of payment to Pay By Plate
- Exhibit 14 shows that the share of customers using Pay By Plate is expected to taper off over the forecast period from a peak of 22 percent in FY 2017 to a steady 17 percent by FY 2025 as more existing and new account customers acquire transponders.

- The new 17 percent ceiling in the Pay By Plate share from FY 2025 forward is two percentage points higher than the 15 percent share assumed in the previous forecast. Nonetheless, continued demand for switchable Flex Pass transponders required to receive a carpool exemption on the I-405 Express Toll Lanes, combined with a lead up marketing campaign prior to the opening of the SR 99 tunnel in late FY 2019, are expected to increase pass use and decrease Pay By Plate payment rates among *Good To Go!* accountholders.

Exhibit 14: Annual Shares of Total Transactions by Payment method (Selected Fiscal Years)

Fiscal Year	Good To Go! Account Transactions						Non-Account / Pay By Mail Transactions**	
	Transponder (Pass)		Pay By Plate		Total		Nov 2015 Forecast	Nov 2016 Forecast
	Nov 2015 Forecast	Nov 2016 Forecast	Nov 2015 Forecast	Nov 2016 Forecast	Nov 2015 Forecast	Nov 2016 Forecast		
2012	71.6%*		11.2%*		82.7%*		17.3%*	
2013	69.7%*		14.0%*		83.7%*		16.3%*	
2014	67.8%*		16.7%*		84.5%*		15.5%*	
2015	64.9%*		19.1%*		84.0%*		16.0%*	
2016	64.6%	62.9%*	20.0%	21.1%*	84.6%	84.0%*	15.4%	16.0%*
2017	67.6%	62.0%	17.0%	22.0%	84.6%	84.0%	15.4%	16.0%
2018	68.3%	63.3%	16.5%	21.0%	84.8%	84.3%	15.2%	15.7%
2019	70.1%	64.6%	15.0%	20.0%	85.1%	84.6%	14.9%	15.4%
2020	70.3%	65.4%	15.0%	19.5%	85.3%	84.9%	14.7%	15.1%
2025	71.2%	68.8%	15.0%	17.0%	86.2%	85.8%	13.8%	14.2%
2030	72.3%	69.9%	15.0%	17.0%	87.3%	86.9%	12.7%	13.1%
2035	72.6%	70.1%	15.0%	17.0%	87.6%	87.1%	12.4%	12.9%
2040	72.6%	70.1%	15.0%	17.0%	87.6%	87.1%	12.4%	12.9%
2045	72.6%	70.1%	15.0%	17.0%	87.6%	87.1%	12.4%	12.9%
2050	72.6%	70.1%	15.0%	17.0%	87.6%	87.1%	12.4%	12.9%
2055	72.6%	70.1%	15.0%	17.0%	87.6%	87.1%	12.4%	12.9%

* Actual values for the *Good To Go!* / Non-Account Transaction split are calculated from CSC data analysis for calendar years 2012-15 and Toll Business Report data for the first half of calendar year 2016. Actual values for the *Good To Go!* Transponder and Pay By Plate percentages are calculated using 16J-TRAINS Pay By Plate fee revenue divided by the \$0.25 fee to yield the number of transactions, adjusted for license plate leakage.

** Includes short term account transactions where customers initiate payment before receiving a bill; represents 0.03% of total transactions.

Pay By Plate fee revenue estimates are provided in column 12 of the Exhibit 28 T&R table provided in Appendix A, combined with the toll payment discounts described below. Virtually all of the \$3.0 million forecast period increase in the combined toll payment fees and discounts shown in Exhibit 13 is attributed to the forecast period increase in toll traffic combined with the higher assumption for Pay By Plate use; the change in the level of short-term account discounts is negligible, as further explained in the next section.

Short-Term Account Discounts

WSDOT currently offers a \$0.50 discount per transaction from the higher Pay By Mail toll rate to non-account customers who set up a Short-Term Account (STA) by self-initiating 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 the delay in receiving revenue. The short-term account discount is not assumed to escalate with inflation.

While WSDOT anticipates that the Commission may eventually propose the removal of the \$0.50 discount but leave this self-initiated payment option in place, the current toll rate schedules for FY 2017 and FY2018 adopted earlier this year do not include this potential revision. As such, the November 2016 forecast retains this \$0.50 discount over the forecast period. The forecast assumes that 0.2 percent of

non-account customers are taking advantage of the STA discount, or less than 0.03 percent of total forecasted transactions.

- The November 2016 forecast of the total value of STA discounts provided to customers has been revised upward by 5.9 percent, from \$0.17 to \$0.18 million over the FY 2017-56 forecast horizon.
 - The small increase in the revenue adjustment by offering this discount is attributed to the higher November 2016 forecast for Pay By Mail transactions (up 4.0 percent) and Pay By Mail revenue (up 5.1 percent).
 - The most recent 12 months shows that the use of STA is less than 0.18 percent of non-account transactions and less than 0.02 percent of total transactions.

Annual forecast values for these discounts are part of column 12 of Exhibit 28 in Appendix A.

Other Fees and Discounts

In addition to the fees described above, WSDOT is authorized to charge miscellaneous 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. These revenues are not included in future year forecasts.

Uncollectible Revenue (Columns 13 & 14)

Uncollectible revenue, or “gross” revenue leakage before any overdue toll bill recovery, is divided into two T&R table categories: Revenue Not Recognized (unbillable) and Unpaid Toll Revenue. Revenue not recognized occurs when a license plate is unreadable, or when the vehicle owner and address from a readable license plate cannot be identified. Unpaid Toll Revenue results from the non-payment of toll bills after two invoices within 80 days of travel. Note that uncollectible revenue effectively gets reduced to a “net” revenue leakage measure in the overall net revenue projections after accounting for the portion of unpaid toll revenue recaptured at *Good To Go!* toll rates or recovered at Pay By Mail rates after a notice of civil penalty is mailed to customers with toll bills more than 80 days past due (see columns 15 and 19 of Exhibit 28).

Forecasts for uncollectible revenue are based on an activity workflow model which is refined annually based upon the accumulation of new data. The activity workflow model estimates the probability that a toll transaction will become uncollectible under a variety of scenarios and points in the toll transaction workflow process. Exhibit 29 in Appendix B illustrates the toll transaction workflow and the points in the process where leakage occurs. Other refinements made since the November 2015 forecast resulted in higher rates of unidentified vehicle owners and addresses from readable plates and adjustments to the payment rates of first and second invoices.

Revenue Not Recognized (Column 13)

Unreadable License Plates

Actual data for FY 2016 showed a slightly lower rate of readable license plate images than previously observed or assumed in the prior forecast, resulting in a higher rate of image rejections than would be expected based on experience from other toll facilities throughout the country. Some of this reduction is attributed to the temporary toll collection system cameras which were in place during FY 2016 for the changeover to the new floating bridge, and remain in place through the first half of FY 2017 while the permanent system undergoes final testing and validation. Another contributing factor is likely due to interfacing issues between the lane system vendor and the CSC back-office systems, and their integration with CSC operating procedures for reviewing license plate images.

- The assumed share of total image-based (non-account plus *Good To Go!* Pay By Plate) transactions with readable license plates after manual review has been revised downward from 95.5 percent in the November 2015 forecast to 94 percent in FY 2017, 94.5 percent in FY 2018 and FY 2019, and 95 percent in FY 2020.
- Thereafter, the forecast reverts to the previous assumption of 95.5 percent readable plates, with the remaining 4.5 percent unreadable. Aside from having the permanent toll collection system cameras and pass readers in place, the improvement is tied to the timing of new CSC systems software and operations vendor contracts which will be fully executed in FY 2020. The new contracts will include more specific requirements and performance indicators to better align with industry best practices and improve image review productivity and accuracy.

Although plate readability may be further improved with new toll equipment at its permanent location for the new bridge due to updated camera and enhanced optical character recognition software starting in mid-FY 2017, the forecasts do not rely on any further improvement in readability.

- In addition to the short-term increase in the rate of unreadable plates, the dollar value for unreadable plate leakage is higher in the November 2016 forecast due to that forecast's higher volume of license plate image-based transactions from both increases in Pay By Mail transactions and increases in Pay By Plate transactions among *Good To Go!* customers.
 - *Good To Go!* Pay By Plate transactions are projected to be about 14 percent higher over the forecast horizon, compared to the November 2015 forecast, as a result of the change in payment method shares shown in Exhibit 14 plus higher traffic projections.
 - Non-account Pay By Mail transactions are projected to be 4.0 percent higher over the forecast horizon, and associated revenue 5.1 percent higher, compared to the November 2015 forecast.

Unidentified Owner/Address

After a license plate number is read, the system checks to see if the customer has a *Good To Go!* account, and if so, the account is debited for the toll plus an additional \$0.25 administrative fee as a Pay By Plate transaction. If the plate number is not associated with a *Good To Go!* account, then further processing is initiated to obtain a valid owner name and address for the vehicle from the Department of Licensing (DOL) for in-state plates. For out-of-state plates, a contracted vendor provides license plate lookup services to provide the vehicle's owner name and address.

Pay By Mail transactions for which the owner cannot be identified from the license plate are deemed as revenue not recognized, and include Canadian and all other out of country license plates (British Columbia, from where nearly all Canadian plates on SR 520 originate, stopped providing vehicle owner information as part of their response to the U.S. Patriot Act in 2001).

The previous 2015 forecast assumed that the share of readable plates with unidentified owners/addresses would be 10 percent in FY 2016, 9 percent in FY 2017, and 8 percent in FY 2018-20, before reverting back to an industry norm of 4 percent in FY 2021 with the execution of new CSC systems software and operations vendor contracts. However, performance in FY 2016 actually worsened slightly, with the first quarter of FY 2017 holding steady at 10.5 percent unidentified owners.

This higher than expected rate of unidentified owners/addresses from readable license plates is believed to be the result of challenges in the CSC back office, where the tools to properly process license plates may be lacking. This has led to transactions being left in an “in-process” holding pattern until they are ultimately dismissed with the passage of time. While efforts to improve both the rates of license plate image readability and successful processing for owner identification continue, the revised November 2016 forecast does not assume that any improvement will occur until new CSC systems software and operations vendor contracts are fully executed in FY 2020.

- An unidentified owner rate of 10.5 percent of image-based transactions with readable license plates will be maintained until FY 2020 when the new CSC vendor contracts will be in place. The unidentified owner rate is assumed to decrease to 7.5 percent for FY 2020, and then stabilizing at 4.5 percent in FY 2021 and beyond. This steady-state rate is 0.5 percentage points higher than the 4.0 percent assumed in the prior forecast to provide a contingency above industry norms to account for potential local issues related to the inability to identify owners from temporary licenses as well as from Canadian plates.
- In addition to the short-term increase in the rate of unidentified owners, the dollar value for unidentified owner leakage is higher in the November 2016 forecast due to that forecast’s higher volume of license plate image-based transactions from both increases in Pay By Mail transactions and increases in Pay By Plate transactions among *Good To Go!* customers.
 - As noted previously, *Good To Go!* Pay By Plate transactions are projected to be about 14 percent higher over the forecast horizon, compared to the prior forecast, due to the change in payment method shares shown in Exhibit 14 plus higher traffic projections.
 - Similarly, forecast period Pay By Mail transactions are projected to be 4.0 percent higher and revenue 5.1 percent higher, compared to the November 2015 forecast.

Total Revenue Not Recognized

Incorporating the November 2016 forecast values for traffic and revenue, plus the higher short term rates for unreadable license plates and unidentified owners, plus the slightly higher long-term increase in unidentified owners, results in a forecast period increase in revenue not recognized of \$16.3 million or 13.6 percent, relative to the previous forecast.

The combined revenues not recognized from unreadable plates and from readable plates with unidentified owners are shown in column 13 of Exhibit 28 in Appendix A.

Unpaid Toll Revenue (Column 14)

Unpaid Toll Revenue is a measure of the Pay By Mail revenues from toll transactions with readable license plates, identified owners, and thus toll bills mailed that are not collected within two billing cycles or 80 days. This measure excludes the benefits of any recovery efforts after 80 days, which are covered in subsequent sections. The November 2016 forecast for Unpaid Toll Revenue was revised upward by \$20.3 million or 9.2 percent over the 40 year forecast horizon in comparison to the November 2015 forecast. Several factors contribute to this increase.

- The November 2016 forecast for gross revenue potential generated from Pay By Mail customers increased by 5.1 percent over the forecast horizon.
- The November 2016 forecast also significantly increases the share of *Good To Go!* transactions associated with accounts that have insufficient funds, generally due to an expired credit card, that ultimately get processed by mail with the potential to go unpaid.
- In addition, the overall rate of toll bill payment within 80 days and two invoices was decreased slightly from 76 percent in the prior forecast to 75 percent currently.
- A portion of this 9.2 percent increase in unpaid toll bills within 80 days of travel gets offset by a higher assumed rate of recapture and recovery after 80 days, as noted in later sections.

Unpaid toll revenue is shown in column 14 of Exhibit 28 in Appendix A. The Toll Payment Activity Workflow and percentages are shown in Exhibit 29 in Appendix B.

Overall Changes in Uncollectible Revenue (Columns 13 & 14)

Total leakage attributed to revenue not recognized and unpaid toll revenue is 10.7 percent (\$36.6 million) higher over the forecast horizon in the November 2016 forecast than projected in the November 2015 forecast. About 55 percent of the increase is attributed to unpaid toll revenue and 45 percent is due to revenue not recognized.

For the 40-year period of the November 2016 forecast, the overall rate of gross leakage is projected to be 7.7 percent, with net leakage after recaptured and recovered tolls, projected at 6.3 percent.

Recaptured Toll Revenue at *Good To Go!* Rates (Column 15)

This revenue adjustment represents a change for the November 2016 forecast, whereby the category formerly referred to as “Recovered Toll Revenue” has been subdivided into two new categories as a result of different accounting treatment in the SR 520 financial statements:

- “Recaptured Toll Revenue at *Good To Go!* Rates” (column 15); and
- “Toll Revenue Recovered at Pay By Mail Rates” (column 20), discussed in a later section.

In both cases, most customers who fail to pay their tolls during the regular two invoice / 80-day billing cycle will receive a notice of civil penalty (NOCP) equal to \$40 for each overdue toll owed. Specifically, 87 percent of invoiced transactions unpaid after 80 days are assumed to be certified for a notice of civil penalty by a WSDOT toll enforcement officer, with the remaining 13 percent dismissed, same as in the prior forecast.

Customers receiving a NOCP will have the opportunity to remit payment for tolls and fees, or request a hearing to avoid having their motor vehicle registration withheld from renewal and/or have the amount due sent to collections. For the November 2016 forecast, the portion of NOCP transactions from which the toll is assumed to be recovered through the CPR or normal civil penalty adjudication process and subsequent collection efforts has been increased to 40 percent, up from approximately 30 percent in the November 2015 forecast, in part due to the introduction of the CPR program. This activity is not captured within the net revenue forecast process.

A new policy implemented at the beginning of FY 2016 allows for more leniency in the handling of customer who are repeatedly failing to pay their toll bills. Referred to as the Customer Program for Resolution (CPR), this policy allows customers to open a new *Good To Go!* account by phone (or in person at the CSC) and resolve their unpaid tolls at the appropriate *Good To Go!* rate without payment of one or more civil penalties. Similarly, customers with existing *Good To Go!* accounts with an insufficient account balance for reason of an expired or changed credit card who end up receiving a NOCP are offered the opportunity to rectify their account and make payment, again without civil penalty.

- The toll revenue recovered through the CPR is assumed to stay in the SR 520 Toll Account (16J) and is reported as “Tolling Revenue” within the SR 520 financial statements.
- Recaptured toll revenue at *Good To Go!* rates is estimated to be 57% of transactions for which the customers received an NOCP in the mail and took some kind of action.
- Toll revenues recaptured at *Good To Go!* rates from the civil penalty process are assumed to be collected partially in the fiscal year of travel and partially in the following fiscal year to account for an average six month lag from the date of travel for toll bill processing, first and second invoice notification, NOCP notification, and subsequent resolution of payment.

Annual revenue projections for recaptured toll revenues are provided in column 15 of Exhibit 28 in Appendix A. The transaction workflow diagram shown in Exhibit 29 in Appendix B also illustrates the process by which toll bills go unpaid after two invoices and 80 days.

Miscellaneous Pledged Revenues (Column 17)

Column 17 of the November 2016 forecast T&R table in Appendix A provides actual “miscellaneous pledged revenues” received in FYs 2012-16, and starting with the prior November 2015 forecast, projections for them as well. Miscellaneous pledged revenues include interest earnings on subaccount balances within the SR 520 Corridor Account (16J); SR 520’s share of interest earned on the Toll Facilities Account (495) where prepaid *Good To Go!* customer funds are held, contract liquidated damages, sales of surplus property, and cash over and short. Forecasted amounts for the November 2016 update are limited to interest earnings only beyond FY 2017, which includes a known amount for liquidated damages. Actual receipts are considered revenues pledged towards debt service in Master Resolution number 1117 governing SR 520 toll revenues.



Miscellaneous Pledged Revenues are 3.83 million (10.7 percent) higher over the forecast horizon in the November 2016 forecast than projected in the November 2015 forecast. The increase is due to higher forecast period interest earnings on fund balances in the SR 520 toll account (16J), which reflect the final financing assumptions, as well as due to higher interest earnings on the *Good To Go!* prepaid account (495) balance allocated to SR 520 based on its share of system-wide revenue projections. The now higher FY 2016 value for account 495 is flat-lined over the forecast period with no growth assumed.

For the SR 520 toll account (16J), interest earning projections use a simple interest calculation with an assumed annual earnings rate of 0.5% as applied to average annual account balances excluding miscellaneous revenues from the 2016 financial plan developed from the November 2015 forecast and updated with the results of the final bond sale in September 2016 as well as the current revenue and expenditure projections. The annual projections for interest earnings are capped at the level earned in the last year that deferred sales tax is due, FY 2032. This is done to avoid overstating interest in the latter years of the forecast horizon, recognizing that as unrestricted balances begin to accumulate, a portion of them may be programmed elsewhere by the legislature.

Liquidated damages attributed to the negotiated settlement with the current CSC vendor amount to \$255,000 per year for SR 520's share of systemwide annual payments of \$400,000 and are set to conclude at the end of FY 2017.

Transponder Sales Revenue (Column 18)

WSDOT purchases, retains, and sells *Good To Go!* transponders directly to customers and through third-party retailers and walk-in centers. **Future transponder sales revenues are assumed to equal total transponder costs in every year, making their forecasted impact net revenue neutral.**

- The November 2016 forecast, like the previous November 2015 forecast, places transponder sales revenue in column 18, upstream of the “Adjusted Gross Toll Revenue & Fees” subtotal in column 21, whereas the equally offsetting transponder purchase and inventory costs are embedded in column 23, “Toll Collection O&M Costs.”
- SR 520 is allocated a share of the system-wide transponder sales revenue (and costs) on a proportional transaction basis, which are forecasted through FY 2030.
 - In the November 2016 forecast, WSDOT's projections for system-wide transponder sales reflect a combination of higher overall system-wide sales volume and an increased share of higher priced Flex Pass transponders within total transponder sales.
 - The 2015 forecast assumed that the SR 99 program would cover the incremental costs of additional transponder sales in the ramp-up to the facility opening in FY 2019 and the other toll facilities would be “held harmless” similar to the approach taken to the I-405 ETLs from Lynnwood to Bellevue. This assumption was revised in the 2016 forecast to reflect that the “held harmless” provision has not been confirmed and therefore not included, resulting in a higher share of system-wide transponder sales for all existing facilities in FY 2018.
 - The November 2016 forecast allocates system-wide transponder revenues across five toll facilities with the addition of the I-405 Express Toll Lanes between Bellevue and Lynnwood in the second quarter of FY 2016 and an assumed opening date for the SR 99 Tunnel in late FY 2019.

- The overall November 2016 forecast for transponder sales is \$39 million or 175.5 percent higher over the forecast horizon compared with the November 2015 forecast, as shown in Exhibit 13.
- Annual projections of transponder sales revenue are provided in column 18 of in Appendix A.

Pay By Mail Rebilling Fees (Column 19)

Pay By Mail customers who do not pay their first invoice are subject to a rebilling fee of \$5.00 with the second invoice. The fee is applied on a per invoice basis when an invoice includes any toll transactions being billed for a second time, and the fee amount does not escalate with inflation. Rebilling fee revenues are primarily driven by the forecasted volume of Pay By Mail transactions and assumed number of transactions per invoice, with secondary effects coming from potential changes in the rate of payment of first and second toll invoices.

The projections for Pay By Mail rebilling fees include the \$5.00 fee per unpaid first invoice that is successfully collected on the second invoice before 80 days have elapsed plus a portion of the overdue rebilling fees on the unpaid second invoices that are later assumed to be recovered from the civil penalty adjudication process with an assumed six month average lag.

- Compared to the November 2015 values, the November 2016 forecast for Pay By Mail transactions has been revised upward by 4.0 percent over the forecast horizon, increasing the total number of potential unpaid first invoices for Pay By Mail.
- The November 2016 forecast assumption of 2.8 transactions per mailed invoice remained unchanged from the November 2015 forecast based on similar findings in actual data through the end of FY 2016.
- The November 2016 forecast assumptions regarding first and second toll bill payment rates were updated from the November 2015 forecast based on actual data through FY 2016 and increased leakage assumptions with changes as follows:
 - 40 percent of first toll invoices are assumed to go unpaid, and are thus subject to a rebilling fee on the second invoice, an assumption continued from the prior forecast.
 - 37 percent of the above unpaid first invoices are assumed to be paid on the second invoice inside of 80 days from the date of travel, thus contributing to rebilling fee revenue, a reduction from 40 percent in the prior forecast.
 - The 2016 forecast now assumes that 63% of the second Pay By Mail invoices will go unpaid compared to 60% in the 2015 forecast, reducing associated revenue from the \$5 late payment fee.
 - The overall rate of payment for both invoices is assumed to decrease from 76 to 75 percent in the current forecast.
- Of the invoices that go unpaid after 80 days, 87 percent are assumed to be certified for a notice of civil penalty by a WSDOT toll enforcement officer, with the remaining 13 percent dismissed, primarily due to incorrect customer or vehicle identification.

- For the November 2016 forecast, the portion of NOCP transactions from which the toll is assumed to be recovered through the CPR or normal civil penalty adjudication process and subsequent collection efforts has been increased to 40 percent, up from approximately 30 percent in the November 2015 forecast, in part due to the success of the CPR program.
- For the 43 percent of such transactions for which tolls are recovered at the Pay By Mail rate, the \$5 rebilling fee is also assumed to be recovered. For the remaining 57 percent of transactions for which the toll revenue is recaptured at the *Good To Go!* rate via the CPR program, no rebilling fees are assumed to be collected.

Annual projections of late payment fees are provided in column 18 of Exhibit 28 in Appendix A, and the toll bill payment process is illustrated in the transaction workflow diagram as Exhibit 29 in Appendix B.

Toll Revenue Recovered at Pay By Mail Rates via NOCP (Column 20)

As noted earlier for “Recaptured Toll Revenue at *Good To Go!* Rates”, “Toll Revenue Recovered at Pay By Mail Rates” represents a new category that is a subset of the category formerly referred to as “Recovered Toll Revenue”. This change was made as a result of different accounting treatments in the SR 520 financial statements.

In both cases, most customers who fail to pay their tolls during the regular two invoice / 80-day billing cycle will receive a notice of civil penalty (NOCP) equal to \$40 for each overdue toll owed. Specifically, 87 percent of overdue toll transactions are assumed to be certified for a notice of civil penalty by a WSDOT toll enforcement officer, with the remaining 13 percent dismissed, same as in the prior forecast.

Customers receiving a NOCP will have the opportunity to remit payment for tolls and fees, or request a hearing to avoid having their motor vehicle registration withheld from renewal and/or have the amount due sent to collections. The November 2016 forecast assumes that 40 percent will take action, and that 60 percent will ignore the NOCP altogether, and will ultimately be subject to hold on the renewal of their vehicle registration. This activity is not captured within the net revenue forecast process.

- For those customers that take action as a result of a NOCP, 43 percent are assumed to remit the toll due at the Pay By Mail rate.
 - 85 percent of those are assumed to make a payment for the civil penalty as well.
 - 15 percent are assumed to only pay the toll and ignore the civil penalty due.
- Among the 85 percent above that do not ignore the civil penalty due, the forecast assumes that \$0.80 will be collected for every dollar owed. This assumption captures the possibility that an administrative law judge through the civil penalty adjudication process may reduce or forgive some of the civil penalties due.
- Toll revenues and their associated civil penalties recovered in this manner flow into the Civil Penalty Account (17P). The toll portion of these revenues must be legislatively transferred to the SR 520 Toll Account (16J), which is assumed to occur in the subsequent biennium. Once transferred, the toll revenues are reported as an “Operating Transfer In” within the SR 520 financial statements.
- Civil penalty revenue is not defined as pledged toll revenue and does not impact the net revenue projections.

6 | Changes to Operating and Maintenance Costs

This section documents the anticipated uses of Adjusted Gross Toll Revenues & Fees, which are those operating expenses that would be paid from toll revenues upstream of debt service and repair and rehabilitation costs. As shown in the waterfall below, the SR 520 operational expenditures include: credit card fees; toll collection O&M costs; facility O&M costs; and bridge insurance premiums. Additional details regarding each of these deductions are provided below, with the annual projections provided in columns 21-26 of the T&R table, Exhibit 28 in Appendix A.

Some of the assumptions have been updated to reflect actual experience for FY 2012 through FY 2016. Changes to these assumptions are noted in the descriptions of each cost category below. All costs are expressed in year of expenditure dollars (YOE \$) except where noted otherwise.



WSDOT Toll Division and GTC staff provided near term (FYs 2017-21) agency cost values for consideration based on Decision Package budget requests with adjustments for cost escalation and the inclusion of SR 99 in the allocation of system wide costs starting in March FY 2019.

The IBI Group Inc. was retained by WSDOT as the “Consulting Engineer” of record. Master Resolution number 1117 requires the Consulting Engineer to review and prepare a certificate regarding the reasonableness of the assumptions and methods underlying the toll collection and facility O&M, as documented in a consolidated memorandum entitled: *2016 Updated Facility and Toll Collection O&M and R&R Assumptions and Costs for the SR 520 Bridge Replacement and HOV Program*. A description of each of cost item reviewed in detail by the Consulting Engineer is provided below.

Credit Card / Banking Fees (Column 22)

As a convenience to customers and to facilitate electronic toll collection, WSDOT accepts credit and debit cards for the payment of tolls on SR 520. For *Good To Go!* pre-paid accounts, credit card fees are tied to periodic account replenishment payments rather than individual toll transactions. Since customers can use any Washington State toll facility with the same *Good To Go!* account, the total credit card receipts resulting in bank fees paid by the state are allocated back to the individual toll facilities based on each facility’s share of system-wide toll revenues. For forecasting purposes on SR 520 credit card fees are calculated based on a bottom-up approach using adjusted transactions as calculated from the November 2016 IG T&R forecast.

Credit card transactions are processed by a third party vendor which charges a set fee for the service. This bank processing fee typically involves a fixed amount and a variable component as a percentage of the transaction amount. For forecasting purposes, the two fee components were collectively assumed

to equate to 2.2 percent of applicable toll revenues in the November 2016 forecast, representing an increase from 2.0 percent in the November 2015 forecast. The higher rate applied in the current forecast is based on the high end range of actual monthly experience through the end of FY 2016 and consistent with an overall upward trend in fee rates.

Throughout the forecast period, it is anticipated that a small share of account-holders closing out their accounts will request account balance refunds. An allowance for this is handled by assuming that credit card fees will also apply to account refunds (assumed to amount to slightly less than 2 percent of the applicable toll revenues), effectively raising the credit card fee rate to 2.24 percent of applicable toll revenues.

Toll revenues subject to credit card fees include Total Gross Toll Revenue Potential (column 11 of Exhibit 28), adjusted for the tolls actually received after adjusting for short-term account discounts, *Good To Go!* Pay By Plate fees, total leakage, and rebilling fees recovered within 80 days, or before the Civil Penalty process. Similar to the prior forecast, the November 2016 forecast assumes credit card fees associated with payments made in the civil penalty process will remain in the civil penalty account (17P) and are not transferred to the SR 520 toll account (16J), this includes the recently added category for recaptured toll revenue at the Good To Go! Rates via CPR. The assumption is based on actual practice to date in which credit card fees related to payments in the civil penalty process were not transferred to the toll account. Credit card fees associated with transponder sales are captured in transponder purchase and inventory costs, embedded in toll collection O&M costs in column 23 of Exhibit 28, and equally offset in transponder sales revenue in column 18.

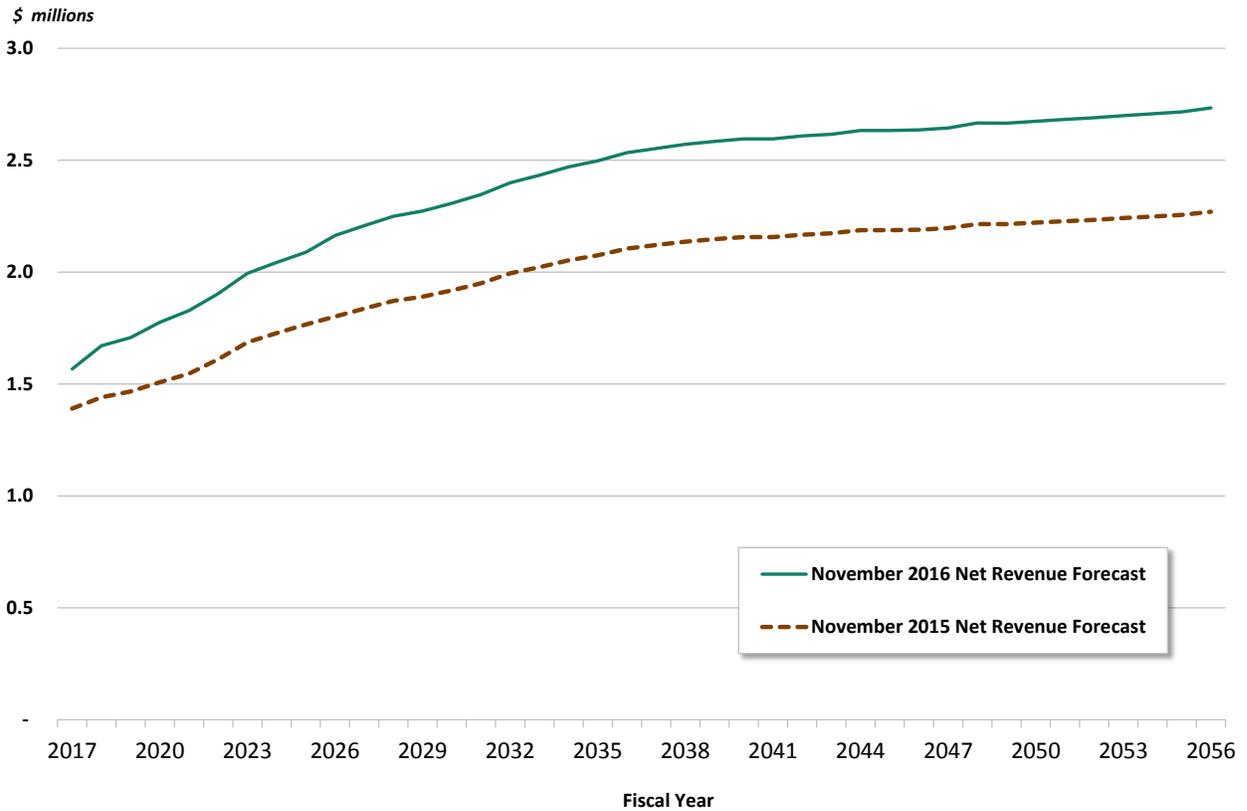
The previous 2015 toll O&M estimates assumed that the share of toll revenue and fees subject to credit card fees would be a constant 85 percent throughout the forecast period. Recent historical data through the middle of FY 2016 reflects somewhat higher use of credit and debit cards of just over 91 percent, and to account for this trend, the assumed share of toll and fee revenue subject to credit card fees was increased to a constant 92 percent throughout the forecast period.

WSDOT also accepts automated clearing house (ACH) payments directly from a customer bank account as an alternative means of account replenishment that does not carry the credit card fee. The observed increase in the use of credit and debit cards does not appear to be occurring in lieu of customers linking replenishment of their *Good To Go!* account directly via ACH transactions, as the share of payment made via ACH has remained relatively steady at around 4.4 percent of total toll revenue. The assumed increase in payment rates is therefore assumed to be attributed to more customers linking their account to automatic replenishment tied to a credit or debit card rather than using a check, higher rates of credit card payments for non-account customers who call-in or visit a customer service center in person, and reductions in non-customers mailing check payments.

Credit card fees increased by \$15.8 million or 20 percent over the forecast horizon from the November 2015 to November 2016 forecasts. The changes in the November 2016 forecast are due to the aforementioned increase in credit card payment rates from 85 percent to 92 percent and the increase in credit card fees from 2.0 percent to 2.2 percent and a 0.6 percent increase in the underlying toll revenue and fees subject to credit card fees.

Exhibit 15 illustrates the projected credit card fees by fiscal year over the forecast horizon for the two forecasts. Annual expenditure projections for credit card fees can also be found in column 22 of Exhibit 28 in Appendix A.

Exhibit 15: Projected Credit Card Fees in YOE \$ (FY 2017-56)



Toll Collection Operations and Maintenance (Column 23)

Toll collection O&M expenditures include all administrative and technical functions required for processing toll transactions and collecting revenue from customers. Beginning with the task of identifying a transaction, to recording the transaction, to ultimately collecting payment, the toll collection process requires involvement and coordination by various distinct parties across multiple functions:

- Transponder purchase, inventory, and sales, including the coordination with transponder pass manufacturers and third party (non-CSC) resellers;
- WSDOT Toll Division / WSDOT Accounting and Financial Services (State Operations);
- Customer service center (CSC) operations and system software vendor(s); and
- Roadway toll system (RTS) vendor and associated WSDOT Toll Division staff support.

Costs associated with the operating functions noted above have been consolidated within the toll collection O&M cost column (column 23) of Exhibit 28 T&R table in Appendix A. As previously mentioned, credit card fees associated with direct transponder sales to customers using a credit card are included in the transponder purchase and inventory costs embedded in column 23 rather than in column 22.

Specific details regarding the toll collection cost activities and changes in the cost assumptions included in the annual total toll O&M cost forecast values (column 23 of Exhibit 28) are provided below by cost subcategory.

Transponder Sales and Inventory Costs

WSDOT purchases, retains, and sells *Good To Go!* transponders directly to customers via online/mail orders, at CSC walk-in locations, and through third-party retailers. Transponder sales revenues are expected to directly offset all transponder purchase and inventory costs in every forecast year. This includes any credit card fees associated with WSDOT direct sales not involving a third party retailer and WSDOT costs associated to transponder testing and administration.

Transponder purchase and inventory costs, as well as associated revenues, are tallied at a system level and allocated to the individual facilities based on the number of *Good To Go!* account transponder transactions generated by each facility, this amount excludes toll exempt HOV carpool transactions on the I-405 Express Toll Lanes between Bellevue and Lynnwood, which require a Flex Pass transponder (declarable tag) that allow users to switch the transponder to HOV exemption status. Based on Washington State Transportation Commission's March 2016 proposed toll rates and policies, toll rate exemptions apply to transit buses and registered vanpool but exemptions for 3+ carpools will not be offered on the tolled portions of SR 520.

The previous 2015 forecast included a revised transponder sales and inventory forecast provided by the state through FY 2030 which assumed that market saturation from the initial bump-up in sales on the I-405 ETLs between Bellevue and Lynnwood and the SR 99 tunnel will lead to reduced growth rates in the following years. After FY 2030 costs were assumed to escalate based on transponder toll transactions. The updated 2016 forecast removes the hold harmless assumption for SR 99 and assumes all facilities will share in the ramp-up in transponder purchases associated to the tolling of SR 99, increasing the system-wide number of transponders used for purposes of cost allocation in FY 2018 and FY 2019.

Transponder purchase and inventory costs and their offsetting sales revenue forecasts assume that the higher priced \$15 Flex Pass transponders will increase the weighted-average unit cost of all transponders sold, and thus, the value of those allocated to SR 520. It is assumed that Flex Passes are already being purchased by some existing SR 520 users who may occasionally want to use the I-405 ETLs as an exempt carpool. In addition, it is anticipated that as vehicles (or windshields) are replaced, or vehicle titles transferred, some of the existing sticker tag transponders will be replaced with Flex Pass transponders.

Total transponder costs and associated packaging, mailing, inventory management, CSC processing, and contingency range from \$2.71 for a sticker tag sold through a retail partner to \$15.80 for a Flex Pass sold through a CSC location. After FY 2017, costs related to packaging, mailing, inventory management, and testing and administrative costs are assumed to escalate by 2.5 percent per year, consistent with other cost escalation assumptions. The portion of the retail price that represents the weighted-average unit cost from the manufacturer also assumed to increase by 2.5 percent per year to account for potential new technologies, such as Flex Pass transponders that may increase the overall weighted average costs of transponders in future years, offsetting any potential cost savings as the result of economies of scale or increased number of competitors producing transponders based on existing technology.

As transponder sales revenues are expected to exactly offset transponder purchase and inventory costs, net transponder revenues are expected to be zero in both cases, with no impact on net toll revenues.

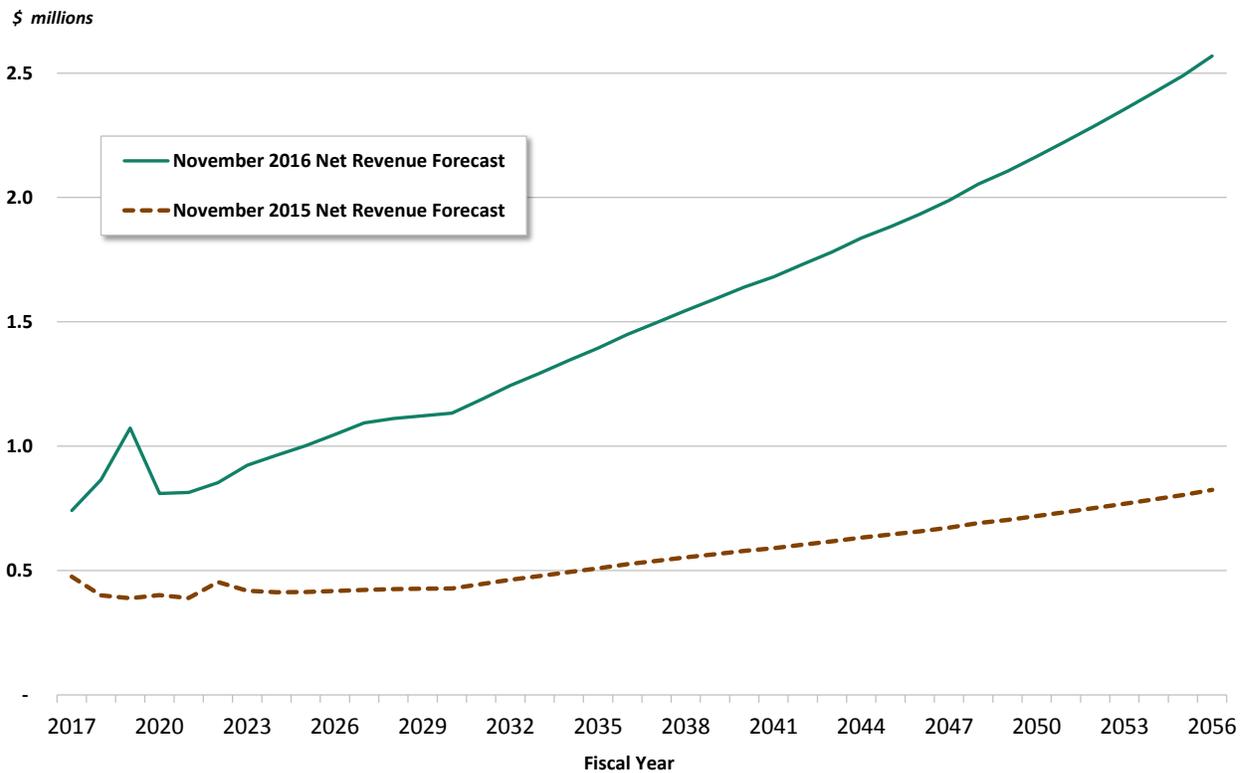
Compared to the November 2015 forecast, transponder sales and inventory cost projections in the November 2016 forecast have been revised upwards to reflect an increase in actual transponder sales and the higher share of Flex Passes transponders in the overall transponders being purchased.

Overall, transponder costs increased by \$39 million or 175.5 percent over the forecast horizon from the November 2015 to November 2016 forecasts. The changes in the November 2016 forecast are primarily due to:

- An increase in transponder sales overall; and
- An increase in sales of Flex Passes relative to sticker tags.

Transponder sales and inventory costs are included within the toll collection costs shown in column 23 of the Exhibit 28 T&R table, in an amount that directly offsets the transponder sales revenue forecast provided in column 18 over the forecast horizon.

Exhibit 16: Transponder Sales and Inventory Costs in YOY \$ (FY 2017-56)



State Operations (WSDOT Toll Division / Accounting and Financial Services)

The Washington State Toll Division currently operates four toll facilities: the SR 520 Bridge; the SR 16 Tacoma Narrows Bridge (TNB); the SR 167 high occupancy toll lanes; and the recently opened I-405 Express Toll Lanes (ETLs) between Bellevue and Lynnwood. The SR 99 Tunnel, currently under construction, is anticipated to open in FY 2019. The Toll Division is responsible for general management,

vendor oversight, marketing, information technology (IT), and pass through payments from the Customer Service Center (CSC) vendor of out-of-state license plate lookup costs and printing and postage costs associated with Pay By Mail transactions, currently handled by the Washington Department of Enterprise Services (DES).

Normal salary and benefits associated with state full time equivalent employees (FTEs) include finance and program management, government relations, CSC operations, RTS operations, and WSDOT headquarters Accounting and Financial Services (AFS) group support. The costs for these FTEs are allocated to existing and proposed facilities using two separate methodologies, one for the near term period (FY 2017-21) and one for the longer term forecast period (FY 2022-56). Near term budget period FTEs are based on actual experience and WSDOT Toll Division budgetary requests, using the percentage share of time each employee charges to the toll program, the total of which is then allocated based on each facility's share of total transactions. Starting with FY 2018, state system-wide FTE assumptions are based on a set 41.5 FTEs attributed to the existing four toll facilities. The total number of FTEs increases to 44.5 in FY 2019 with the inclusion of a financial analyst attributed to the addition of the SR 99 tunnel plus the transfer of two system development staff to be funded from toll revenues (previously funded from non-toll sources). In the near term forecast, current salaries and wages are escalated by recently agreed upon state wage rate increases in alignment with the Governor's budget while the long term forecast assumes salaries and wages will escalate by 2.5 percent per year to account for inflationary increases in compensation.

As part of the above salaries and benefits, the November 2015 forecast included centralized toll operation, management, and administrative expenses (toll division assistant secretary, executive assistant, strategic direction and planning, additional government relations, traffic and revenue analysis, toll rate setting, and payroll and human resource management) which remain in the November 2016 forecast. The capital programs for the toll facilities under construction shared the cost for these general management and administrative items. However, as these projects begin to transition to operations, the management and administration costs are now assumed to be paid by toll revenues, with costs allocated to each individual toll facility based on transaction levels.

Because these collective state operations services are provided on a system-wide basis, costs are allocated according to the projected share of total toll transactions for each facility, which varies slightly year to year due to differences in each facility's traffic forecasts. SR 520's share of estimated system-wide transactions is calculated based upon CDM Smith's toll traffic volume forecasts. Both the November 2015 and November 2016 forecasts allocate system-wide Toll Division staff and related costs by each facility's percentage share of the total number of toll paying transactions.

Similar to the November 2015, the November 2016 forecast includes the existing three facilities — SR 520, Tacoma Narrows Bridge, and SR 167 HOT Lanes — plus the recently opened I-405 Express Toll Lanes between Bellevue and Lynnwood, and the forthcoming SR 99 Tunnel in downtown Seattle. However, the November 2016 forecast applies revised timing assumptions, accelerating the I-405 ETLs from FY 2018 to their actual start date in FY 2016, and delaying SR 99 startup of from the beginning of FY 2019 until the final four months of FY 2019 due to tunneling construction delays. In addition, the forecast does not assume that tolls on the Tacoma Narrows Bridge will be part of the system after FY 2032 when its debt and sales tax deferral amounts have been completely repaid.

The recently passed Connecting Washington revenue package discussed earlier provides funding for three new toll facilities set to open in the next decade: a new segment of the I-405 Express Toll Lanes

between Renton and Bellevue, the SR 167 extension in Pierce County, and the SR 509 extension in south King County. These additional facilities are anticipated to create some economies of scale that will reduce SR 520's share of projected state operations costs when the legislature authorizes them for tolling.

The November 2016 forecast for State Operations Costs increased by 19.6 million (5.3 percent) over the forecast horizon compared to the November 2015 forecast. The increase in State Operations Costs can be attributed to:

- A slight increase in overall transactions on SR 520 of 0.2 percent and a reduction in transactions forecasted on other facilities led to an overall increase in SR 520's share of system costs of 1 percent over the forecast horizon.
- Increase in toll bill printing and postage costs and license plate lookup costs with an overall increase in image-based transactions.
- Revision to state employee compensation assumptions regarding the cost of benefits attributed to the mix of salaries within the Toll Division

The November 2016 forecast of toll collection costs associated with state operations and activities performed or overseen by the Toll Division are provided in Exhibit 17 with escalation assumptions listed in Exhibit 18.

Exhibit 17: State Operations Assumptions in the November 2016 forecast – SR 520 Values

Cost Item	Key Assumptions
Salaries & Wages	SR 520's share includes the standard cost for 19.0 FTEs by job classification in FY 2018, including 5.3 FTEs for general administrative and management costs, decreasing to approximately 16.7 total FTEs by FY 2022. Centralized general administration and management costs were previously covered by a combination of other motor vehicle funding sources and tolls. Starting with the 2015 estimates, all costs are assumed to be paid out of toll revenues.
Benefits	40 percent of Salaries & Wages, revised from previous estimate of 30 percent to reflect state standard staff calculation tool
Personal Services / Consulting	Toll consultants support CSC operations, RTS operations, and operational results analysis and reporting. As tolling matures and WSDOT moves from a development and construction phase into a tolling operational phase, toll consultant support tasks will be transferred to WSDOT staff. By FY 2020, toll consultant support will be reduced to a core staff who will primarily support the analysis and implementation of toll program changes and continual improvement initiatives.
Office Supplies / Materials	Standard cost of \$500 per year, per FTE.
Rent	Assumes 153 square feet per FTE in forecast years for a total annual cost of \$4,550 per FTE or \$29.70 per square foot.
Printing and Postage	Cost of \$0.57 per mailing in FY 2016 (includes cost of \$0.03 per envelope, printing costs of \$0.084 first page + \$0.025 additional pages, assuming 2.8 sheets per mailing, bulk postage rate of \$0.402 per mailing. Consumable and other mailing costs account for mailings not associated with toll bills. Similar cost per mailing of \$0.57 assumed with an additional cost of \$0.02 per mailing for consumables. Total costs are based on sending 0.007 mailings per total annual toll transactions based on current experience through the end of FY 2016.
Out of State License Plate Lookup Cost	Assumed that 9% of readable license plates with valid registration and owner information will require an out of state license plate lookup at a cost of \$1.25 per plate inquiry (mailed invoice) base cost plus escalation. The assumption is revised to a lower rate of \$0.77 per plate with escalation starting in FY 2020. The revised lower value remains above the \$0.50 per plate charge incurred by other toll agencies for similar services.
Computers and Equipment	Starting in the end of FY 2016 toll bill processing including pass through costs for printing and postage were transferred from the current back-office operations vendor to the state Department of Enterprise Services (DES). It is expected that through economies of scale and the processing of other bulk mailings DES will achieve a cost savings, though until realized, no saving are included in the forecasts.
Phone and Communications	Standard cost of \$6,800 per year, per FTE.
Vehicles Operations	Standard cost of \$1,000 per year, per FTE.
Record Retention ¹	Standard cost of \$1,000 per year, per FTE.

Note: FTE = full time equivalent employee

¹ Includes WSDOT time to copy, catalog and prepare documents for archiving, coordination with staff to get files, organization of files once received, paper and organizational supplies, etc.

Exhibit 18: State Operations Escalation Assumptions in the November 2016 Forecast

Cost Item	Escalation per Period	Period in Years
Salaries and Benefits	2.5%	1
Rent	10.0%	5
Telephone	2.5%	1
Printing/Postage/Office Supplies/Computers	2.5%	1
Consultants/Contracted Services	2.5%	1
2 Vehicles + Operations + Parking	5.0%	1
Records Management	10.0%	2
CSC System Management	2.5%	1

Under the prior CSC vendor agreement, the state was responsible for reimbursing the CSC vendor for the actual printing and postage costs related to mailing Pay By Mail customer toll bills as well as for customer opting to receive *Good To Go!* account statements by mail. In 2016 this role was transferred to the Washington State Department of Enterprise Services (DES). Although the rates are anticipated to be lower through the use of DES, a conservative approach was used and the existing forecasted costs were maintained.

- The November 2016 forecast base assumptions were not changed from the November 2015 forecast, as these values still align with actual experience in which the average cost to process and mail an invoice is assumed to be \$0.57 in 2014 dollars, inflated by 2.5 percent per year. The number of toll transactions per invoice is assumed to average 2.76 in the November 2016 forecast based on reported results for FY 2012-16, also unchanged from the November 2015 forecast.
- Comparing the November 2015 to the November 2016 forecast, revisions to state costs for toll bill printing and postage resulted in an increase of \$3.87 million or 3.2 percent due to a higher forecast of Pay By Mail transactions (and thus invoices) throughout the forecast horizon that was partially offset by fewer first toll bills being mailed as a result of higher unidentified owner leakage assumptions, especially through FY 2020.

In addition to printing and postage, additional license plate lookups are often required for out-of-state license plates to acquire the vehicle owner’s name and address for mailing toll bills to non-account customers. The current CSC vendor has a contract for this service with a separate vendor, Law Enforcement Systems (LES), which administers a fixed cost of \$1.25 per plate inquiry. It is assumed that 9 percent of readable license plates will require an out-of-state lookup over the forecast period, consistent with the 9 percent assumption in the November 2015 forecast. Costs for additional license plate vehicle owner name and address lookups by the Washington State Patrol for the states of Arizona and Iowa were added in the November 2014 forecast and subsequently removed from the November 2015 forecast due to lack of cost-effectiveness. For the November 2016 forecast, LES now has the capability to provide license plate lookups for all states including Arizona and Iowa, and the cost projections reflect this small increase in lookup volume.

The November 2016 forecast continues the November 2015 forecast assumptions with the unit cost per out-of-state plate lookup reduced from a fixed \$1.25 to \$0.77 plus annual 2.5% inflation in conjunction

with the assumption of a new two-year CSC operations vendor contract or revised contract with the existing vendor, beginning in FY 2020. The current two-year vendor contract extension for FY 2016 and FY 2017 assumes the current rates. A short survey of industry market pricing for plate lookup services ranged from \$0.50 to \$0.90 per plate with costs stable rather than inflating, so \$0.75 plus inflation errs toward the conservative end of the range. While the unit cost assumption is unchanged, a reduction in the assumed rate of correctly identified vehicle owners and addresses, primarily in the near term as previously discussed, lowers the forecasted cost of out-of-state license plate lookups.

- Overall, license plate lookup costs are \$0.25 million, or 3.7 percent lower over the forecast horizon, compared to the November 2015 forecast.
- Collectively, the state costs for printing, postage and license plate lookups (both of which are passed through by the CSC vendor) increased by \$4.1 million or 3.2 percent.

State operations costs excluding printing and postage and license plate lookup costs increased by \$15.4 million or 6.4 percent over the forecast horizon from the November 2015 to November 2016 forecasts. The primary reason for the increase in the November 2016 forecast is an increase in Pay By Mail Transactions.

State toll collection costs are included as part of column 23 in Exhibit 28 within Appendix A, with additional subcomponent detail in the Excel electronic version of this table.

Customer Service Center

Customer service center vendor contract costs have been forecasted for both the CSC software systems and operations components independently, and these system-wide costs are allocated to SR 520 based on its share of total transactions, excluding cash transactions on TNB which are processed under a separate, facility-specific contract. The CSC operations vendor is responsible for processing toll transactions, collecting toll revenue, maintaining customer accounts, and interfacing with customers via telephone and at *Good To Go!* walk-in centers. The current CSC vendor, Electronic Transactions Consultants (ETC), provides these operational functions and also provides and maintains the systems software that process toll transactions.

The current vendor contract expires at the end of FY 2018 with the completion of that contract's provisions for the second of two, two-year extensions. An additional contract amendment is being considered to extend the current vendor at least partway through FY 2020, during which there would be a transition to two new CSC vendor(s) contracts, one for systems software and one for operations, as a result of completion of the current procurement processes in which new CSC vendor(s) would be operational at the beginning of FY 2020. While the same vendor could potentially be selected for both the systems software and operations functions, the contracts for these functions will remain separate. The CSC cost estimate forecasts provided herein assume that this additional two-year contract amendment will be agreed upon at a higher cost to more accurately reflect market rates and a premium for the short-term period of the contract amendment.

Starting with FY 2021, future CSC vendor(s) costs are estimated using a bottom-up system-wide analysis reflecting current market rates for all CSC systems software and operating functions, consistent with having separate vendors provide these functions, plus the addition of a five percent risk contingency.

In addition to the assumed current CSC vendor contract extensions and amendment carrying into FY 2020, the November 2016 forecast applies the following assumptions for allocating a share of CSC vendor costs to SR 520.

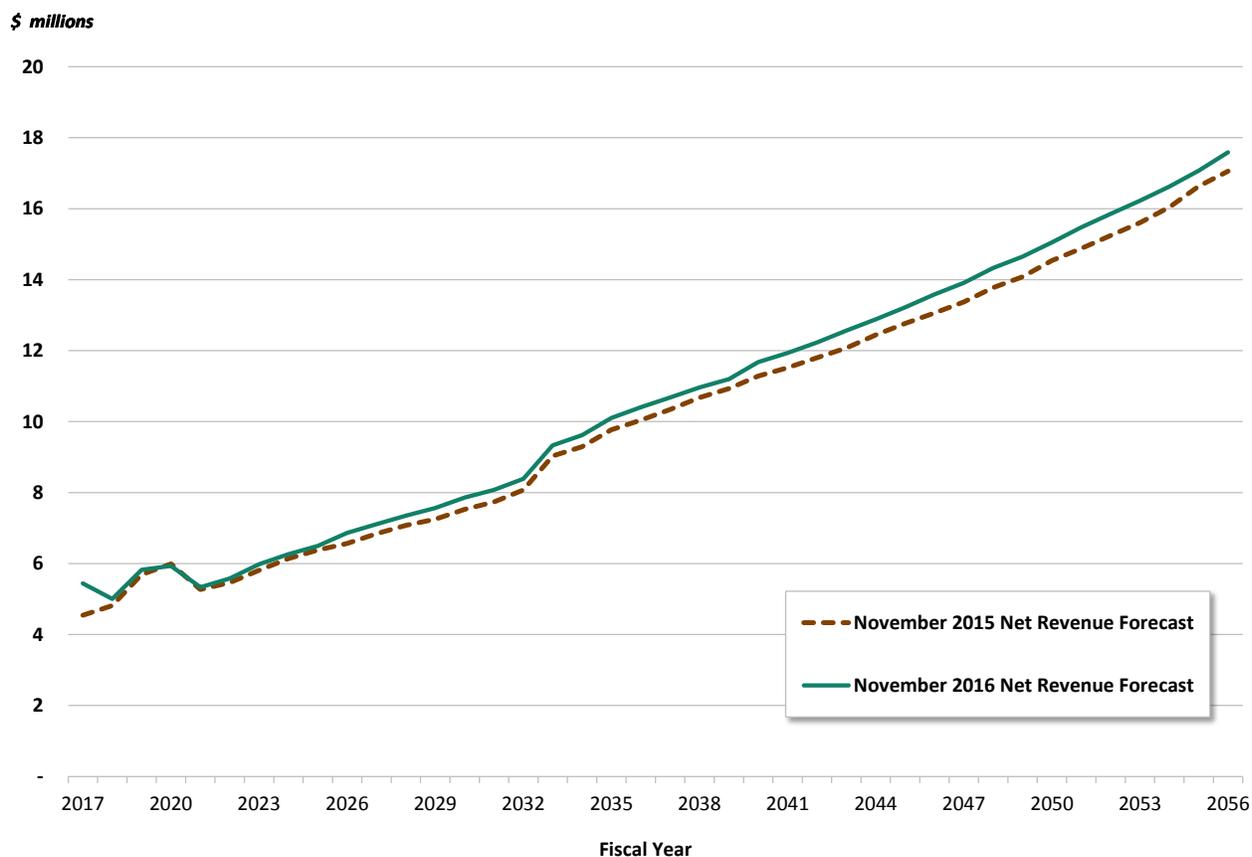
- Similar to system-wide State Operations costs, the November 2016 forecast allocates CSC vendor costs across the existing three facilities — SR 520, Tacoma Narrows Bridge, and SR 167 HOT Lanes — plus the recently opened I-405 Express Toll Lanes between Bellevue and Lynnwood, and the forthcoming SR 99 Tunnel in downtown Seattle. However, the November 2016 forecast applies revised timing assumptions delaying the startup of SR 99 from the beginning of FY 2019 in the November 2015 forecast by eight months to March 2019 in the November 2016 forecast due to tunnel construction delays.
- Under the current forecast assumptions, SR 520’s transaction-based share of system-wide costs increases from 48 percent of total transactions over the forecast horizon in the November 2015 forecast to 49.2 percent of total transactions over the 40-year forecast horizon in the November 2016 forecast.
 - Note that the SR 520 share is lower through FY 2032, and higher thereafter when the tolling is assumed to end on the Tacoma Narrows Bridge.

The following points summarize the key changes in the CSC vendor assumptions and costs:

- Slight increase in overall transactions on SR 520 of 0.2% and reduction in transactions forecasted on other facilities, led to an overall increase in SR 520’s share of system costs of 1.2% over the forecast horizon, when excluding cash transactions on TNB, which are not included in the base transaction values to estimate CSC cost allocations.
- A revision to the customer service representative (CSR) compensation assumptions were made to reflect overall higher wage rates in the Seattle area and to improve employee retention.
- Similar to the 2015 forecast, near term costs are higher due to extensions and amendments of the current vendor contract, with the 2016 forecast incorporating actual negotiated rates in FY2017-18 as part of the two year contract extension and a further premium on an assumed contract amendment to extend the current vendor into FY 2020. The latter amendment provides up to 12 months of overlap with the procurement of separate, successor system software and operations vendor contracts, with the new vendor(s) commencing operations in FY 2020.
- Overall, the revised November 2016 forecast for CSC systems software and operations vendors is \$14.81 million (3.6 percent) higher over the forecast horizon than the November 2015 forecast.

Exhibit 19 illustrates the forecast horizon CSC costs for the November 2016 and November 2015 forecasts. CSC costs are included as part of the toll collection costs in column 23 of Exhibit 28 in Appendix A.

Exhibit 19: SR 520 Share of CSC Cost Projection in YOE \$ (FY 2017-56)



Roadway Toll Systems

Roadway Toll Systems (RTS) include all equipment and software required to identify a toll transaction and transmit 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.

RTS operations and maintenance activities are performed by a private contractor, Kapsch (formerly Schneider Electric), in conjunction with WSDOT maintenance staff. The vendor contract specifies that Kapsch will provide ongoing maintenance of the toll collection equipment through the contract period. There are actually two contracts, an SR 520-specific contract that lasts until the permanent toll collection system is installed and accepted on the new bridge in FY 2017, and a 10-year system-wide RTS contract for all facilities. WSDOT will perform any necessary maintenance to equipment gantries or other roadside equipment. After the RTS system-wide vendor contract expires, the state will have the option to re-bid the contract or assume responsibility for all RTS maintenance functions. Examples of these duties include:

- Realigning / recalibrating cameras and transponder readers;
- Cleaning camera lenses;
- Maintaining equipment data connections; and
- Monitoring / auditing equipment performance.

The original tolling gantry and associated equipment for the prior bridge was successfully transitioned to a temporary toll collection system in conjunction with the opening of the new bridge in 2016, and is anticipated to transition to a permanent location east of the new bridge in early 2017. All costs associated with the location transitions are included in the projected RTS vendor costs.

- For the November 2016 forecast, RTS costs have been revised downward by \$0.02 million or 0.1 percent over the full forecast horizon compared to the November 2015 forecast. The slight reduction reflects a change in timing for equipment acceptance testing and auditing which reflects revisions in the RTS equipment installation schedule and advances a final round of acceptance testing to within the forecast horizon in FY 2056.

WSDOT and Consultant Provided Services

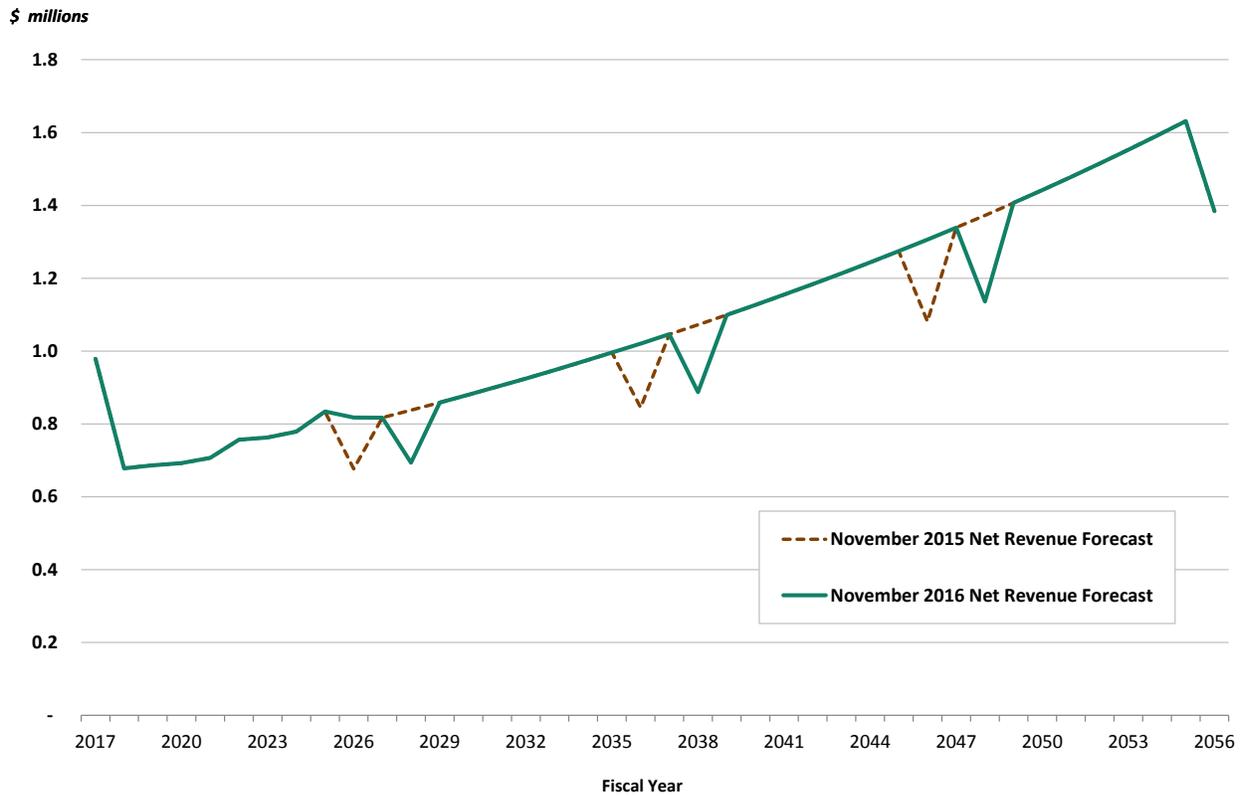
- There were no significant revisions between the November 2015 and 2016 forecasts.
- There were no significant revisions between the November 2015 and 2016 forecasts.

Vendor Provided Services

- There were no significant revisions between the November 2015 and 2016 forecasts.

The RTS cost projections are also included within the annual toll collection costs in column 23 of the Exhibit 28 T&R table. In addition to routine maintenance, periodic capital repair and replacement of RTS equipment will be required. These costs are detailed in a later section.

Exhibit 20: Roadway Toll Systems O&M Costs in YOE \$ (FY 2017-56)



Routine Facility Operations and Maintenance (Column 24)

Routine operation and maintenance 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 lane restriping, lighting maintenance, routine bridge repairs, pothole and pavement repair, traffic operations, signage, litter pickup, etc. These activities help to preserve safety and travel reliability along the corridor. A more detailed list of facility maintenance activities is provided in Appendix C as Exhibit 30.

All O&M costs are provided in year of expenditure dollars, with no change to the previous assumption for annual escalation at 2.5 percent.

After the selection of a preferred design alternative in 2010, WSDOT established a Maintenance Task Force (MTF) of engineering, maintenance, and design staff to conduct a full review the Program's projected facility O&M costs. The findings from this initial MTF were the basis for the September 2011 forecast. Since the September 2011 forecast the MTF has been reconvened on an annual basis.

SR 520 Maintenance Task Force

In the summer of 2016, the WSDOT SR 520 Project Team—in collaboration with the WSDOT Toll Division and Northwest Region maintenance staff—reconvened the facility MTF to review, revise, prepare, and report updated facility O&M cost estimates. The task force findings refined the previous estimates by using the latest design and construction information from the toll funded construction segments along the SR 520 corridor. The revised O&M (and R&R) cost estimates from the toll funded and non-toll funded facility MTF are documented in the consolidated memorandum entitled *2016 Updated Facility and Toll Collection O&M and R&R Assumptions and Costs for the SR 520 Bridge Replacement and HOV Program*.

As described in the Introduction, the SR 520 corridor program is comprised of five major components, the first four of which include construction funding supported by tolls. The facility O&M costs for these four components with toll funding are assumed to be paid from future tolls in the current and previous forecasts. The fifth component, the section from I-5 to Lake Washington, including the West Approach Bridge South (referred to as the "Rest of the West") was assumed to be unfunded in previous forecasts, with O&M costs for the existing roadway paid from non-toll motor vehicle revenue sources. Nonetheless, the previous facility cost estimates alluded to the idea that tolls would eventually pay for all of the corridor O&M costs, contingent upon the tolling of the I-90 Bridge to fund the Rest of the West, thereby completing the full corridor program. However, the 2015 Legislature authorized \$1.64 billion in other non-toll funding for the Rest of the West improvements between I-5 to Lake Washington via the Connecting Washington transportation revenue package. As a result of this action to construct the Rest of the West using motor vehicle revenues, WSDOT assumes that the O&M costs for this fifth component will continue to be funded from motor vehicle revenues rather than from tolls.

The scope of the funded project elements for which toll revenues would pay facility O&M costs decreased in the November 2016 forecast by \$8.7 million over the FY 2017-2056 forecast period. The following items contributed to the decrease in the current forecast.

- In past O&M and R&R estimates, it was assumed that eastbound traffic would continue to use the old west approach structure and the West Connection Bridge to reach the new floating

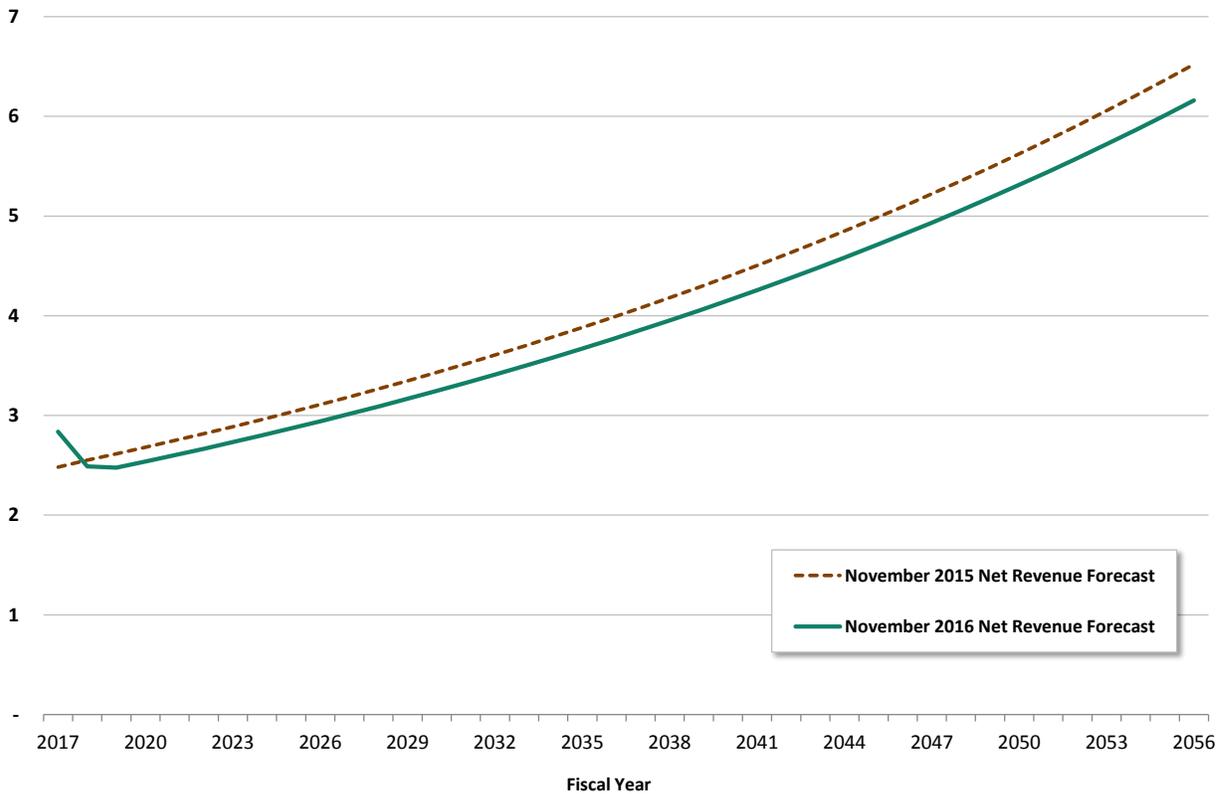
bridge through the end of the forecast horizon in FY 2056. This assumed the most-conservative approach that the “Rest of the West” would not receive funding.

- However, in 2015 the Rest of the West received funding through a non-toll source. This means that the newly funded West Approach Bridge South will eventually supplant the West Connection Bridge and carry eastbound traffic between the Montlake interchange and the floating bridge.
 - As soon as the West Approach Bridge North construction is complete, eastbound traffic will temporarily shift to that new structure while the West Approach Bridge South is constructed.
 - There will no longer be O&M and R&R costs on West Connection Bridge after FY 2018.
- These O&M and R&R costs for the West Connection Bridge were thus removed from SR 520 toll-funded facility expenses after this date.
- O&M and R&R expenses for the new West Approach Bridge South and other elements of the Rest of the West will be paid from non-toll sources, as these improvements exclude any toll capital funding.

Annual facility O&M cost projections are illustrated in Exhibit 21 on the next page, with forecast values provided in column 24 of Exhibit 28 in Appendix A.

Exhibit 21: Projected Facility O&M Costs for the toll funded segments in YOE \$ (FY 2017-56)

\$ millions



Bridge Insurance (Column 25)

Current insurance premium and coverage information for SR 520 is provided by the Washington State Department of Enterprise Services Office of Risk Management (DES/ORM). Coverage commences annually on July 1, in alignment with the state fiscal year. The current FY 2017 premium forecast estimates were based on the actual premium payment that occurred in July 2016 and SR 520's estimated share of state brokerage fees.

Current and future insurance policies cover various risks to bridge structures, including property damage losses caused by forces of nature, such as earthquakes, floods, and boiler/machinery failure, acts of terrorism, as well as sub-limits on coverage for demolition/ increased cost of construction, course of construction, business interruption, and service interruption. The coverage is procured under an Aggregate Property Insurance Policy that bundles SR 520 with other assets, though this aggregate policy excludes the Tacoma Narrows Bridge.

For FY 2017, the insurance policy covers both completed and under construction bridge components of the SR 520 corridor between I-5 and I-405, including property damage losses for the Portage Bay bridge structures, the west approach viaduct structures, the floating bridge, and the east approach, caused by forces of nature, component failure, or acts of terrorism. The all-risk loss coverage limit is \$400 million, though in the case of an earthquake or flood loss, there is a \$100 million sublimit on damage. All property damage loss coverage is subject to a \$10 million deductible.

In addition, business interruption coverage replaces lost revenue for up to one year with no deductible and a \$100 million policy limit when associated with a covered loss. Should a non-covered loss occur, such as damage to a bridge, overpass or lid within a 20 mile radius of the center of the floating bridge, then the contingent business interruption coverage with a \$10 million, 30-day limit would apply to replace lost toll revenues in cases where the damage results in restricted access to the bridge by a military or civil authority.

The total premium cost for FY 2017, inclusive of SR 520's share of state-wide administrative and brokerage fees, is \$2.24 million. This applies to a total insured value of \$1.23 billion, though retaining the \$400 million all risk limit per incident. The administrative and brokerage fees included in the SR 520 insurance cost allow the state to obtain competitive insurance policies covering other facilities and assets. SR 520's estimated share of the total state brokerage fee in FY 2017 is 41.3 percent, based on SR 520's premium as a percentage share of the total state premiums for FY 2017.

Future insurance coverage from FY 2018 forward is assumed to continue to cover property damage as well as business interruption in the same manner as the current FY 2017 policy, with costs assumed to include both premiums and SR 520's share of statewide brokerage fees. The consideration of a proposed policy rider for cyber-terrorism liability coverage has not been included within the SR 520 coverage, though the State has a policy with a \$5 million limit covering all agencies.

Since the West Side components of the program won't be completed until well into the next decade, it is premature to obtain a detailed premium estimate for the final completed corridor. Future year premiums could be higher if the State opts to insure for a higher limit due to higher replacement costs once construction has finished, higher construction replacement cost inflation, and/or faster toll revenue growth, but could also be lower as risks are reduced with the replacement of the original West Side structures with new ones designed to better withstand risk factors such as a seismic event.

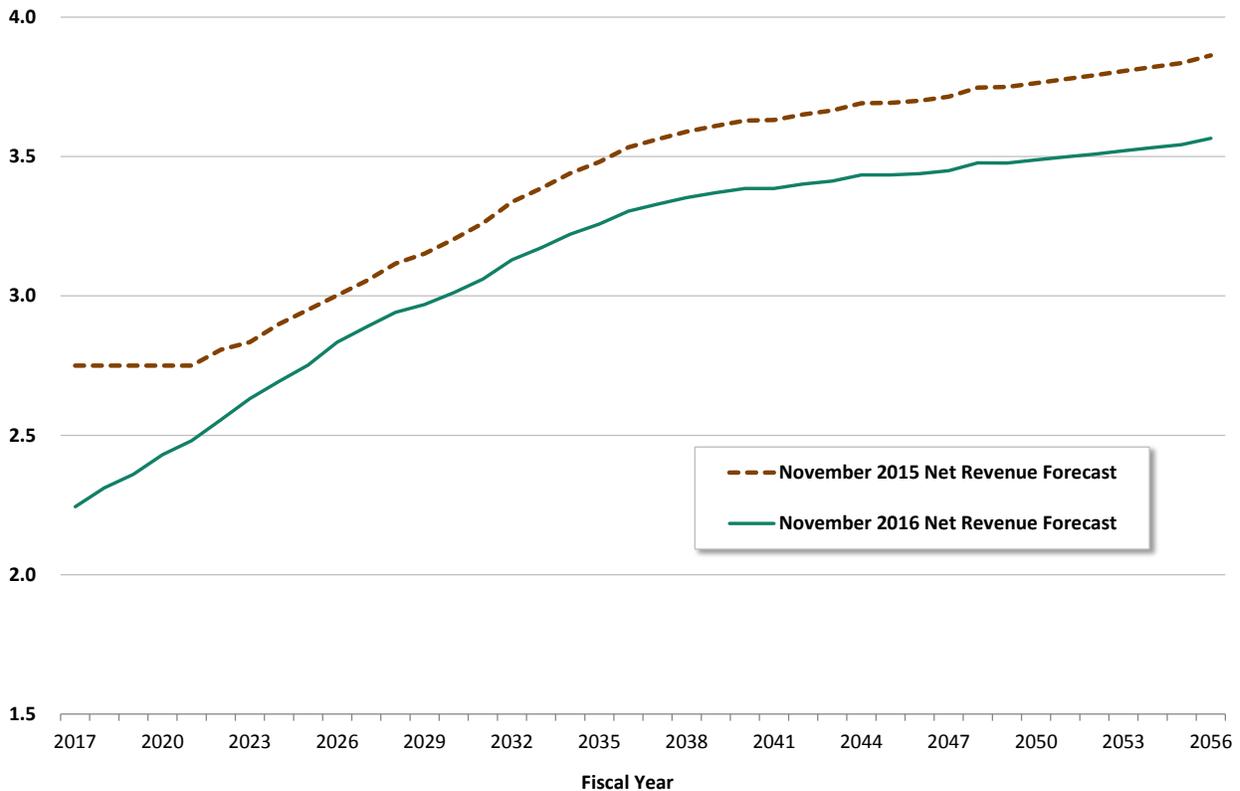
Given these potentially countervailing influences on premium costs, the forecast for insurance premiums have been projected to grow at the annual rate of increase in the projections for potential gross toll revenue, subject to an annual increase ceiling rate of 3.0 percent. This essentially matches the methodology employed to estimate premiums in the 2014 forecast (which remained unchanged for the 2015 forecast), except that in the previous forecasts, premiums were held flat through FY 2021 rather than imposing a growth rate ceiling. Moreover, this method provides for premium escalation that matches the annual growth in gross toll revenue, as that is the revenue stream that would need to be augmented or replaced in the event of a covered loss. Over the first half of the forecast horizon, gross toll revenue growth varies by fiscal year, but averages about 2.5 percent, which matches the assumption for general inflation. For the outer years in the latter half of the forecast horizon, gross toll revenue growth slows to less than one percent.

Specifically, the FY 2017 premium and fee amount of \$2.24 million is projected to escalate at an average rate of 2.7 percent over the next 10 years (FY 2018-27), with individual annual rates as high at 4.7 percent and as low as 1.7 percent, depending on the annual revenue growth, which is also slightly influenced by night and weekend construction closures during this period. Thereafter, the premium growth rate slows to an average of 0.7%, with annual growth rates ranging from 0 to 2.3 percent.

Annual insurance premium forecasts are provided in column 25 of Exhibit 28 in Appendix A.

Exhibit 22: Projected Insurance Costs in YOE \$ (FY 2017-56)

\$ millions



7 | Changes to Other Project Uses of Toll Revenues

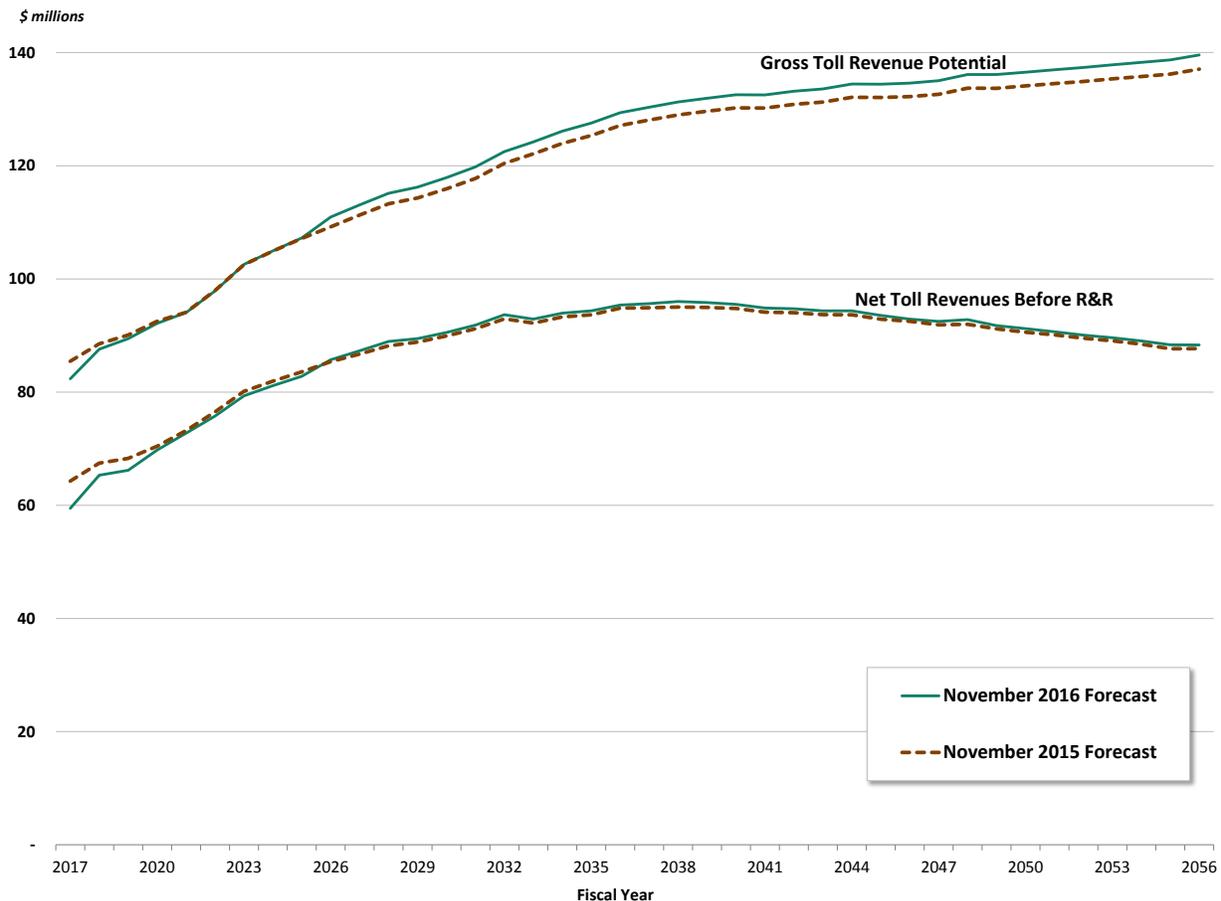
Total Net Revenue (Column 26)

Starting with CDM Smith’s Gross Toll Revenue Potential in the T&R table column 11, the addition and subtraction of the various revenue adjustments in columns 12-21 and the O&M expenditures in columns 22-25 result in the total net revenue available to support financing, contribute to required reserves, and provide for other project uses. The annual net revenue projections can be found in column 26 of Exhibit 28 in Appendix A.



Exhibit 23 illustrates the spreads between the gross and net revenue over the forecast horizon for the November 2015 and November 2016 forecasts. The differences in the sums of the annual values over the forecast horizon are shown in Exhibit 13 on page 25.

Exhibit 23: Projected Gross and Net Toll Revenues (FY 2017-56)



Other downstream uses of net revenues include deferred sales tax, periodic facility R&R, and periodic toll-related R&R as shown in the waterfall on the previous page. In accordance with the SR 520 financial plan flow of funds, net revenues are used to pay debt service first, with annual reserve account contributions for deferred sales tax and R&R coming downstream from coverage revenues. Descriptions for these other uses of tolls are provided below.

Deferred Sales Tax on Construction (Column 27)

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 the replacement bridge is constructed and open to traffic. Specifically, the first of 10 equal annual installments are due on December 31st of the fifth calendar year after the certified date by which the program components with toll funding are operationally complete.

The final program component with toll funding, the West Approach Bridge North, is now expected to be completed in mid-2017, which would make the first deferred sales tax payment due on December 31, 2022, midway through FY 2023. Toll revenues are assumed to be the source of funding used to make the 10 annual payments through FY 2032.

The State is deferring sales tax on almost all of the corridor program components with toll funding support, with the exception of sales tax paid in Grays Harbor County that applied to the floating bridge pontoon construction site development. Aside from the timing, the November 2016 forecast values, shown in column 27 of Exhibit 28 in Appendix A, are unchanged from the November 2015 forecast of \$159.4 million over the forecast horizon.

Periodic Facility Repair and Replacement Costs (Column 28)

Master Resolution number 1117 requires that WSDOT's Consulting Engineer, currently the IBI Group Inc., review and prepare a certificate regarding the reasonableness of the toll collection and facility cost assumptions and methods. This review includes the facility R&R costs described below.

Costs associated with periodic facility R&R activities are assumed to be funded in the WSDOT preservation program ("P program") using toll revenues and other non-toll sources. Periodic facility costs typically involve major capital upgrades, renewal, and improvements, including replacement of anchor cables, replacement of strip seal expansion joints, surface rehabilitation, painting, and related capital rehabilitation. Cost estimates for periodic R&R items are dependent upon several design characteristics of the facility, including the type of construction materials and structural attributes.

The aforementioned 2015 SR 520 Maintenance Task Force also reviewed and revised the costs for R&R activities. Similar to O&M costs, R&R projections were prepared by roadway segment and cost category. A map illustrating the roadway segments in the SR 520 corridor is provided as Exhibit 4 in the Introduction on page 10.

For the purpose of these projections, it was previously determined that toll revenues would be used to fund all facility R&R expenditures for the bridge structures and related components with toll funding,

such as replacement of expansion joints, bridge decking, and anchor cables. In addition, toll revenues would pay for the traffic management and data systems R&R costs throughout the SR 520 corridor.

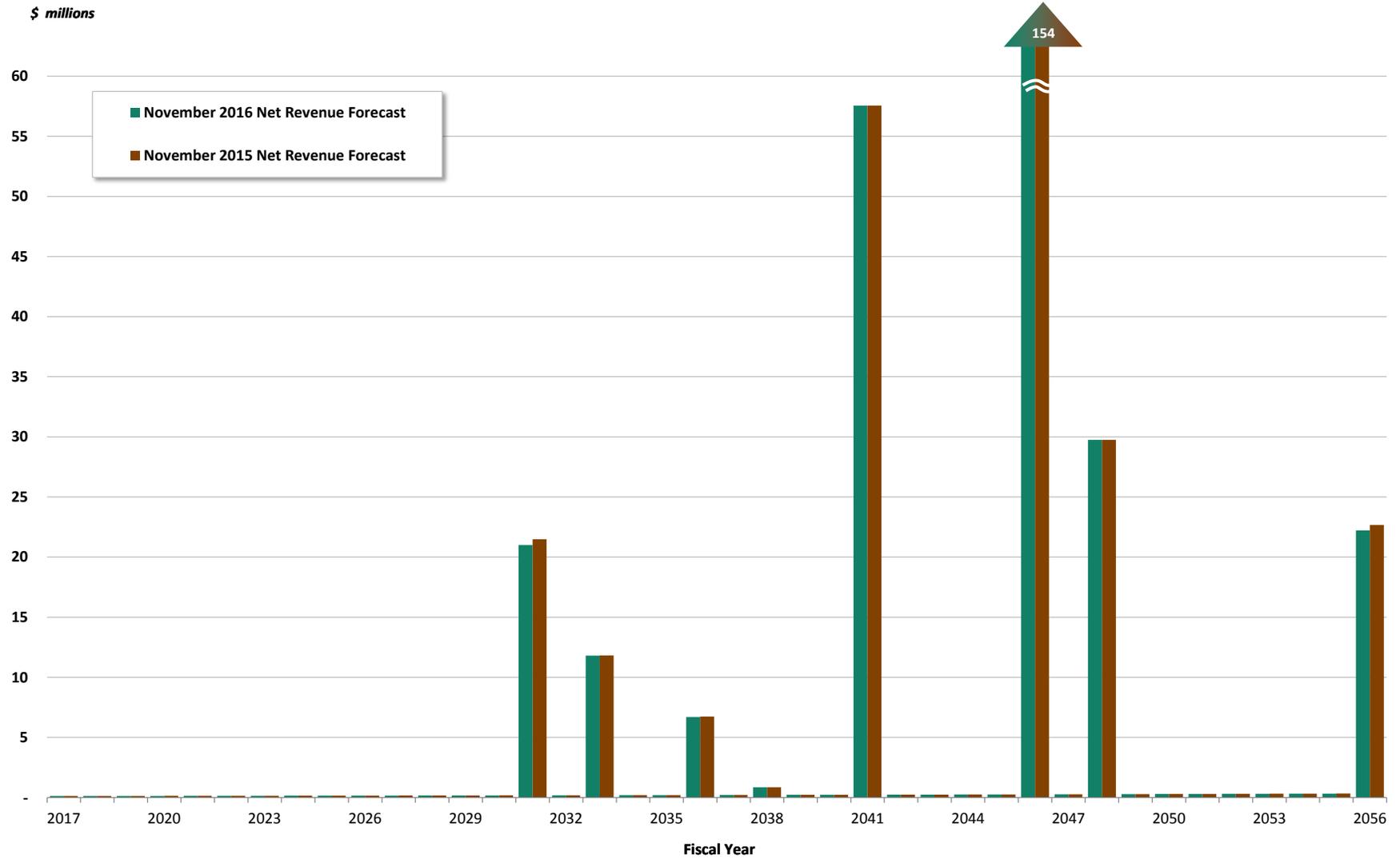
In contrast, WSDOT's non-toll funding from the Preservation Program would be used for non-bridge program components with toll capital funding, primarily the at-grade highway section between the floating bridge and I-405. R&R costs not paid from tolls in this section would include pavement grinding and resurfacing and roadway lighting.

The previous facility cost estimates alluded to the idea that tolls would eventually pay for a majority of the full corridor R&R costs, contingent upon the tolling of the I-90 Bridge to fund the Rest of the West, completing the corridor program. However, the 2015 Legislature authorized \$1.64 billion in funding for the Rest of the West improvements between I-5 to Lake Washington via the Connecting Washington transportation revenue package. As a result of this action taken by the State Legislature to construct the fifth and final component of the SR 520 corridor program using motor vehicle tax revenues, WSDOT assumes that the R&R costs for the Rest of the West will continue to be funded from non-toll motor vehicle revenues sources within the Preservation Program.

The scope of the program elements with toll funding for which toll revenues would pay facility R&R costs decreased for the November 2016 forecast by \$8.7 million over the FY 2017-2056 forecast period. The primary reason for the decreased R&R costs is the removal of costs associated to the West Connection Bridge from the forecast after FY 2018, as traffic in both directions will be moved to the West Approach Bridge North, expected to be completed in mid-2017.

Facility R&R costs funded by toll revenues are shown in column 28 of the Exhibit 28 T&R table for the November 2016 forecast. Annual amounts for all three forecasts are depicted in Exhibit 24 on the following page.

Exhibit 24: Toll-Funded Facility Repair & Replacement Costs by Forecast in YOE \$ (FY 2017-56)



Toll-Related Repair and Replacement Costs (Column 29)

Toll-related R&R costs include the periodic repair, rehabilitation, and replacement of the RTS hardware and equipment. In addition to hardware and equipment, the R&R cost forecast includes SR 520's share of the system-wide administrative and technical-related costs incurred by WSDOT to periodically procure both the RTS and CSC vendor contracts as well as implement and test new systems software and toll collection equipment hardware. As with the facility R&R costs, Master Resolution number 1117 requires that WSDOT's Consulting Engineer also review the toll-related R&R costs as part of their certification process.

Additional detail on toll-related R&R and vendor procurement costs is provided below, and the annual cost projections in year of expenditure dollars are provided in column 29 of Exhibit 28 in Appendix A.

Roadway Toll Systems Repair and Replacement Costs

RTS vendor R&R costs include upgrades to, or replacement of, cameras and transponder readers, networking equipment, and fiber optic communication lines. While it may be possible to get more than 10 years out of some hardware components and/or for WSDOT to extend the contract for an established RTS vendor, the cost projections conservatively assume that the RTS vendor and entire RTS system will be replaced every 10 years. This periodic procurement is next scheduled to commence in FY 2024, and includes up to one year for procurement of a state-wide vendor to provide the entire roadway toll system, followed by implementation and testing of each facility to allow for a smooth transition to a new vendor and/or new equipment.

Allocation of system-wide RTS procurement costs are calculated using the total number of active toll facilities to avoid concerns of over-allocation of primarily fixed costs to the I-405 Express Toll Lanes and the SR 167 HOT lanes, each with multiple toll points. The November 2016 forecast assumes an equal distribution of RTS procurement costs across facilities, with one-fourth of the total system-wide procurement costs allocated to SR 520 through FY 2018, dropping to one-fifth or 20 percent in FY 2019 with the inclusion of the SR 99 Tunnel and increasing back to one-fourth in FY 2033 with removal of tolls on TNB. In both the November 2015 and November 2016 forecasts, the costs for the last procurement cycle are omitted as the benefits from that vendor procurement would occur beyond the FY 2056 forecast horizon. In addition, it is conceivable that one or more vendor procurements may be concluded by choosing the same systems or operations vendor to continue to provide services. This would likely result in procurement, implementation and testing cost savings. Acknowledging this, it is most conservative to assume that any cost savings or exclusions occur at the end of the forecast horizon.

The November 2016 forecast incorporates several minor adjustments in costs for RTS R&R. These adjustments include:

- The increase in RTS costs is primarily due to increases in implementation and testing costs and transition and coordination costs during vendor transition assumed every 10 years with the procurement of a new vendor and/or vendor contract.
- Implementation and testing costs increased by \$1.07 million over the forecast horizon.
- Network Equipment R&R costs increased by approximately \$45,146.

In summary, the November 2016 forecast for RTS R&R items results in a total increase of nearly \$1.95 million or 6.5 percent over the forecast horizon in comparison to the November 2015 forecast values.

Customer Service Center Repair and Replacement Costs

In addition to costs related to RTS vendor procurement, implementation, and testing, the periodic costs to procure the CSC systems software and operations vendor(s) along with implementation and testing are also included in the Periodic Toll Equipment and CSC Repair and Replacement column in the net revenue table as provided in exhibit 28. A USDOT Urban Partnership Agreement grant covering SR 520 paid for the initial procurement of the current Customer Service Center vendor, including implementation, and testing. Going forward, future costs associated with procuring one or more CSC vendors will be allocated across all the authorized toll facilities based on each facilities share of total system wide transactions.

For the November 2016 forecast, periodic system-wide CSC vendor(s) procurement costs are allocated across the four existing facilities. The SR 99 Tunnel is excluded from this initial round of procurement as the process will be essentially completed with new contracts in place by the time the tunnel is completed and begins tolling in late FY 2019. In addition, tolls are assumed to be removed from the Tacoma Narrows Bridge at the end of FY 2032, thus removing it from the cost allocation starting with FY 2033.

Procurement costs are allocated based on each facility's forecasted toll transactions in the years the costs are projected to be incurred, with the exception of the initial procurement cycle anticipated to be completed in FY 2020, described in more detail below. Procurement costs are estimated in a manner consistent with the possibility that the CSC systems software and operations functions may be provided by the same or two different vendors. In both the November 2015 and November 2016 forecasts, the costs for the final forecast horizon procurement cycle are omitted as the benefits from that vendor procurement would occur beyond the FY 2056 forecast horizon. In addition, it is conceivable that one or more vendor procurements may be concluded by choosing the same systems software or operations vendor to continue to provide services. Should this occur, it would likely result in procurement, implementation and testing cost savings. Acknowledging this, it is most conservative to assume that any cost savings or exclusions occur at the end of the forecast horizon.

The current two year CSC vendor contract extension with ETC, which includes both the systems software as well as the back office and customer facing operations, expires at the end of FY 2018, with the completion of the contract's provisions for the second of two, two-year extensions. An additional contract amendment is being considered to extend the current vendor at least partway through FY 2020, during which there would be a transition to two new CSC vendor(s) contracts, one for systems software and one for operations, as a result of completion for the current vendor procurement processes in which new CSC vendor(s) would be operational at the beginning of FY 2020.

In January 2014, a report was released in response to the legislation passed in 2013 directing WSDOT to study the feasibility of a single account-based system for toll facility and ferry users.³ The recommendations in the report recognized that both the Washington State Ferries (WSF) ticketing system and the Toll Division CSC systems software will either be near the end of its lifecycle or at the end of its contract term in by the conclusion of FY 2018.

³ See Chapter 306, Laws of 2013 PV (ESSB 5024)

The existing CSC vendor was contracted to provide hosted software capable of account management, transponder inventory management, website administration, image reviews, adjudication management, pay-by-mail invoice generation and distribution (transferred to WA Department of Enterprise Services in 2016), collection oversight and accounting. The deployed software is referred to as a first generation (Gen 1) system in customer toll transactions processing for WSDOT. With the potential integration of *Good To Go!* toll technology as an alternative payment method for the WSF, the use of the toll technology would be expanded into a second generation (Gen 2) systems software for toll transaction processing and customer account management. In addition the Gen 2 system would address other concerns with the existing system including:

- Existing contract key performance indicators (KPIs) do not adequately measure some of the things which would add immediate value to the customer service delivery, such as the customer website for account management, the CSC phone system, and support for routine and ad hoc reporting;
- Frequent changes to operating rules create an unstable environment where operational consistency is difficult to achieve;
- Training does not adequately prepare customer-facing staff to deliver consistent information and service to customers;
- Established policies and procedures impacting good customer service are not always followed; and
- Recognition and resolution of transaction processing and customer service issues have been slow.

The November 2016 forecast for procurement costs assume that the systems software with enhanced capabilities and associated vendor contract would be procured anew every 10 years. While this reduces the annual O&M costs for maintaining and prolonging the existing systems software, it increases the R&R costs associated with procurement, implementation and testing each decade.

For the November 2016 forecast, WSDOT Toll Division has assumed two separate vendor contracts for a CSC systems software vendor and for a CSC operations vendor providing back and front office customer service operations. The RFPs do not preclude the selection of the same vendor for both contracts.

- CSC Systems Software — The back office systems software is integrated with the roadway toll systems (up to three separate vendors), WSDOT’s accounting system (TRAINS), the Washington State Department of Licensing, and an out-of-state license plate look-up vendor, the latter two for identifying Pay By Mail customer names and addresses for mailing toll bills.
 - The CSC systems software vendor and the system itself is assumed to be procured every 10 years, with the first procurement cycle completed by FY 2020.
- CSC Operations — The CSC operations vendor is primarily responsible for the staff performing the front and back office customer service operations tasks. These would include call center operations, back office processing, image review, transponder inventory management, adjudication management, collection oversight, and retail front office services. Toll bill printing and mailing, recently transferred from the back office vendor to WA Department of

Enterprise Services, may also be included in future vendor procurement but has not been confirmed at this time.

- The CSC operations vendor is assumed to be procured every seven years. This is assumed to be comprised of a three-year contract with, on average, one three-year contract extension assumed, and an additional year assumed with a partial vendor contract extension to allow for the transition to a new vendor. The first replacement cycle is anticipated to be completed as soon as the beginning of FY 2020.
- In addition, WSDOT can evaluate what services may remain with the operator or brought in-house on a task by task basis in order to optimally leverage each group's areas of expertise.

To successfully procure, award, develop, test, and implement a new Gen 2 systems software vendor, WSDOT would need to extend the existing contract with ETC through FY 2020 for at least the systems software functions, if not also the CSC operations. This would likely be preferable to contracting with another vendor to keep the existing systems software up and running under a short term contract until the changeover to a new system in FY 2020. WSDOT has already started the procurement process, with a systems vendor contract RFP announced in 2016 and full funding of the procurement, transition, and testing has been requested for FY 2018 and FY 2019 to allow for the new system to be ready for production as early as the start of FY 2020.

System-wide costs related to the first cycle of CSC systems and operations vendor procurement assumed in the November 2016 forecast are \$28 million, an increase of \$11.7 million over the prior underlying forecast assumptions. In the November 2016 forecast, the 2015 estimates were further refined to account for an accelerated procurement schedule, as mandated by the legislature, and include additional costs associated with independent verification and validation as detailed in an SAO audit for a systems project of this complexity, increased contingency, physical relocation of the back office and associated staff, dedication of WSDOT staff to the procurement effort, and a data warehouse system.

Total system-wide vendor procurement costs are broken out by the following primary categories, with the amounts provided in current dollars before annual adjustments for cost escalation to year of expenditure dollars (at an assumed 2.5 percent) and before allocation to each toll facility in the system.

- System RFP Development, Vendor Solicitation, Start-Up and Transition, System Development and Design, and Installation – WSDOT and consultants will work with the vendor to transition the current system to a new system within the current procurement cycle with costs allocated over two years:
 - WSDOT share of costs for management oversight of \$1,887,000.
 - Consultant share of costs for management oversight and Independent Verification and Validation of \$3,239,000.
 - Vendor share of costs for system development and implementation of \$17,156,000.
- Operations RFP Development, Vendor Solicitation, Start-Up and Transition, and Development and Design – WSDOT and consultants will work with the vendor to transition a new operation vendor or updated contract with the existing vendor within the current procurement cycle with costs allocated over two years:

- WSDOT share of costs for management oversight of \$629,000.
- Consultant share of costs for management oversight of \$560,000.
- Vendor share of costs for design and testing, onboarding transition plan, and additional CSR training of \$982,000.
- CSC Facilities Transition — Costs incurred by WSDOT for managing the transition to a new CSC facility in FY 2019:
 - Lease Improvements cost of \$350,000.

In addition to the lease improvements, facility lease costs are included in CSC O&M within the expected new vendor contract costs and WSDOT staff costs.

- Transition Support – Costs incurred by the existing and future vendor for managing the handover of operations and systems functions in FY 2019:
 - Systems software transition support of \$850,000.
- Data Warehouse – WSDOT and consultants will work with the vendor to develop a data warehouse over two years:
 - WSDOT share of costs for IT Management and Data Analyst Involvement of \$191,000.
 - Consultant share of costs for data specialist support of \$221,000.
 - Vendor share of costs for developer staff, database analysis, implementation of tools and licenses, and server and hardware installation of \$1,860,000.

In addition to the initial development costs for software and hardware, maintenance and technical support are included in the routine WSDOT and Consultant staff costs and Vendor contract costs discussed in their respective sections.

Ten years of forecasted transactions (FYs 2020-29) for the existing four facilities (SR 520 Bridge, Tacoma Narrows Bridge, SR 167 HOT lanes, and I-405 ETLs between Bellevue and Lynnwood) were used to calculate the facility allocation shares for system-wide costs in the initial systems software and operations vendor procurement cycle. This methodology accounts for the benefits during the assumed demand ramp-up period (in the case of I-405). After the current vendor procurement cycle, costs for future procurement cycles are allocated to each facility's forecasted transactions by year, with the addition of SR 99 for allocation purposes in FY 2020, and the Tacoma Narrows Bridge assumed to end tolls after FY 2032, and thus removed from the allocation formula. Although the forecast assumes a system capable of back office integration with WSF, WSF is not yet assumed to be part of the operations, and thus, costs for that customization are excluded since WSF doesn't contribute to procurement or operational costs.

The vendor procurement cycle is expected to be repeated on a periodic basis throughout the forecast horizon, with different frequencies for systems software (10 years) and operations vendors (up to six years with an additional year of transition), as previously noted.

In summary, the November 2016 forecast for CSC R&R items results in a total increase of \$26.3 million or 45.4 percent over the forecast horizon in comparison to the November 2015 forecast estimates.

Exhibit 25 illustrates the total toll-related R&R costs for the November 2016 and previous November 2015 forecasts. Exhibit 26 further illustrates the composition of the November 2016 forecast values by the three categories of toll-related R&R costs.

Exhibit 25: Toll Collection Repair and Replacement Cost Estimates by Forecast in YOE \$ (FY 2017-56)

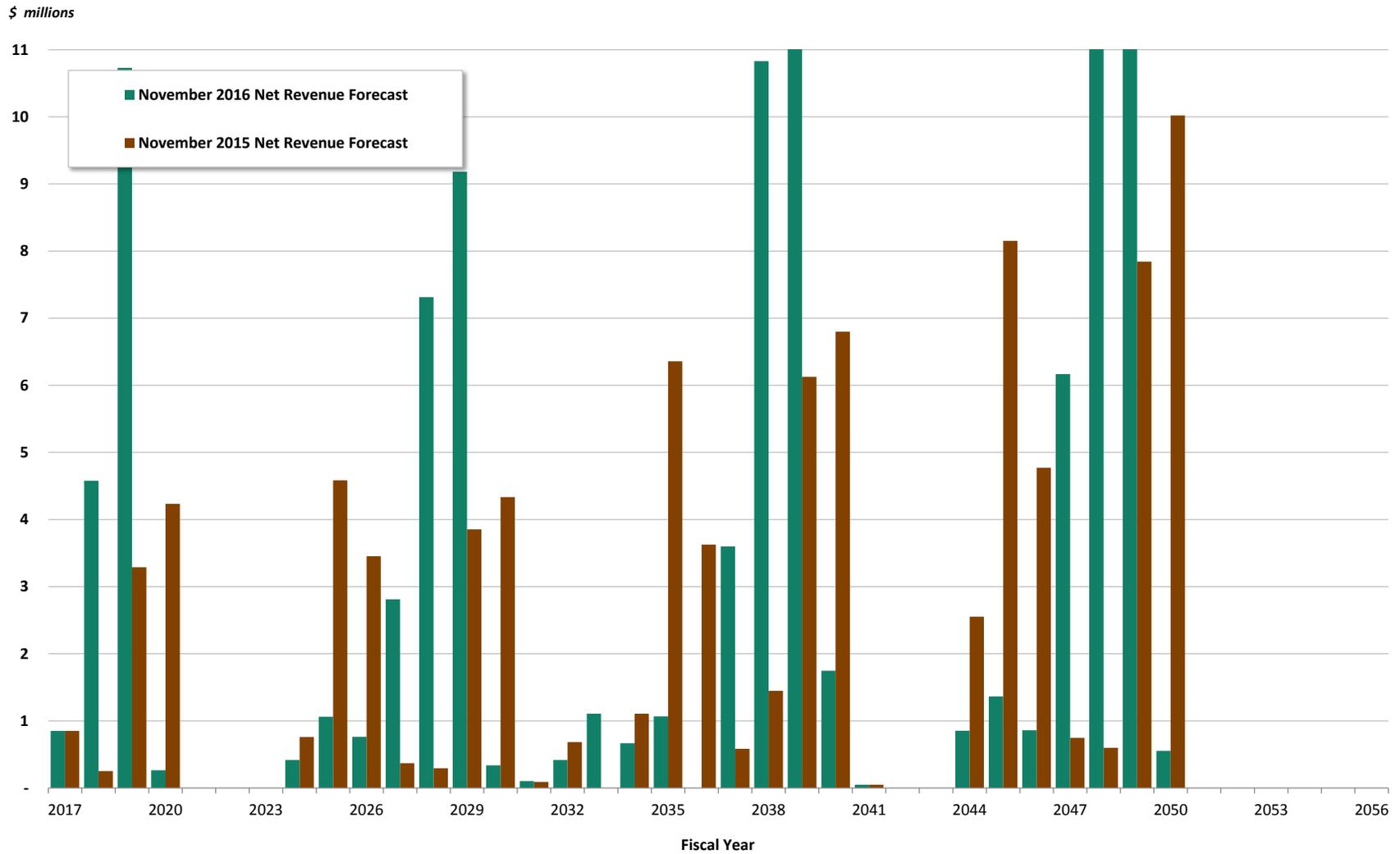
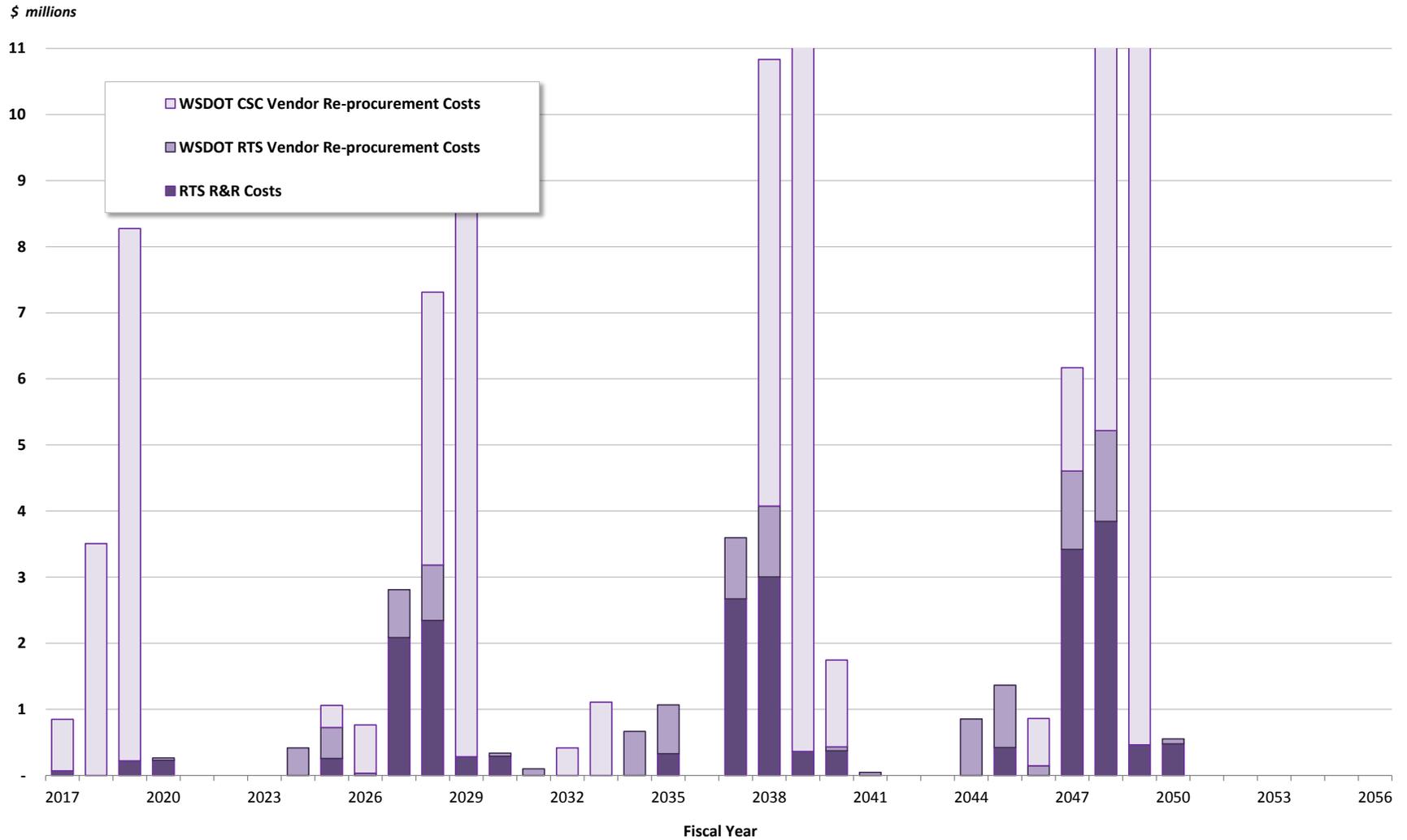


Exhibit 26: November 2016 Forecast for Toll Collection Repair & Replacement Costs by Component in YOE \$ (FY 2017-56)



Appendix A: Annual Toll Traffic & Revenue Projections

The T&R table provided on the following page as Exhibit 28 shows the adjustments, additions, and reductions to CDM Smith's Gross Toll Revenue Potential forecast that yield the net toll revenue cash flow available for debt service and other downstream uses.

Key changes and additions to T&R table columns by forecast are shown in Exhibit 27 below, with (#) representing the table column number.

Exhibit 27: Changes in the T&R Table Format across the Five Annual Net Revenue Forecasts

SEPTEMBER 2011	SEPTEMBER 2012*	OCTOBER 2013 AND NOVEMBER 2014	NOVEMBER 2015	NOVEMBER 2016
Gross Toll Revenue (11)	Gross Toll Revenue Potential (11)	No change	No change	No change
Free Trip Incentive (12)	No Change	Included in actuals for Toll Payment Discounts & Fees (12)	No change	No change
Self-Initiated Payment Incentives (13)	No Change	Included in Toll Payment Discounts & Fees (12)	No change	No change
Good To Go! Pay By Plate Fees (14)	Good To Go! Pay By Plate Surcharge (14)	Included in Toll Payment Discounts & Fees (12)	No change	No change
Late Payment Fees (15)	No change	Pay By Mail Rebilling Fees (18)	No change	No change
N/A	N/A	N/A	N/A	Recaptured Toll Revenue at Good to Go! Rates via CPR (15)
N/A	N/A	Gross Toll Revenue Collected (15)	No change	Gross Toll Revenue Collected (16)
Uncollectible Transactions/Leakage (16)	Uncollectible Accounts (16)	Revenue Not Recognized (13), Unpaid Toll Revenue (14)	No change	No change
N/A	N/A	Misc. Pledged Revenues (16)	No change	Misc. Pledged Revenues (17)
Recovered Toll & Fee Revenue (17)	No change	Recovered Toll Revenue (19), recovered fees included in Pay By Mail Rebilling Fees (18)	No change	Toll Revenue Recovered at Pay By Mail Rates via NOCP (20), recovered fees included in Pay By Mail Rebilling Fees (19)
Adjusted Gross Toll Revenues (18)	No change	Adjusted Gross Toll Revenue & Fees (20)	No change	Adjusted Gross Toll Revenue & Fees (21)
Transponder Sales Revenue (19)	No change	Transponder Sales Revenue (17)	No change	Transponder Sales Revenue (18)
Credit Card Fees (21)	Credit Card Fees (22)	Credit Card Fees (21)	Credit Card Fees (21): now excludes credit card fees from transponder sales	Credit Card Fees (22)
Transponder Purchase & Inventory Cost (20)	No change	Included in Toll Collection O&M (22)	Included in Toll Collection O&M (22); now includes credit card fees on transponder sales	Included in Toll Collection O&M (23)
Routine Toll Collection O&M Costs (22)	Toll Collection O&M Costs (22)	Toll Collection O&M Costs (22), now includes Transponder Purchase & Inventory Cost	No change	Toll Collection O&M Costs (23)
N/A	N/A	Periodic Toll Equipment and CSC Repair & Replacement Costs (28)	No change)	Periodic Toll Equipment and CSC Repair & Replacement Costs (29)
Remaining Net Toll Revenues After R&R/Deferred Sales Tax (28)	Net Toll Revenue After Deferred Sales Tax and Periodic R&R (28)	Total Net Toll Revenue After Deferred Sales Tax and Periodic R&R (29)	No change	Removed

* Forecast values correspond to the September 2012 Net Revenue forecast update, modified to incorporate nickel rounding of toll rates in fiscal years 2014-16, as adopted by the Washington State Transportation Commission in May 2013.

EXHIBIT 28: SR 520 TRAFFIC AND REVENUE TABLE – NOVEMBER 2016 FORECAST
Annual Transactions, Gross Revenue, and Net Revenue | FY 2012-56

Dated: 1/13/2017

Fiscal Year	Good To Go! Accounts			Pay By Mail / No Account			Total Toll Transactions (millions) ¹	Toll Revenue Potential		Total Gross Toll Revenue Potential (\$ millions) ⁴	Plus (Less):				Subtotal: Adjusted Gross Toll Revenue Collected (\$ millions)	Plus:				Subtotal: Adjusted Gross Toll Revenue & Fees (\$ millions)	Less: [23a - 23d roll up to column 23]					Total Net Toll Revenue (\$ millions)	Deferred Sales Tax Payments (\$ millions) ²³	Periodic Facility Repair & Replacement (R&R) Costs (\$ millions) ²⁴	Periodic Toll Equipment and CSC Repair & Replacement (R&R) Costs (\$ millions) ²⁵			
	Wtd. Average Toll per PCE Transaction (one-way) ¹	Annual Bridge Toll Transactions (millions) ²	PCE Bridge Volumes (millions) ³	Wtd. Average Toll per PCE Transaction (one-way) ¹	Annual Bridge Toll Transactions (millions) ²	PCE Bridge Volumes (millions) ³		Good To Go! Pre-Paid (\$ millions) ⁵	Pay By Mail / No Account (\$ millions) ⁶		Toll Payment Discounts and Fees (\$ millions) ^{7, 8, 9}	Revenue Not Recognized (\$ millions) ^{10, 11}	Unpaid Toll Revenue (\$ millions) ^{10, 12}	Recaptured Toll Revenue at Good To Go! Rates via CPR (\$ millions) ¹³		Misc. Pledged Revenues (\$ millions) ¹⁴	Transponder Sales Revenue (\$ millions) ¹⁵	Pay By Mail Rebilling Fees (2nd Invoice & Later Recovery) (\$ millions) ^{16, 17}	Toll Revenue Recovered at Pay By Mail Rates via NOCP (\$ millions) ¹⁸		Credit Card Fees (\$ millions) ¹⁹	Transponder Purchase and Inventory Costs (\$ millions)	State Operations Costs (\$ millions)	Customer Service Center (CSC) Vendor O&M Costs (\$ millions)	Roadway Toll Systems (RTS) O&M Costs (\$ millions) ²⁰					Toll Collection O&M Costs (\$ millions) ²¹	Routine Facility O&M Costs (\$ millions) ²²	Bridge Insurance Premium (\$ millions) ²²
2012	\$2.66	7.95	8.05	\$3.96	1.66	1.69	9.61	21.39	6.67	28.06	(0.21)	(0.69)	(1.05)	0.00	26.10	2.00	1.32	0.83	-	30.25	(0.43)	-	-	-	-	(6.97)	-	(1.64)	21.22	-	-	-
2013	\$2.78	16.92	17.01	\$4.19	3.30	3.35	20.22	47.28	14.02	61.30	0.67	(1.52)	(5.01)	-	55.44	0.24	0.47	1.38	-	57.53	(0.91)	-	-	-	-	(7.16)	-	(2.43)	47.02	-	-	-
2014	\$2.85	17.69	17.77	\$4.23	3.27	3.31	20.96	50.57	14.02	64.59	0.86	(1.68)	(3.28)	0.01	60.50	0.21	0.50	1.51	-	62.72	(1.08)	-	-	-	-	(7.98)	-	(2.52)	51.14	-	-	-
2015	\$2.93	18.43	18.52	\$4.19	3.59	3.62	22.02	54.21	15.17	69.38	1.02	(3.82)	(2.69)	0.06	63.95	0.51	0.55	1.60	0.89	67.49	(1.20)	-	-	-	-	(9.16)	-	(2.22)	54.91	-	-	(0.35)
2016	\$2.93	19.77	19.86	\$4.79	3.45	3.48	23.22	58.13	16.67	74.80	1.20	(3.70)	(3.73)	0.79	69.35	0.70	0.83	1.40	0.82	73.09	(1.31)	-	-	-	-	(9.93)	(0.81)	(2.26)	58.77	-	-	(0.48)
2017	\$3.09	20.33	20.44	\$4.92	3.86	3.91	24.19	63.12	19.25	82.37	1.28	(4.38)	(4.36)	0.56	75.47	0.65	0.74	1.23	0.82	78.90	(1.57)	(0.74)	(5.62)	(5.44)	(0.98)	(12.78)	(2.84)	(2.24)	59.48	-	(0.13)	(0.85)
2018	\$3.22	20.90	21.03	\$5.03	3.90	3.96	24.81	67.66	19.93	87.59	1.26	(4.33)	(4.57)	0.61	80.56	0.43	0.87	1.26	0.62	83.74	(1.67)	(0.87)	(5.39)	(5.00)	(0.68)	(11.94)	(2.49)	(2.31)	65.33	-	(0.13)	(4.58)
2019	\$3.21	21.48	21.62	\$5.03	3.91	3.98	25.40	69.45	19.99	89.44	1.23	(4.32)	(4.64)	0.63	82.34	0.45	1.07	1.27	0.62	85.75	(1.71)	(1.07)	(5.45)	(5.83)	(0.69)	(13.03)	(2.48)	(2.36)	66.17	-	(0.13)	(10.73)
2020	\$3.21	22.27	22.42	\$5.02	3.97	4.03	26.23	71.88	20.26	92.15	1.25	(3.56)	(4.90)	0.65	85.59	0.48	0.81	1.33	0.72	88.93	(1.78)	(0.81)	(5.00)	(5.93)	(0.69)	(12.43)	(2.54)	(2.43)	69.75	-	(0.14)	(0.26)
2021	\$3.20	22.88	23.04	\$5.02	3.99	4.06	26.87	73.67	20.38	94.05	1.25	(2.75)	(5.12)	0.68	88.11	0.56	0.81	1.40	0.72	91.60	(1.83)	(0.81)	(5.10)	(5.33)	(0.71)	(11.95)	(2.60)	(2.48)	72.74	-	(0.14)	-
2022	\$3.19	23.95	24.13	\$5.00	4.12	4.20	28.08	76.87	21.01	97.88	1.28	(2.82)	(5.29)	0.71	91.75	0.64	0.85	1.44	0.77	95.46	(1.90)	(0.85)	(5.37)	(5.58)	(0.76)	(12.57)	(2.67)	(2.56)	75.77	-	(0.14)	-
2023	\$3.15	25.38	25.57	\$4.95	4.35	4.44	29.73	80.59	21.98	102.57	1.32	(2.93)	(5.55)	0.73	96.14	0.71	0.92	1.52	0.77	100.06	(1.99)	(0.92)	(5.69)	(5.98)	(0.76)	(13.35)	(2.73)	(2.63)	79.35	(15.94)	(0.15)	-
2024	\$3.14	26.11	26.31	\$4.94	4.42	4.50	30.52	82.71	22.26	104.97	1.32	(2.96)	(5.60)	0.76	98.48	0.74	0.96	1.55	0.83	102.57	(2.04)	(0.96)	(5.88)	(6.26)	(0.78)	(13.88)	(2.80)	(2.69)	81.15	(15.94)	(0.15)	(0.42)
2025	\$3.15	26.75	26.97	\$4.94	4.43	4.53	31.19	84.86	22.36	107.22	1.31	(2.97)	(5.63)	0.76	100.70	0.79	1.00	1.56	0.83	104.88	(2.09)	(1.00)	(6.06)	(6.50)	(0.83)	(14.39)	(2.87)	(2.75)	82.78	(15.94)	(0.16)	(1.06)
2026	\$3.16	27.73	27.96	\$4.94	4.49	4.59	32.22	88.24	22.71	110.95	1.35	(3.03)	(5.72)	0.77	104.32	0.84	1.05	1.59	0.88	108.67	(2.16)	(1.05)	(6.28)	(6.86)	(0.82)	(15.01)	(2.94)	(2.83)	85.72	(15.94)	(0.16)	(0.76)
2027	\$3.15	28.41	28.66	\$4.93	4.52	4.63	32.93	90.28	22.82	113.09	1.38	(3.07)	(5.77)	0.78	106.42	0.90	1.09	1.60	0.88	110.89	(2.21)	(1.09)	(6.47)	(7.11)	(0.82)	(15.49)	(3.01)	(2.89)	87.29	(15.94)	(0.16)	(2.81)
2028	\$3.15	29.03	29.29	\$4.93	4.53	4.64	33.56	92.30	22.84	115.15	1.41	(3.09)	(5.78)	0.79	108.47	0.95	1.11	1.61	0.90	113.03	(2.25)	(1.11)	(6.65)	(7.35)	(0.69)	(15.81)	(3.09)	(2.94)	88.95	(15.94)	(0.17)	(7.31)
2029	\$3.15	29.43	29.70	\$4.92	4.51	4.62	33.94	93.50	22.73	116.23	1.42	(3.09)	(5.77)	0.79	109.59	0.99	1.12	1.61	0.90	114.20	(2.27)	(1.12)	(6.81)	(7.56)	(0.86)	(16.35)	(3.17)	(2.97)	89.44	(15.94)	(0.17)	(9.18)
2030	\$3.15	29.96	30.24	\$4.91	4.50	4.62	34.46	95.21	22.70	117.91	1.45	(3.11)	(5.77)	0.79	111.27	1.05	1.13	1.61	0.91	115.97	(2.31)	(1.13)	(7.00)	(7.86)	(0.88)	(16.88)	(3.25)	(3.01)	90.53	(15.94)	(0.18)	(0.34)
2031	\$3.15	30.53	30.83	\$4.91	4.50	4.62	35.03	97.13	22.67	119.79	1.47	(3.12)	(5.77)	0.79	113.16	1.09	1.19	1.61	0.91	117.95	(2.35)	(1.19)	(7.20)	(8.08)	(0.90)	(17.36)	(3.33)	(3.06)	91.85	(15.94)	(21.00)	(0.10)
2032	\$3.15	31.23	31.53	\$4.91	4.60	4.72	35.83	99.34	23.17	122.51	1.50	(3.19)	(5.90)	0.80	115.72	1.13	1.24	1.64	0.91	120.65	(2.40)	(1.24)	(7.47)	(8.39)	(0.92)	(18.03)	(3.41)	(3.13)	93.68	(15.94)	(0.19)	(0.42)
2033	\$3.15	31.68	31.98	\$4.91	4.67	4.79	36.34	100.71	23.51	124.22	1.53	(3.24)	(5.99)	0.81	117.33	1.13	1.29	1.67	0.91	122.33	(2.43)	(1.29)	(8.77)	(9.33)	(0.95)	(20.34)	(3.49)	(3.17)	92.89	-	(11.81)	(1.11)
2034	\$3.15	32.16	32.48	\$4.90	4.74	4.87	36.90	102.23	23.87	126.10	1.55	(3.29)	(6.08)	0.83	119.11	1.13	1.35	1.69	0.93	124.21	(2.47)	(1.35)	(9.05)	(9.62)	(0.97)	(20.98)	(3.58)	(3.22)	93.96	-	(0.19)	(0.67)
2035	\$3.15	32.55	32.86	\$4.90	4.80	4.93	37.35	103.35	24.18	127.53	1.57	(3.33)	(6.16)	0.84	120.45	1.13	1.39	1.72	0.93	125.62	(2.50)	(1.39)	(9.33)	(10.10)	(1.00)	(21.82)	(3.67)	(3.26)	94.37	-	(0.20)	(1.07)
2036	\$3.15	33.02	33.34	\$4.90	4.87	5.00	37.89	104.84	24.52	129.37	1.59	(3.38)	(6.24)	0.85	122.19	1.13	1.45	1.74	0.96	127.47	(2.53)	(1.45)	(9.61)	(10.40)	(1.02)	(22.49)	(3.76)	(3.30)	95.38	-	(6.69)	-
2037	\$3.15	33.26	33.59	\$4.90	4.90	5.04	38.17	105.66	24.69	130.34	1.60	(3.40)	(6.28)	0.86	123.12	1.13	1.50	1.76	0.96	128.46	(2.55)	(1.50)	(9.86)	(10.68)	(1.05)	(23.09)	(3.86)	(3.33)	95.63	-	(0.21)	(3.60)
2038	\$3.15	33.51	33.83	\$4.90	4.94	5.07	38.44	106.40	24.87	131.26	1.61	(3.43)	(6.33)	0.86	123.99	1.13	1.55	1.77	0.98	129.41	(2.57)	(1.55)	(10.12)	(10.96)	(0.89)	(23.52)	(3.95)	(3.35)	96.02	-	(0.86)	(10.83)
2039	\$3.14	33.68	34.01	\$4.90	4.96	5.10	38.65	106.93	25.00	131.93	1.62	(3.44)	(6.36)	0.87	124.62	1.13	1.59	1.78	0.98	130.10	(2.58)	(1.59)	(10.37)	(11.19)	(1.10)	(24.26)	(4.05)	(3.37)	95.84	-	(0.22)	(15.49)
2040	\$3.14	33.86	34.18	\$4.90	5.00	5.13	38.85	107.40	25.14	132.54	1.63	(3.46)	(6.40)	0.87	125.18	1.13	1.64	1.79	1.00	130.74	(2.60)	(1.64)	(10.65)	(11.68)	(1.13)	(25.09)	(4.15)	(3.39)	95.52	-	(0.23)	(1.75)
2041	\$3.14	33.86	34.19	\$4.90	5.00	5.14	38.86	107.37	25.16	132.52	1.63	(3.46)	(6.40)	0.88	125.16	1.13	1.68	1.79	1.00	130.76	(2.60)	(1.68)	(10.91)	(11.93)	(1.15)	(25.68)	(4.26)	(3.39)	94.85	-	(57.56)	(0.05)
2042	\$3.14	34.02	34.35	\$4.90	5.02	5.15	39.04	107.93	25.24	133.17	1.64	(3.48)	(6.42)	0.88	125.79	1.13	1.73	1.80	1.01	131.45	(2.61)	(1.73)	(11.20)	(12.23)	(1.18)	(26.34)	(4.36)	(3.40)	94.74	-	(0.24)	-
2043	\$3.14	34.13	34.46	\$4.90	5.03	5.17	39.17	108.26	25.33	133.59	1.64	(3.49)	(6.45)	0.88	126.18	1.13	1.78	1.80	1.01	131.90	(2.62)	(1.78)	(11.49)	(12.56)	(1.21)	(27.04)	(4.47)	(3.41)	94.36	-	(0.24)	-
2044	\$3.14	34.36	34.69	\$4.90	5.06	5.20	39.42	108.96	25.48	134.44	1.65	(3.51)	(6.49)	0.89	126.99	1.13	1.84	1.81	1.01	132.78	(2.63)	(1.84)	(11.81)	(12.88)	(1.24)	(27.77)	(4.58)	(3.43)	94.36	-	(0.25)	(0.85)

This page left intentionally blank

Appendix C: List of Facility Maintenance Activities

Exhibit 30: SR 520 Maintenance Categories and 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	Storm water Treatment Facility (Each)
Litter Pickup	Shoulder mile
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
Raised/Recessed Pavement Marker Maintenance	
<i>Raised</i>	<i>Each</i>
Pavement Marking Maintenance	Each
Regulatory Sign Maintenance	Each
Guide Sign Maintenance	Each
Guardrail Maintenance	
<i>Concrete Barrier</i>	<i>Linear Feet of Concrete Barrier</i>
Highway Lighting Systems Operations	Each
Toll Equipment Power	Annual Lump Sum
Under-Lid Lighting Operations	Annual Lump Sum
Intelligent Transportation Systems Operations	
<i>Closed Circuit Television</i>	<i>Each</i>
<i>Variable Message/Changeable Sign</i>	<i>Each</i>
<i>Data Station System</i>	<i>Each</i>
3rd Party (unknown) Damages	Lane Mile
Wetland Mitigation Sites	Acres
ATM Sign Structures	Each
Static Sign Structures	Each
Noise Walls	Linear Feet
Fish Culverts	Each
Sidewalk	Linear Feet
Locates (all disciplines)	Each
Retaining Wall	Linear Feet

This page left intentionally blank