

Transportation Revenue Forecast Council

September 2016 Transportation Economic and Revenue Forecasts

Volume I: Summary

Washington Transportation Economic and Revenue Forecast September 2016 Forecast

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Preface

Washington law mandates the preparation and adoption of economic and revenue forecasts. The organizations primarily responsible for revenue forecasts are the Economic and Revenue Forecast Council and the Office of Financial Management. The Office of Financial Management has the statutory responsibility to prepare and adopt those forecasts not made by the Economic and Revenue Forecast Council (RCW 43.88.020). The Office of Financial Management carries out its forecast responsibilities for transportation revenues through the Transportation Revenue Forecast Council. Each quarter, technical staff of the Department of Licensing, Department of Transportation, Washington State Patrol and the Office of Forecast Council produce forecasts. The revenue forecasts agreed upon by the Transportation Revenue Forecast Council members become the official estimated revenues under RCW 43.88.020 21.

September 2016 Transportation Forecast Overview

Forecast Overview

Here are key conclusions from the September 2016 transportation revenue forecast.

- September 2016 transportation forecast of revenues: \$5.828 billion for the current biennium which represents an increase of 24.4% over the prior 2013-15 biennium of \$4.69 billion.
- Overall transportation revenue has an upward revision forecast to forecast in the current biennium, up \$15.8 million, with the largest share of the increase in licenses, permits and fee revenue. Next biennium, overall transportation revenues will be \$6.0405 billion which is up \$21.8 million or 0.34% over the last forecast.
- For the 10-year forecast horizon, total revenues are projected to be \$32.27 billion, which is up by \$169 million (0.53%) from June due primarily to higher gas tax revenues and licenses, permits and fee revenue for trucks and passenger cars. All other tax revenue sources have only minor changes from the last forecast.
- New projections of real personal income are minor revisions up in FY 2016-2019 from the last forecast in terms of growth rates. Employment projections are up slightly in FY 2017 and 2019 and 2020 from the last forecast. Retail gas and diesel prices are up from the June forecast. The current forecast for average annual retail gas and diesel price forecasts are higher than June's forecast for all years. The current B5 biodiesel price forecast for ferries is down from the last forecast throughout the forecast horizon.
- The primary reason for the change in fuel tax revenue has been gas tax collections coming in close to the last forecast. Gas taxes have been up minimally, \$1.3 million, higher in the last three months compared to the June forecast. Diesel tax collections have come in close to forecast for two months but August diesel tax collections were more uncertain due to the Department of Licensing instituting a new fuel tax reporting system. This September forecast has very little change in the short-term for gas and diesel revenue projections but a long-term upward revision in gas tax collections and a lower long-term forecast for diesel.
- Licenses, permits and fee (LPF) revenue are up forecast to forecast by \$20 million in the current biennium. In the next biennium, the revenues are also anticipated to be up by \$14.8 million forecast to forecast. Over the 10 year forecast period, LPF revenue is up \$115 million (1.6%) over the last forecast with the largest share of the increase being higher weight based registration (truck) fees, passenger vehicle basic \$30 license fee and weight fees which contributed to the majority of the LPF increase in the long-term.
- The toll forecast has not changed since June. The ferry forecast has only a minor revision downward in the outer biennia due to higher real gas prices which lower ridership on the ferries.

In the current fiscal year, total transportation revenues are anticipated to be \$3.13 billion, which is a 15.8% increase annually. This increase was due to the adoption of the 2015 transportation revenue package which began in FY 2016 and that explains a large portion of the annual increase between FY 2015 and 2016. Overall during the 10-year horizon, transportation revenues are projected to be \$32.27 billion and \$169 million or 0.5% above the projections in June with an average annual growth rate of 3.3%.

Figure 1: Total Transportation Revenues Comparison September vs. June vs. February 2016 forecasts *millions of dollars*

All Forecasts Include the 2015 Transportation Revenue Package

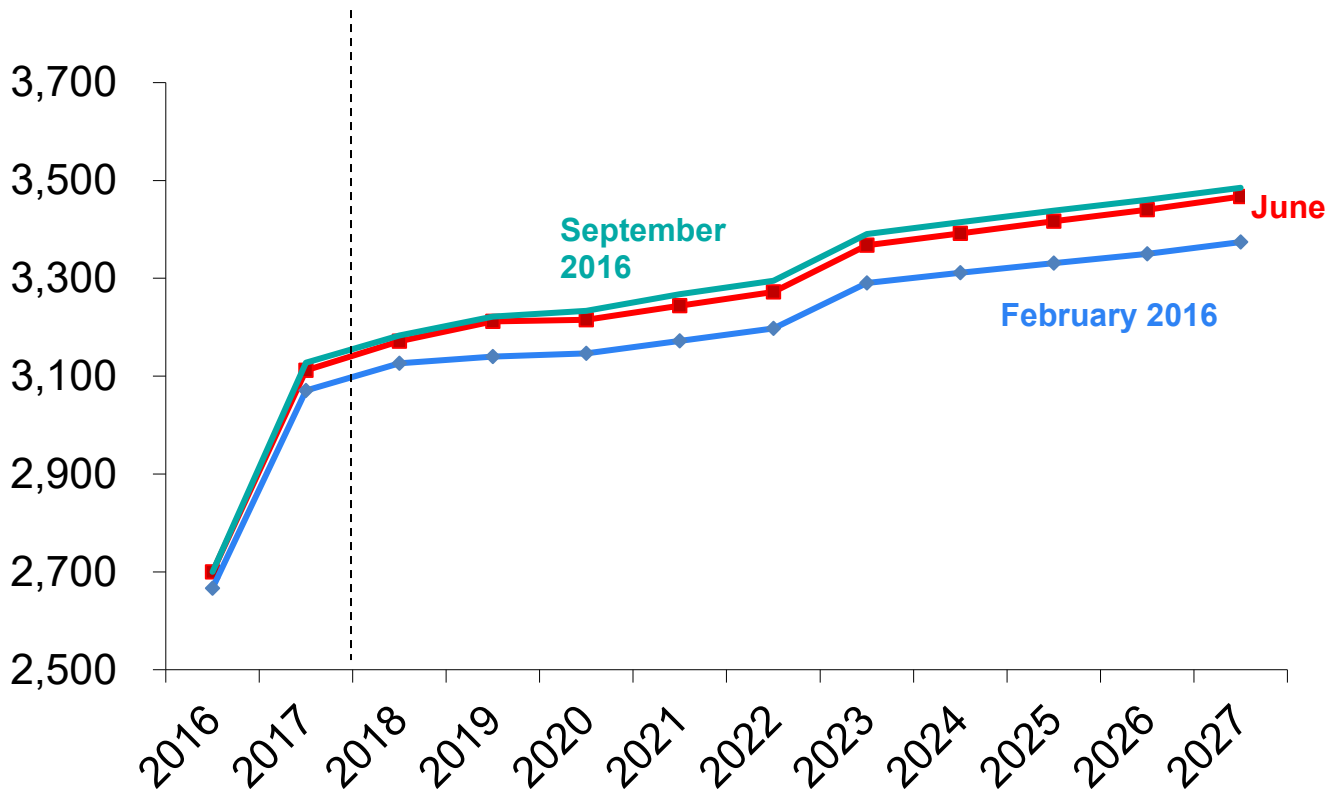
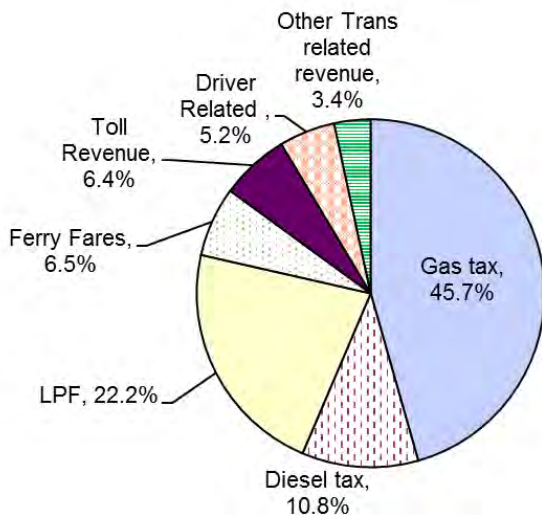


Figure 2: Revenue by Source 2015-17 biennium (\$5.828 billion)



Washington's transportation revenues come from numerous taxes, fees, permits, tolls, and other revenues. Revenues forecasted each quarter include the sources contained in Figure 2. This pie graph reveals the anticipated share of each state revenue source to the total transportation revenues for the 2015-17 biennium, (\$5.828 billion). Gasoline fuel taxes comprise the largest share at 45.7%. With the addition of diesel fuel taxes, all motor vehicle fuel taxes comprise 56.5% of all revenues. Licenses, permits, and fee revenues comprise the second largest share at 22.2%. The largest three revenue sources are projected to consist of 78.7% of revenues in the 2015-17 biennium. The remaining 21.3% consists of ferry fares, toll revenue, driver related revenue and other transportation related revenue.

Figure 3: Forecast to Forecast Biennium Comparison of All Transportation Revenues September 2016 forecast - 10 year period

Forecast to Forecast Comparison for Transportation Revenues and Distributions 10-Year Period									
September 2016• millions of dollars									
	Current Biennium						10-Year Period		
	2015-2017			2017-2019			(2016-2025)		
	Forecast Sep-16	Chg from Jun-16	Percent Change	Forecast Sep-16	Chg from Jun-16	Percent Change	Forecast Sep-16	Chg from Jun-16	Percent Change
Sources of Transportation Revenue									
Motor Vehicle Fuel Tax Collections	3,287.44	3.57	0.11%	3,641.07	9.92	0.27%	18,098.81	79.80	0.44%
Licenses, Permits and Fees	1,289.88	20.08	1.58%	1,470.51	14.82	1.02%	7,528.91	114.75	1.55%
Ferry Revenue†	378.06	1.30	0.35%	388.86	(0.34)	-0.09%	1,972.12	(4.68)	-0.24%
Toll Revenue §	371.52	0.00	0.00%	399.42	0.00	0.00%	2,095.16	0.00	0.00%
Aviation Revenues	5.42	(0.10)	-1.85%	6.85	(0.02)	-0.29%	33.30	(0.29)	-0.87%
Rental Car Tax	64.77	0.41	0.64%	68.66	0.40	0.58%	355.24	2.03	0.57%
Vehicle Sales Tax	93.37	(0.83)	-0.88%	100.18	(0.58)	-0.57%	519.31	(2.43)	-0.47%
Driver-Related Fees	303.78	(8.19)	-2.62%	296.82	(2.92)	-0.97%	1,512.60	(21.48)	-1.40%
Business/Other Revenues ‡	33.32	(0.46)	-1.36%	32.70	0.48	1.47%	157.03	1.18	0.76%
Total Revenues	5,827.57	15.79	0.27%	6,405.06	21.75	0.34%	32,272.48	168.88	0.53%
Distribution of Revenue									
Motor Fuel Tax Refunds and Transfers	180.71	(1.76)	-0.96%	200.17	(6.59)	-3.19%	1,000.41	(44.97)	-4.30%
State Uses									
Motor Vehicle Account (108)	1,267.44	11.30	0.90%	1,273.42	9.12	0.72%	6,401.04	72.76	1.15%
Transportation 2003 (Nickel) Account (550)	418.18	1.38	0.33%	433.36	2.53	0.59%	2,183.11	19.04	0.88%
Transportation 2005 Partnership Account (09H)	617.91	2.47	0.40%	643.64	4.08	0.64%	3,243.90	30.64	0.95%
Connecting Washington Account (20H)	543.45	1.48	0.27%	820.76	3.93	0.48%	3,887.06	30.27	0.78%
Multimodal Account (218)	400.25	6.35	1.61%	510.42	6.70	1.33%	2,730.26	37.61	1.40%
Special Category C Account (215)	49.99	0.10	0.21%	51.73	0.25	0.48%	260.72	1.92	0.74%
Puget Sound Capital Construction Account (099)	36.37	0.08	0.21%	37.64	0.18	0.48%	189.70	1.40	0.74%
Puget Sound Ferry Operations Account (109)	439.62	2.00	0.46%	455.92	0.09	0.02%	2,307.02	(0.92)	-0.04%
Capital Vessel Replacement Account (18J)	41.01	(1.92)	-4.47%	35.32	(2.49)	-6.59%	182.53	(6.73)	-3.55%
Tacoma Narrows Bridge Account (511)	163.19	0.00	0.00%	168.81	0.00	0.00%	864.16	0.00	0.00%
High Occupancy Toll Lanes Account (09F) [¶]	3.18	0.00	0.00%	0.00	0.00	0.00%	3.18	0.00	0.00%
SR 520 Corridor Account (16J)	154.94	0.00	0.00%	172.01	0.00	0.00%	910.84	0.00	0.00%
SR 520 Corridor Civil Penalties Account (17P)	14.95	0.00	0.00%	16.11	0.00	0.00%	85.26	0.00	0.00%
Interstate 405 Express Toll Lanes Operations (595)	35.26	0.00	0.00%	42.50	0.00	0.00%	231.72	0.00	0.00%
Aeronautics Account (039)	5.42	(0.10)	-1.85%	6.85	(0.02)	-0.29%	33.30	(0.29)	-0.87%
State Patrol Highway Account (081)	385.25	0.68	0.18%	447.13	0.92	0.21%	2,244.10	11.06	0.50%
Highway/Motorcycle Safety Accts. (106 & 082)	270.15	(6.88)	-2.48%	264.37	(0.02)	-0.01%	1,346.39	(8.38)	-0.62%
School Zone Safety Account (780)	0.93	0.01	1.06%	0.93	0.01	1.06%	4.64	0.05	1.06%
Other accounts (201, 06T, 09T, 09E, 216, 07C)	17.17	(0.08)	-0.45%	17.52	(0.03)	-0.19%	89.47	(0.18)	-0.20%
Ignition Interlock Devices Revolving Acct 14V	7.03	(0.41)	-5.51%	6.49	(0.71)	-9.80%	33.01	(3.23)	-8.92%
Multiuse Roadway Safety Account Collections-571	0.12	0.02	21.59%	0.13	0.02	21.33%	0.64	0.11	20.27%
Total for State Use	4,871.69	16.47	0.34%	5,404.92	24.55	0.46%	27,231.41	185.02	0.68%
Local Uses									
Cities	191.71	0.40	0.21%	198.38	0.95	0.48%	999.89	7.36	0.74%
Counties	309.62	0.12	0.04%	317.87	1.51	0.48%	1,606.53	11.16	0.70%
Transportation Improvement Board (112 & 144)	204.91	0.42	0.21%	212.21	1.01	0.48%	1,071.70	7.76	0.73%
County Road Administration Board (102 & 186)	68.94	0.14	0.21%	71.51	0.33	0.47%	362.54	2.54	0.71%
Total for Local Use	775.18	1.08	0.14%	799.97	3.80	0.48%	4,040.66	28.82	0.72%
Total Distribution of Revenue	5,827.57	15.79	0.27%	6,405.06	21.75	0.34%	32,272.48	168.88	0.53%

† Ferry Fares plus non-farebox revenue

‡ Business/Other Revenues net of amounts transferred to General Fund in the forecast.

§ 167 HOT lanes is a pilot program that is currently scheduled to sunset June 30, 2017

As Figure 3 indicates, in the current biennium, September's transportation revenues are projected at \$5.828 billion and up \$15.9 million or 0.3% above the last projections. Licenses, permits and fee revenue is up the most at \$20.2 million or 1.6% in the current biennium. Fuel tax collections are up as well by \$3.6 million or 0.1% higher than the June forecast in the current biennium. Next biennium's transportation revenues are anticipated to grow to \$6.405 billion and up from the last forecast by \$21.7 million or 0.3%. Over the 10-year forecast horizon (2016-2025), the revenue forecast for September is up by \$169 million or 0.53% from the last forecast. The change in transportation revenue for this forecast is due primarily to higher licenses permits and fee revenue from strong collections and changes in the weight distributions of vehicles.

Figure 4: Forecast to Baseline[¥] Biennium Comparison of All Transportation Revenues September 2016 forecast - 10 year period

Forecast to Baseline Comparison for Transportation Revenues and Distributions 10-Year Period									
September 2016 [•] millions of dollars									
	Current Biennium			2017-2019			10-Year Period		
	Forecast Sep-16	Chg from Baseline [¥]	Percent Change	Forecast Sep-16	Chg from Baseline [¥]	Percent Change	Forecast Sep-16	Chg from Baseline [¥]	Percent Change
Sources of Transportation Revenue									
Motor Vehicle Fuel Tax Collections	3,287.44	30.94	0.95%	3,641.07	79.12	2.22%	18,098.81	458.02	2.60%
Licenses, Permits and Fees	1,289.88	38.99	3.12%	1,470.51	38.90	2.72%	7,528.91	246.51	3.39%
Ferry Revenue [†]	378.06	2.88	0.77%	388.86	3.41	0.89%	1,972.12	18.37	0.94%
Toll Revenue [§]	371.52	13.10	3.65%	399.42	11.90	3.07%	2,095.16	64.67	3.19%
Aviation Revenues [‡]	5.42	(0.40)	-6.85%	6.85	(0.10)	-1.51%	33.30	(0.65)	-1.92%
Rental Car Tax	64.77	2.56	4.12%	68.66	3.74	5.75%	355.24	18.84	5.60%
Vehicle Sales Tax	93.37	2.48	2.73%	100.18	3.83	3.98%	519.31	19.96	4.00%
Driver-Related Fees	303.78	(0.94)	-0.31%	296.82	(3.14)	-1.05%	1,512.60	(11.21)	-0.74%
Business/Other Revenues [‡]	33.32	0.77	2.35%	32.70	1.42	4.55%	157.03	6.40	4.25%
Total Revenues	5,827.57	90.37	1.58%	6,405.06	139.09	2.22%	32,272.48	820.90	2.61%
Distribution of Revenue									
Motor Fuel Tax Refunds and Transfers	180.71	(2.02)	-1.11%	200.17	(5.20)	-2.53%	1,000.41	(38.74)	-3.73%
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Transportation 2005 Partnership Account (09H)	617.91	7.61	1.25%	643.64	15.74	2.51%	3,243.90	94.88	3.01%
Connecting Washington Account (20H)	543.45	6.35	1.18%	820.76	18.71	2.33%	3,887.06	112.69	2.99%
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Special Category C Account (215)	49.99	0.49	0.98%	51.73	1.18	2.33%	260.72	7.19	2.83%
Puget Sound Capital Construction Account (099)	36.37	0.35	0.98%	37.64	0.86	2.33%	189.70	5.23	2.83%
Puget Sound Ferry Operations Account (109)	439.62	9.16	2.13%	455.92	13.99	3.17%	2,307.02	69.18	3.09%
Capital Vessel Replacement Account (18J)	41.01	(1.18)	-2.80%	35.32	(1.10)	-3.01%	182.53	(4.47)	-2.39%
Tacoma Narrows Bridge Account (511)	163.19	(5.83)	-3.45%	168.81	(13.11)	-7.21%	864.16	(60.17)	-6.51%
High Occupancy Toll Lanes Account (09F)	3.18	(0.56)	-14.92%	0.00	0.00	0.00%	3.18	(0.56)	-14.92%
SR 520 Corridor Account (16J)	154.94	(1.91)	-1.22%	172.01	4.12	2.46%	910.84	15.57	1.74%
SR 520 Corridor Civil Penalties Account (17P)	14.95	0.07	0.44%	16.11	0.45	2.85%	85.26	2.12	2.55%
Interstate 405 Express Toll Lanes Operations (595)	35.26	21.32	152.94%	42.50	20.44	92.68%	231.72	107.70	86.85%
Aeronautics Account (039)	5.42	(0.40)	-6.85%	6.85	(0.10)	-1.51%	33.30	(0.65)	-1.92%
State Patrol Highway Account (081)	385.25	6.17	1.63%	447.13	45.21	11.25%	2,244.10	200.33	9.80%
Highway/Motorcycle Safety Accts. (106 & 082)	270.15	(0.09)	-0.03%	264.37	(0.45)	-0.17%	1,346.39	0.57	0.04%
School Zone Safety Account (780)	0.93	(0.17)	-15.57%	0.93	(0.17)	-15.57%	4.64	(0.86)	-15.57%
Other accounts (201, 06T, 097, 09E, 216, 07C)	17.17	0.10	0.57%	17.52	0.13	0.76%	89.47	0.70	0.79%
Ignition Interlock Device Revolving Acct 14V	7.03	0.11	1.58%	6.49	(0.43)	-6.20%	33.01	(1.61)	-4.65%
Multiuse Roadway Safety Account Collections-571	0.04	(0.05)	-54.21%	0.12	0.02	16.05%	0.55	0.02	4.25%
Total for State Use	4,871.69	90.25	1.89%	5,404.92	134.80	2.56%	27,231.41	784.69	2.97%
Local Uses									
Cities	191.71	1.86	0.98%	198.38	4.52	2.33%	999.89	27.56	2.83%
Counties	309.62	(2.39)	-0.77%	317.87	(1.65)	-0.52%	1,606.53	3.36	0.21%
Transportation Improvement Board (112 & 144)	204.91	2.00	0.99%	212.21	4.91	2.37%	1,071.70	31.79	3.06%
County Road Administration Board (102 & 186)	68.94	0.68	1.00%	71.51	1.70	2.44%	362.54	12.24	3.49%
Total for Local Use	775.18	2.15	0.28%	799.97	9.49	1.20%	4,040.66	74.95	1.89%
Total Distribution of Revenue	5,827.57	90.37	1.58%	6,405.06	139.09	2.22%	32,272.48	820.90	2.61%

[†] Ferry Fares plus non-farebox revenue

[‡] Business/Other Revenues net of amounts transferred to General Fund in the forecast.

[§] 167 HOT lanes is a pilot program that is currently scheduled to sunset June 30, 2017

[¥] Baseline is the February 2016 forecast.

Figure 4 compares the latest September forecast to the baseline, February 2016 forecast. Both forecasts included the 2015 transportation revenue package. In the current biennium, the transportation revenues have increased from February by \$90.5 million or 1.6%. The main reasons for the forecast rise has been modifications upward in both the fuel tax collections and licenses, permits and fee revenues, up \$31 and \$39 million respectively since the baseline forecast. Toll revenue is also up by \$13 million due to actual toll collections on I-405 HOT lanes coming in well above the February forecast. Next biennium, total transportation revenue is anticipated to be up \$139 million or 2%. Over the next 10 years, total transportation revenue is projected to be \$821 million or 2.6% higher than the February forecast.

Economic Variables Forecast

Several economic variables are used in forecasting Washington’s transportation revenues each quarter. Key economic variables include the following: Washington personal income, driver-in population, inflation, employment, oil price index, fuel efficiency, US sales of new light vehicles and various employment sectors.

**Figure 5: Annual Percentage Change (%) in Select Economic Variables
September 2016 Forecast**

Fiscal Year	WA	Annual	US				Nominal	WA Trade,		WA Retail
	Personal Income	Driver Age Population	Driver-In Population	General Prices (IPDC)	US Oil & Gas Price Index	US Fuel Efficiency (MPG)	Consumer Sales on New Vehicles	WA Non-ag. employment	Transportation and Utilities Employment	Trade Employment
2010	-2.4%	1.0%	-1.0%	1.0%	3.1%	-0.9%	10.8%	-3.5%	-4.0%	-3.3%
2011	3.0%	1.0%	19.9%	1.8%	18.2%	1.4%	11.8%	0.7%	0.6%	0.8%
2012	3.7%	1.0%	-9.8%	2.4%	13.9%	1.1%	13.7%	1.4%	2.0%	1.8%
2013	3.0%	1.1%	2.1%	1.5%	0.4%	1.0%	9.3%	2.0%	2.4%	2.8%
2014	1.6%	1.4%	9.7%	1.4%	-2.8%	1.3%	4.7%	2.4%	3.2%	3.7%
2015	4.8%	1.5%	10.2%	0.9%	-17.7%	1.6%	6.8%	2.7%	3.6%	3.8%
2016	4.0%	1.5%	10.0%	0.7%	-20.2%	1.8%	-0.8%	2.9%	3.0%	3.3%
2017	2.9%	1.4%	0.0%	1.5%	-0.3%	1.9%	3.0%	2.2%	2.3%	3.0%
2018	3.2%	1.3%	-2.1%	1.6%	4.8%	1.8%	8.1%	1.4%	1.0%	1.0%
2019	3.4%	1.3%	0.9%	1.7%	9.2%	1.8%	3.0%	1.4%	0.7%	0.4%
2020	3.2%	1.2%	0.8%	1.9%	11.1%	1.9%	2.0%	1.2%	0.5%	0.3%
2021	3.0%	1.1%	0.9%	1.9%	6.3%	1.9%	0.5%	1.1%	0.4%	0.1%
2022	2.3%	1.1%	0.7%	2.0%	6.2%	1.9%	1.8%	1.1%	0.5%	0.3%
2023	2.5%	1.1%	0.6%	2.1%	6.5%	1.9%	1.9%	0.9%	0.4%	0.5%
2024	2.4%	1.1%	0.6%	2.2%	4.7%	2.0%	2.9%	0.9%	0.5%	0.5%
2025	2.5%	1.1%	0.6%	2.1%	3.5%	2.0%	3.2%	0.8%	0.5%	0.6%
2026	2.5%	1.1%	0.6%	2.1%	2.8%	2.1%	3.0%	0.8%	0.6%	0.8%
2027	2.7%	1.1%	0.6%	2.1%	1.8%	2.1%	2.9%	0.8%	0.7%	0.8%

Source: Washington Economic and Revenue Forecast Council, Washington Office of Financial Management 2016 long-range forecast, August 2016 Global Insight forecast adjusted for Blue Chip average GDP growth rates and NYMEX crude oil prices

Figure 6: Difference in Annual Percent Changes in Select Economic Variables from Last Forecast - September 2016 Forecast

Fiscal Year	WA Personal Income	Annual Driver Age Population	Driver-In Population	US General Prices (IPDC)	US Oil & Gas Price Index	US Fuel Efficiency (MPG)	Nominal Consumer Sales on New Vehicles	WA Non-ag. employment	WA Trade, Transportation and Utilities Employment	WA Retail Trade Employment
Percentage Change in Levels of Economic Variables (Current FY)										
2017	▲	▬	▲	▲	▼	▬	▼	▲	▲	▲
Difference in Annual Percentage Change in Economic Variables										
2016	▲	▬	▲	▬	▼	▬	▼	▲	▲	▲
2017	▲	▬	▲	▬	▼	▬	▼	▲	▲	▲
2018	▲	▬	▲	▼	▲	▬	▲	▬	▲	▲
2019	▲	▬	▬	▼	▲	▬	▲	▲	▲	▲
2020	▬	▬	▬	▬	▲	▬	▬	▲	▲	▲
2021	▬	▬	▬	▬	▲	▬	▲	▬	▲	▲
2022	▼	▬	▼	▬	▲	▬	▲	▬	▲	▲
2023	▬	▬	▬	▬	▲	▬	▲	▬	▬	▬
2024	▬	▬	▬	▬	▼	▬	▲	▬	▬	▬
2025	▬	▬	▬	▬	▼	▬	▲	▬	▬	▬
2026	▬	▬	▬	▬	▲	▬	▬	▬	▬	▬
2027	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬

▲	Difference in percentage change is greater than 1%
▲	Difference in percentage change is less than 1% and greater than 0.1%
▬	Difference in percentage change is less than 0.1% and greater than -0.1%
▼	Difference in percentage change is greater than -0.1% and less than -1%
▼	Difference in percentage change is greater than -1%

Motor Fuel Price Forecast

Washington’s transportation revenues are affected by fuel prices. In particular, gasoline tax collections are negatively related to the price of gasoline. WSDOT’s budget is heavily impacted by changes in fuel prices. Therefore, projections of fuel prices are made quarterly to assist in the near and long-term budgeting process for WSDOT. The forecast includes the following price projections: U.S. West Texas Intermediate crude oil (WTI) and Washington retail prices of gasoline, diesel, and biodiesel (B5 & B99).

Source of data for the forecast

For the Washington retail price of gasoline, fuel prices are collected from the Energy Information Administration’s (EIA) survey of retail prices for regular gasoline. For the retail price of diesel, the actual prices are collected from AAA’s weekly publication of retail prices for diesel in Washington. The actual ferry B5 biodiesel prices are reported by the Washington State Ferries (WSF). In the short term (through

calendar year 2017), the retail gas price forecasts are based on the growth in the national gas price forecast by EIA. The diesel and biodiesel diesel prices are projected based on the growth in national diesel prices from the Energy Information Agency (EIA) monthly projections. Beyond calendar year 2017, the fuel price projections are based on Sept.'s Global Insight national gas price forecast for future Washington gas prices and the producer price index (PPI) projections for refined petroleum products for the diesel price forecasts.

The forecasts of biodiesel prices include two different biodiesel prices: B5 and B99 without the renewable identification number (RIN). WSF currently purchases biodiesel as B5. WSDOT also purchases B99 biodiesel without RIN for vehicle fleet needs. WSDOT receives OPIS fuel prices with the latest prices for B5 and B99 biodiesel prices without RIN in Tacoma. The B99 prices represent those paid by other state entities' purchases of biodiesel in Tacoma. The B5 price is based on Washington State ferries' reported purchase price of biodiesel with the markup, delivery, and other tax costs included and the latest B5 OPIS prices for the current forecast month. The base for the price forecast for the B99 price without RIN for non-WSF purchases is the OPIS base price without markup, delivery, and tax costs.

Figure 7: Near-term UNADJUSTED BASELINE Qtrly Fuel Prices: September 2016

Fiscal Year Quarter	Crude Oil Price (\$/barrel)	WA Retail Gasoline Price (\$/gal)	WA Retail Diesel Price (\$/gal)
2015: Q3	46.42	2.97	3.00
2015: Q4	41.95	2.42	2.68
2016: Q1	33.18	2.18	2.30
2016: Q2	45.41	2.47	2.50
FY 2016	41.74	2.51	2.62
2016: Q3	44.46	2.56	2.72
2016: Q4	44.00	2.32	2.78
2017: Q1	44.33	2.31	2.89
2017: Q2	49.00	2.74	2.99
FY 2017	45.45	2.48	2.84
2017: Q3	52.00	2.81	3.09
2017: Q4	57.00	2.69	3.25
2018: Q1	56.57	2.79	3.25
2018: Q2	60.57	3.05	3.44
FY 2018	56.53	2.83	3.26
2018: Q3	62.23	3.11	3.52
2018: Q4	62.91	2.87	3.55
2019: Q1	69.97	3.14	3.85
2019: Q2	74.18	3.42	4.03
FY 2019	67.32	3.13	3.74

Figure 8: Forecast of UNADJUSTED Washington Retail Gasoline Prices, Regular September, June and February 2016

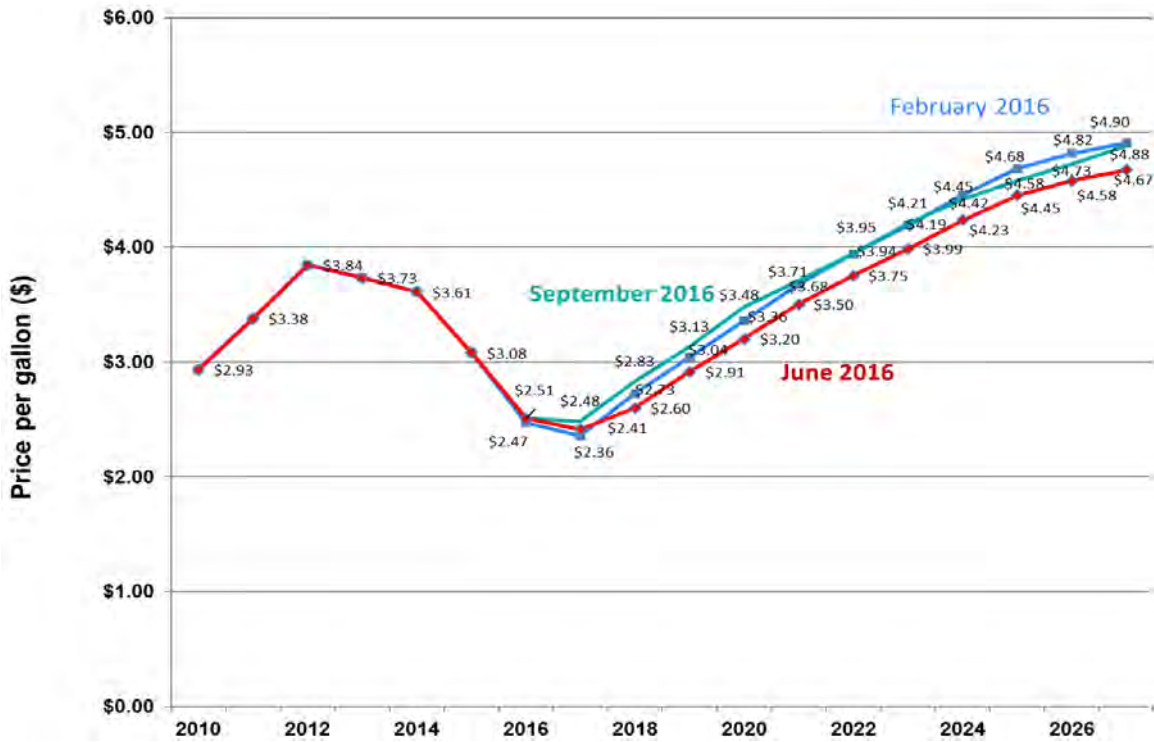
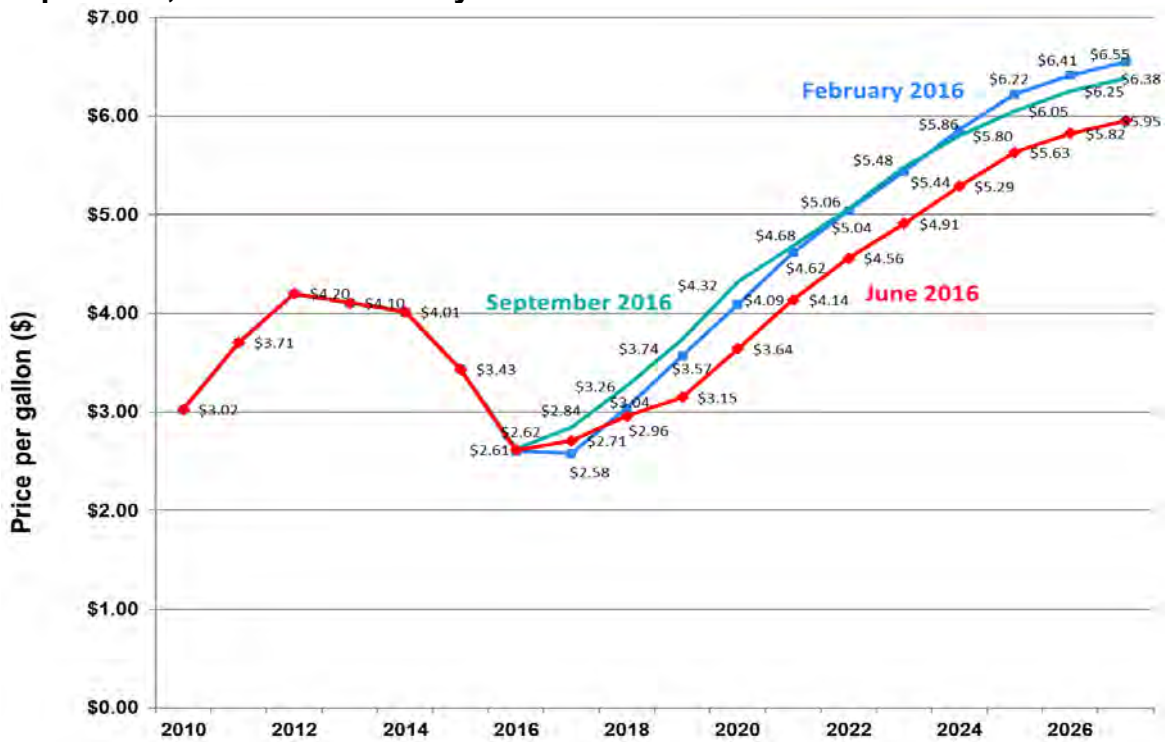


Figure 9: Forecast of UNADJUSTED Washington Retail Diesel Prices September, June and February 2016



Comparison of several current U.S. crude oil price forecasts

The WTI crude oil prices from five surveyed forecasting entities, EIA, NYMEX, Global Insight, Consensus Economics, and Moody's Economy.com were compared in this forecast. WSDOT's baseline fuel price forecasts use the Energy Information Administration (EIA) forecasts in the near-term through calendar year 2017 and then use the growth rates from Global Insight forecasts for subsequent years. The forecast for WTI crude oil in FY 2017 ranged from \$45.5 per barrel from EIA to \$50.1 per barrel by Moody's Economy.com with an average of \$47.71 per barrel. The forecast for WTI crude oil in FY 2018 ranged from \$50.05 per barrel by NYMEX to \$57.9 per barrel by Moody's Economy.com with the average being \$54.7 per barrel. The baseline crude oil price forecast in FY 2017 and 2018 was 5% below and 3.25% above the 5 entity average. The average forecast for WTI crude oil in FY 2019 ranged from \$52.05 per barrel by NYMEX to \$67.3 per barrel by EIA/Global Insight with the average being \$60.6 per barrel. The baseline crude oil price forecast is anticipated to be 9.98% above the 5 entity average. Figure 10 reveals the WSDOT baseline WTI price forecast compared to the other entity crude oil price forecasts.

Figure 10: Near-term Annual WTI Crude Oil Price Forecasts – 5 Different Forecast Comparisons: September 2016 Dollars per barrel

Fiscal Year	WSDOT (EIA/GI)	NYMEX	Global Insight	Economy.com	Consensus Economics	5 Entity Avg	% Diff Lowest	% Diff Highest	% Diff Average
2017	\$45.45	\$45.96	\$47.31	\$50.09	\$49.75	\$47.71	1.14%	10.21%	4.98%
2018	\$56.53	\$50.05	\$52.09	\$57.87	\$56.94	\$54.70	-11.46%	2.36%	-3.25%
2019	\$67.32	\$52.05	\$60.44	\$63.43	\$59.79	\$60.61	-22.69%	-5.78%	-9.98%

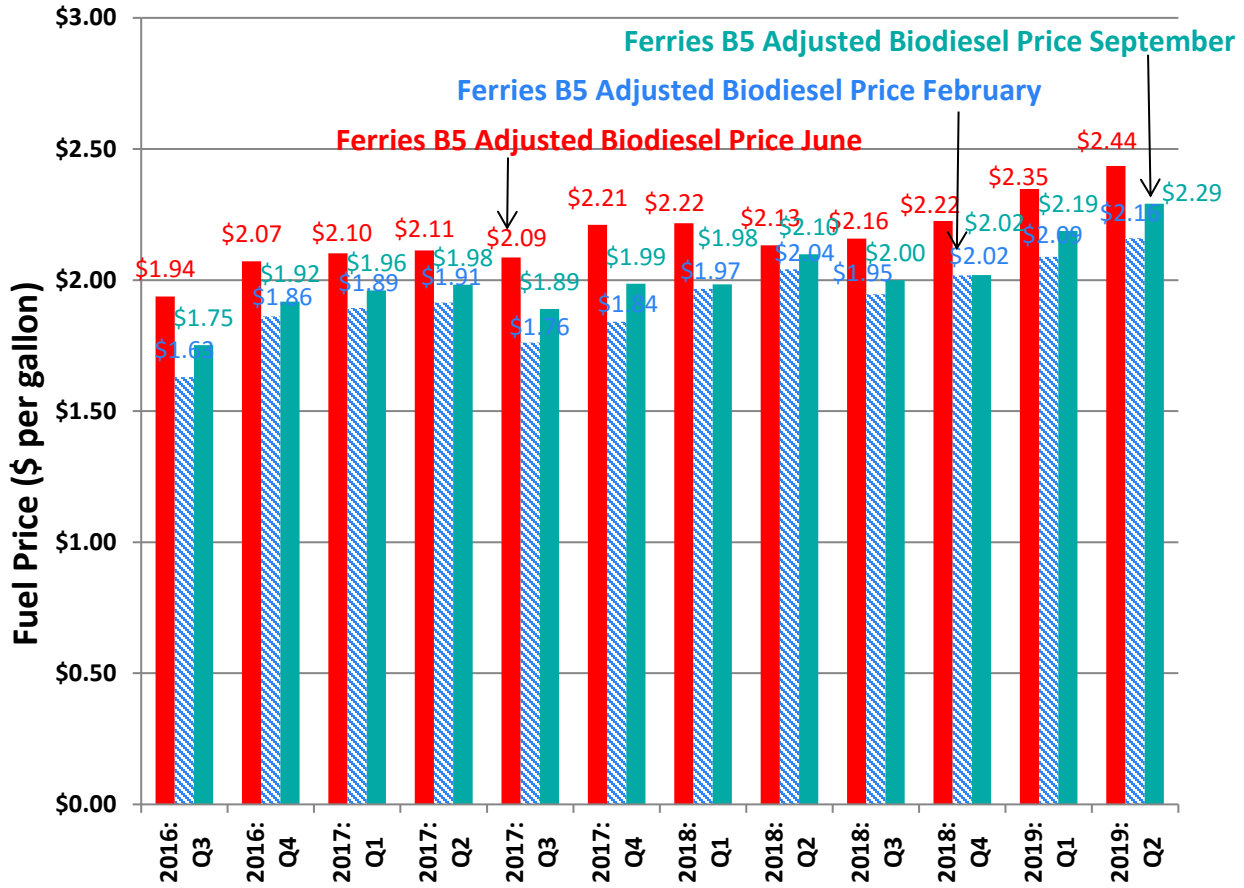
Figure 11: Near-term Average Adjusted Quarterly Fuel Prices and B5 Biodiesel Prices and Unadjusted B99 Biodiesel Prices Used for Budgeting Purposes: September 2016 Dollars per gallon

Fiscal Year Quarter	Adjusted WA Retail Gasoline Price (\$/gal)	Adjusted WA Retail Diesel Price (\$/gal)	Adjusted B5 Biodiesel Price (\$/gal)	Unadjusted B99 Biodiesel price
2015Q3	2.97	3.00	1.87	3.96
2015Q4	2.42	2.68	1.63	3.88
2016Q1	2.18	2.30	1.22	3.33
2016Q2	2.47	2.50	1.60	3.61
FY2016	2.51	2.62	1.58	3.69
2016Q3	2.69	2.85	1.75	3.95
2016Q4	2.44	2.92	1.92	4.02
2017Q1	2.43	3.03	1.96	4.17
2017Q2	2.88	3.14	1.98	4.32
FY2017	2.61	2.99	1.90	4.12
2017Q3	2.72	2.99	1.89	4.47
2017Q4	2.60	3.15	1.99	4.70
2018Q1	2.70	3.14	1.98	4.70
2018Q2	2.95	3.32	2.10	4.97
FY2018	2.74	3.15	1.99	4.71
2018Q3	2.80	3.17	2.00	5.09
2018Q4	2.58	3.20	2.02	5.13
2019Q1	2.83	3.46	2.19	5.56
2019Q2	3.08	3.63	2.29	5.83
FY2019	2.82	3.36	2.12	5.40

WSDOT applies the five forecast entity average adjustment to the baseline September 2016 retail gasoline, diesel, and B5 biodiesel prices. The fuel prices listed in Figure 11 will be used to estimate the future costs to WSDOT agency's 2015-17 and 2017-19 biennium budgets for gas, diesel and biodiesel fuel

purchases for fiscal years 2016 through 2019. The latest adjusted forecast requires a 5% increase in the baseline fuel prices for retail gas, diesel and B5 biodiesel prices for FY 2017 and 3.25% downward adjustment to FY 2018. In FY 2019 baseline fuel prices are also adjusted downward by 9.98%. The B99 biodiesel prices are not adjusted. As Figure 12 reveals, the new B5 fuel prices forecast is below the June forecast in all quarters of the forecast horizon.

Figure 12: Quarterly Ferries Adjusted B5 Biodiesel Prices Used for Budgeting the 2015-17 and 2017-19 Biennia February, June vs. September 2016 Forecasts



Motor Vehicle Fuel Tax Forecast

Overview

Tax collections from motor vehicle fuel sales of gasoline and diesel for June, July, and August 2016 fell below the June 2016 forecast by 3% or \$12.8 million. Gasoline tax collections for all three months came in above the last forecast by \$1.32 million or 0.4%. Diesel on the other hand came in well below forecast by \$14.1 million or 17.2%. The reasons for the low collections in diesel is due to DOL instituting a new fuel tax reporting system which means some companies are still learning how to report in the new electronic system and others still need to register and begin using the new fuel tax reporting system.

Gross motor vehicle fuel tax revenues for the 2015-2017 biennium are projected to be \$3.287 billion which is \$3.6 million or 0.11% higher than forecasted in June. The overall motor vehicle fuel tax revenue for the 10-year period beginning in the current biennium and ending in the 2023-25 biennium totals \$18.1 billion, which represents \$79.8 million or 0.44% more than the June revenue forecast.

Primary reasons for the change in the September 2016 forecast

- In the current biennium, gross gas tax collections are up by \$3.5 million (0.13%) due to higher fuel tax collections in recent months and higher employment projections in the short-term. Gasoline consumption increased by an annual growth rate of 3.15% in FY2016 compared to FY2014 and FY2015 consumption growth rates of 1.5% annually. In future biennia, gas tax collections are up by \$13.3 million from the last forecast in the next biennium and the forecast-to-forecast difference increases over the forecast horizon, peaking at \$31.0 million in the 2025-2027 biennium.
- Diesel tax revenues are projected to be down \$1.76 million in the current biennia compared to the June forecast and down throughout the forecast horizon compared to June. This is due to much lower collections in the first three months of FY2017 and switching from an annual model to a more reliable quarterly model using the same key economic variables. The forecast-to-forecast diesel tax revenue declines a total of \$50.7 million over the next ten years..
- This September forecast also includes new actual tribal fuel tax refunds for FY 2016 which resulted in a revision downward of tribal fuel tax refunds in the future. In September, there was also an adjustment upward made to gasoline non-highway fuel tax refunds.

Motor Vehicle Revenue (Licenses, Permits, and Fees)

Overview

Vehicle related forecasts fall into two main categories: motor vehicle registrations and license plate-related fees. This forecast has a variety of small fees but the majority of the revenue is from registration-based fees. There are five main economic drivers for the vehicle licenses, permits, and fees (LPF) forecast: Washington population and net migration, Washington real personal income, Washington - U.S. real income share, Washington Retail Employment, and U.S. sales of light vehicles.

Washington State anticipates collecting just under \$1.3 billion from vehicle licenses, permits, and fees (LPFs) in the 2015-2017 biennium, an increase of \$20.6 million (1.6%) compared to the forecast in June. For the next 10-year period, the LPF forecast is anticipated to be \$7.529 billion which is up \$115 million or 1.5% from the previous estimate in June.

Primary reasons for the change in the September 2016 forecast

- Forecasted passenger vehicle registrations for FY 2016 are slightly lower than the previous forecast because of significantly higher actual registrations in the last month of the fiscal year.
- In the short term passenger car registrations are slightly lower than the previous forecast, due to the lower start point in 2016 actuals. However, by 2019 the passenger car forecast is slightly higher than the previous forecast due to slightly higher personal income growth rates.

- In the long-term, the September passenger car revenue forecast is higher than the last forecast by roughly \$700,000 0.18% each biennium.
- Forecasted truck registrations are down slightly for FY 2016 from the previous forecast due to slightly lower actual registrations in the last month of the fiscal year.
- Forecasted truck registrations are significantly above the previous forecast because of higher employment forecasts.
- Truck Revenues are up over the previous forecast from \$10 to \$15 million (2 to 3%) each biennium due to higher forecasted registrations and a higher weight distribution of trucks.

Driver Related Revenue Forecasts

Overview

The September 2016 forecast of driver related revenue projected by the Department of Licensing includes the following revenues: driver license fees (including commercial driver licenses, enhanced driver licenses, and temporary restricted licenses), ID card fees, driver exam application fees, copies of records, motorcycle operator fees, ignition interlock fees, and other miscellaneous fees. The miscellaneous fees include vehicle filing fees, limousine licenses, fines and forfeitures, and driver school instructor license fees. These driver-related fees are deposited into the Highway Safety Fund (HSF), Motorcycle Safety Education Account (MSEA), the State Patrol Highway Account (SPHA), and Ignition Interlock Revolving Account (IIRA).

All driver-related revenue for FY2015-17 biennium is forecast at \$303.8 million, about \$8.2 million (or -2.6%) lower than the prior forecast. Over the next ten year period (FY16-FY25), driver related revenue is anticipated to total \$1,512.6 million, about \$21.5 million (-1.4%) lower from the prior forecast.

It is important to note that many of the driver related revenue streams follow a five-year renewal cycle until FY2015 when DOL started issuing six year licenses. Caution is advised in year over year comparisons.

Primary reasons for the change in the September 2016 forecast

- Decline in commercial purchases of driver records;
- A correction of the June forecast double counting driver extension revenue for FY16;
- Program change concerning ignition interlock device (IID) billings in that indigent customers will no longer be billed the monthly \$20 fee and reimbursed later, effective September 2016.

Other Transportation Related Revenue Forecast

Overview

This category of transportation related revenue forecasts consist of four primary components: vehicle sales and use taxes, rental car sales taxes, studded tire fees, business and other revenue and aeronautics revenue. The business and other revenue category includes the following revenue sources:

- Sales of property
- WSP and DOT services and publications and documents
- Filing fees and legal services
- Property management
- Access Permits (Highways)
- Outdoor Advertising
- Other revenues

State Patrol Highway Account miscellaneous revenue consists of ACCESS fees (fees charged for usage of our statewide law enforcement telecommunications system), Breathalyzer Test fines, DUI Cost Reimbursement, Commercial Vehicle Penalties and Communication Tower Site Leases and Terminal Safety Inspection fees.

Washington State anticipates collecting over \$196.9 million from Other Transportation Related revenues in the 2015-2017 biennium, a decrease of \$1.0 million compared to the forecast in June. For the next 10-year period, the transportation related revenue forecast is anticipated to be \$1,064.8 million which is up \$0.45 million from the previous estimate in June.

Primary reasons for the change in the June 2016 forecast

- Vehicle sales and use tax revenue is down by \$829,000 or 0.9% in the current biennium since the last forecast due to updated actual collections. Due to a lower long-term national forecast of US spending on light vehicles and actuals coming in below forecast, new vehicle sales tax revenue forecast is down from the last forecast in future biennia. The downward revision diminishes throughout the forecast from -0.9% in FY2017 to -0.2% in FY2027.
- Rental car tax revenue is up \$412,000, or 0.6%, in the current biennium due to higher collections in recent months. In next biennium, the change in the rental car tax revenue is also 0.6% from June. In all future biennia, the rental car forecast is also up from the June forecast by 0.6% to 0.5% by the end of the forecast horizon due mainly to higher collections to date and a minimally changed economic forecast.
- WSDOT Business and other miscellaneous revenue have been updated to reflect current receipts which caused a slight overall trend downward from the last forecast. Property sales are coming in slightly lower (-\$0.616 million) than forecasted in June (-5.1%). Overall Business related revenues are down 3.2%, or \$668,751 from the last biennium in the current biennium.
- The school zone fines forecast has been adjusted for actuals which came in slightly higher since June's forecast.
- WSP business related revenue for September has not changed materially from the June forecast. Breathalyzer Test Fine revenue increased by 14.22 percent because of increased enforcement. That was offset by a reduction of 15.62 percent in Commercial Vehicle penalties as a result of mitigation or waiver of fines. Overall, all WSP business related revenues are up \$0.2 million or 1.7% from the last forecast in the current biennium.
- The aviation fuel tax forecast was revised downward by -\$99,792 or -2.6% in the current biennium due to lower fuel tax revenue year to date. Subsequent biennia are also lower on average by -\$44,200.
- The aircraft registration fee revenue was revised downward due to reported actuals in FY 2016 were lower than expected.
- The aeronautics refund transfer has been raised in this September forecast to reflect higher gasoline fuel consumption.

Ferry Ridership and Revenue

Overview

For the current forecast, the ferry fare revenue and ridership forecasts for Washington State Ferries are completed in four stages applying to seven fare categories. The seven fare categories are:

- Passenger full fares
- Passenger frequent user discounted (commuter) fares
- Passenger other discounted fares (e.g., senior fare, youth fare)
- Auto / driver full fares

- Auto / driver frequent user discounted (commuter) fares
- Other vehicle / driver discounted (senior/disabled and motorcycle) fares
- Oversize vehicle / driver (over 22 feet in length) fares

Overall, the September Baseline Forecast ridership in the current biennium is 0.4% higher than the June Forecast. For the rest of the forecast horizon, projected overall ridership ranges from 0.3% higher in FY 2018, unchanged for FY 2019, and 0.2% to 0.3% lower over the rest of the forecast horizon, compared to the June Forecast.

Total fare and miscellaneous revenues forecasted for the 2015-17 biennium amount to \$378.0 million, higher from the last forecast by 0.3%. Over the next 10 years, ferry total revenue will be \$2.01 billion which is lower than the last forecast by 0.4%.

Primary reasons for the change in the September 2016 forecast

- Stronger employment and real personal income forecasts over the forecast horizon help to bolster both ridership and fare revenues for FY 2017. However, by FY 2019, significantly higher real gas prices over the forecast horizon offset other upward influences on vehicle/driver ridership demand. Because vehicle fares tend to be about 3-4 times higher than passenger fares, the reduced vehicle/driver ridership demand leads revenue projections that range from 0.1% to 0.5% lower from FY 2019 forward, relative to the June forecast.
- Miscellaneous revenue forecasts for the 2015-2017 biennium are up 9.3% from June, with vessel non-fare revenue up more than other non-fare revenue from terminals. A new galley vendor contract was awarded and WSF is able to incorporate anticipated revenues into the current biennium – during the June forecast it was uncertain as to whether or not there would be a temporary lull in food service.

Toll Revenue

Overview

The September 2016 forecast was a no change forecast from June 2016 forecast for all four toll facilities in Washington State.

FY 2016 actuals came in line with June forecast for all toll facilities. Below is a summary of actual toll transaction and revenue performance during the first two months of FY 2017:

- Tacoma Narrows Bridge (TNB): Both reported toll transactions and reported revenue potential are close to June forecast in July and August 2016. The Fiscal Year-To-Date (YTD) actuals were slightly above the forecast, with a positive variance within 1%.
- SR 520 Toll Bridge: FY 2017 reported toll transactions are slightly above the forecast, with the YTD variance at 0.8%. On the revenue side, comparing to June forecast, we have observed a higher share of weekend transaction and lower share of weekday transactions. This leads to a 0.4% negative actual vs forecast variance for YTD toll revenue potentials.
- SR 167 High Occupancy Toll (HOT) Lanes: We have observed strong growth for the facility. The reported toll transactions were 16% over June forecast for both July and August, and the YTD reported toll revenues were 21% over the forecast.
- I-405 Express Toll Lanes (ETLs): We also see strong demand on this facility, especially during peak hours. The YTD reported toll revenue adjusted were 11% above the forecast

(2.5% for July, and 18.4% for August). July reported toll transactions were above the forecast by 2.0% (August reported transaction data has not been finalized).

Federal Funds Revenue

FHWA – Highways Forecast

Overview

After state funds, the largest source of transportation revenue is federal funds. The Federal Funds forecast contains the formula funds distributed by the Federal Highway Administration (FHWA) to Washington State Department of Transportation for highway purposes. Federal funds reported in this forecast are based on federal fiscal year (FFY) which begins on October 1. This September 2016 and subsequent federal forecasts are based on the Fixing America's Surface Transportation (FAST) Act.

On December 4, 2015, President Obama signed into law a new transportation reauthorization bill, Fixing America's Surface Transportation (FAST) Act, providing a five-year extension of the federal surface transportation programs. The FAST Act provides over \$305 billion of funding for Federal-aid transportation programs for federal fiscal years (FFY) 2016 through 2020. This new multiyear reauthorization bill comes after a string of five (5) short-term extensions of the previous transportation reauthorization, Moving Ahead for Progress in the 21st Century (MAP-21).

Apportionment Forecast

- The September 2016 baseline total apportionment forecast for FFY 2016 is \$686.9 million and is based on FHWA Notice N4510.802 dated January 8, 2016 which transmits the base apportionment for FFY 2016 and Notice N4510.803 which transmits the sequestration of exempt NHPP funds.
- The apportionment forecast for FFY 2017 – FFY 2020 ranges from \$748.8 million in FFY 2017 to \$636.2 million in FFY 2020. FFY 2020 is lower than previous years due to a rescission.
- An estimate of the Washington State share of the FFY 2020 Rescission of unobligated Federal-aid Highway contract authority is included in this forecast which is estimated at \$131.7 million and the allocation of the rescission was based on historical rescission activity experienced by the state.
- The September 2016 federal forecast for years after FFY 2020 will be grown off of the pre-rescission FFY 2020 funding levels along with the September 2016 Washington State fuel consumption forecast growth rates.
- Federal apportionment is split between state and local programs. For the remainder of the 2015-17 biennium, the current overall 66 -34 percent state/local split will remain for the core FHWA programs with the exception of the new freight program formula funds.
- The Governor's office and the Office of Financial Management have convened a group to discuss further state and local distributions of the FAST Act. Once a new state / local split agreement is reached, it will be applied to the apportionment starting in the 2017-19 biennium and carried through the forecast horizon.

Obligation Authority (OA) Forecast

- Obligation authority (OA) (a.k.a. spending authority or obligation limitation) is the ceiling or total amount of commitments of federal apportionment that can be made within a year. Congress sets this ceiling or limit as part of the federal appropriation bills to control federal expenditures annually.

- Every year Washington State receives multiple types of OA. The majority of the OA received annually is the Core Program OA. Washington State also receives OA that is tied to other discretionary and allocated programs.
- The September 2016 core formula OA forecast for FFY2016 is \$642.3 million and is based on Notice N4520.240 dated January 8, 2016.
- The total OA for this September 2016 forecast is \$673.2 million which is 2.5% lower than the June 2016 OA forecast because we moved the Ferry Boats and Terminals OA to FFY 2017.
- Obligation Authority for federal fiscal years beyond 2016 is assumed to be 98% of apportionment each year which is consistent with the apportionment to OA ratio set in Section 1101 and 1102 of H.R 4348 legislation and our prior forecast assumptions.

Primary reasons for the change in the February 2016 forecast

- The September forecast has been slightly changed in FFY 2016 due to moving out the ferry boat apportionment and OA to FFY 2017.
- The September 2016 federal forecast for FFY 2021 through FFY 2027 is 0.2% to 0.5% higher than the June 2016 forecast due to a higher fuel consumption forecast.

FTA - Public Transportation Federal Funds

Overview

On December 4, 2015, President Obama signed into law a new transportation reauthorization bill, Fixing America's Surface Transportation (FAST) Act, providing a five-year extension of the federal surface transportation programs. Federal assistance to public transportation is provided primarily through the public transportation program administered by the Department of Transportation's Federal Transit Administration (FTA). The federal public transportation program was authorized from FY2016 through FY2020 as part of the FAST Act.

The FAST Act authorized \$11.8 billion in FY2016 for public transportation programs, an amount rising to \$12.6 billion in FY2020 nationwide. Typically about 80% of federal public transportation program funding comes from the mass transit account of the highway trust fund and 20% comes from the general fund of the U.S. Treasury.

Public Transportation Federal Program Structure

There are six major federal public transportation programs administered by FTA: (1) Urbanized Area Formula; (2) State of Good Repair (SGR); (3) New Starts; (4) Rural Area Formula; (5) Bus and Bus Facilities; and (6) Enhanced Mobility of Seniors and Individuals with Disabilities. These are discussed in more detail below. Funding for all of these programs, except New Starts, comes from the mass transit account of the Highway Trust Fund. New Starts funding comes from the general fund.

The federal public transportation programs in the FAST Act have different rules for the distribution of their funds. Programs like the Urbanized Area Formula program, State of Good Repair program, and the New Starts Program are distributed directly to local public transportation organizations, in urbanized areas, while funds for programs like the Rural Area Formula Program, Bus and Bus Facilities Program (Small Urban and Rural only) and the Enhanced Mobility of Seniors and Individuals with Disabilities Program (Small Urban and Rural only) are distributed to the state Department of Transportations (DOTs). This forecast will project the federal public transportation programs that are distributed to the state DOTs. It will not include a projection for grant programs like the Urbanized Area Formula program, State of Good Repair program, and the New Starts Program which are distributed directly to local public transportation organizations.

Public Transportation Programs included in TRFC forecast:

- Statewide Planning Program (5304)
- Enhanced Mobility for Elderly and Persons with Disabilities (5310)
- Nonurbanized Area Formula Program (5311)
- State Safety Oversight Program (5329)
- Bus and Bus Facilities Program (5339)

Public Transportation Federal Apportionment Funds Forecast

The September 2016 FTA – Public Transportation forecast for 2017 through 2020 will be based on the FAST Act program funds distribution tables produced by the Federal Transit Administration (FTA). A three-year average (1.72%) was applied to the national totals on the FTA distribution tables for these years for Washington's proportionate share of the formula program funds. Total federal public transportation formula program funds for FFY 2016 are anticipated to be \$18.4 million and growing to \$19.7 million by FFY2020. The non-urbanized area formula program is the largest program, making up 70% of all federal public transportation revenue coming to Washington state each year.

The long-term public transportation formula federal program forecast for FFY 2021 – 2027 will be grown annually using the Washington State Fuel Consumption forecasted growth rates. Total federal public transportation formula program funds are anticipated to grow to \$20 million by FFY 2027.

Featured Revenue Forecasts

Vehicle Miles Travelled Forecast

Background

Unlike other forecasts performed by the Transportation Revenue Forecast Council, the Vehicle Miles Travelled Forecast is not a revenue forecast. It is also only performed on an annual basis, rather than quarterly.

The Washington State Department of Transportation has been producing a statewide forecast of vehicle miles travelled (VMT) for more than 20 years as part of the state Transportation Revenue Forecast Council (TRFC) documents. In 2009-2010, WSDOT convened a multiagency workgroup to examine the VMT forecast methodology in order to develop a VMT forecast model based on the history of VMT and key economic variables which explain changes in this forecast.

2010-2013 Forecast Methodology: In 2009-2010, WSDOT convened a multiagency workgroup and results of that endeavor came a new and better VMT forecast model.

- Log-log model using the following independent variables:
 - Washington Non-agricultural Employment
 - Washington Motor Vehicle Registrations
 - Washington Gas prices
- Model uses the annual history of VMT for projecting the future
- This forecast model still produced forecasts higher than actual VMT and the projections did not agree with recent Washington state and national trends in traffic and VMT research.

2014 Forecast Review: Even with the changes made to the VMT forecast model in 2010, there was a desire to review the methodology as it still produced too optimistic and growing forecasts that did not

predict actual travel activity well. As a result, revisions to the VMT forecast model were made to modify the functional form of the VMT forecast model and truncate the historical VMT data used in the projections with the assistance of a workgroup of economists. The new 2014 VMT forecast revised the function forecast of the model to a first-difference log-log model. The key economic variables used in the forecast did not change from the 2010 model as stated above. This new VMT model produced a much flatter forecast, which more closely matched recent history of VMT. In the long term, the 2014 forecast of VMT begins to decline slowly. This revised forecast model produced VMT forecasts which were consistent with WSDOT's fuel consumption forecast which also projected flat and slightly declining annual growth. Although the forecast models (VMT and fuel consumption) are independent of each other, they show similar trends of low short term growth, then a year over year decline in the long-term. This consistency between the two forecasts makes sense that the factors causing us to have slower VMT would be the same factors which cause individuals to use less fuel each year.

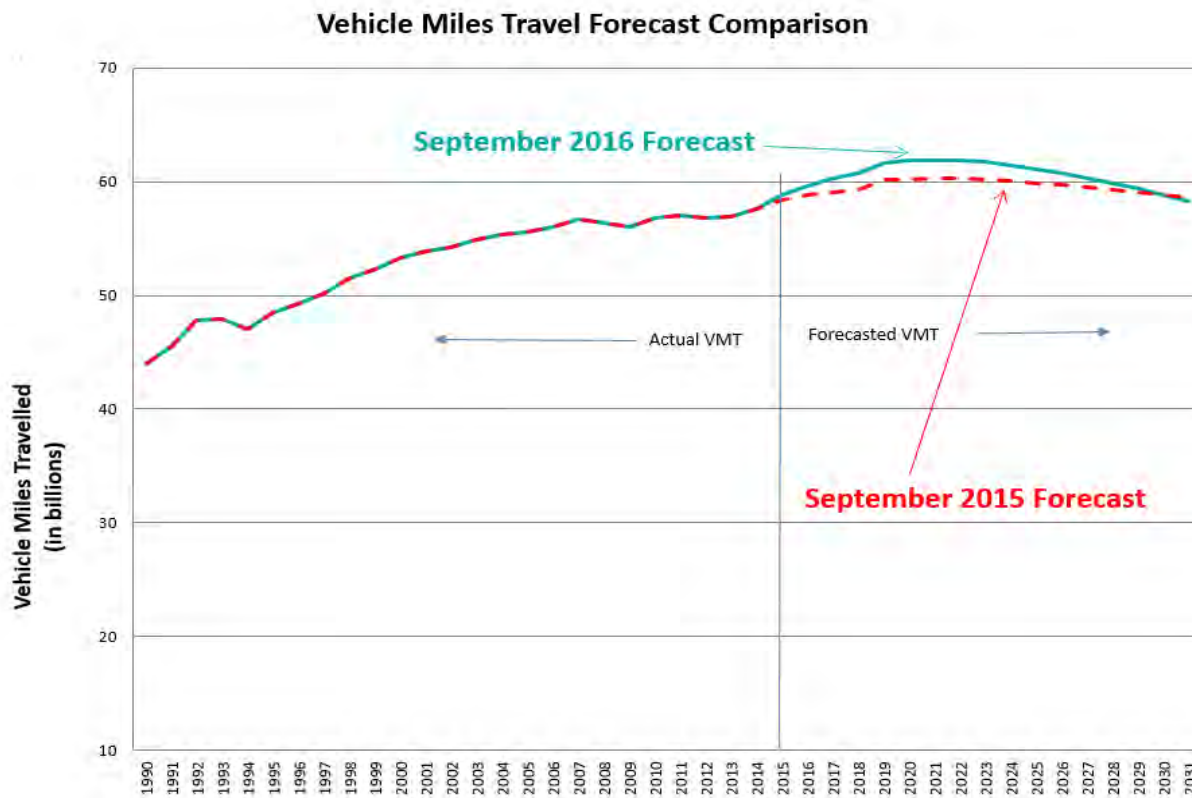
WSDOT Vehicle Miles Travelled Forecast for September 2016

All independent data used in the VMT forecast (Washington employment, motor vehicle registrations, and gas prices) were update based on the September 2016 TRFC documents. Actual vehicle miles travelled was also updated through December 2015 by the WSDOT Transportation Data, GIS & Modeling Office (formerly the Statewide Travel & Collision Data Office). Last September, we forecasted the 2015 VMT would total 58.43 billion miles. The actual mileage for 2015 came in at 58.825 billion miles, a 0.679% increase over forecast. The 2015 actual VMT also represents a 2.09% growth from 2014. This is the highest year-over-year increase since 1998. Also unusual is it comes on the heels of last year's 1.27% year-over-year growth. Note that this 2015 VMT annual growth is consistent with growth in gas consumption in 2015 which was 1.5%. As a result, we are increasing the 2016 Washington Vehicle Miles Traveled forecast for the following reasons:

- Higher employment projections since September 2015
- Higher projected vehicle registrations since September 2015
- Lower projected fuel costs since September 2015
- Higher start point, with 2015 actuals coming in above previous forecast

The September 2016 forecast for VMT is about 1.45% higher for 2016 than the previous forecast. Like prior forecasts, this projection also shows VMT continuing to grow year-over-year and then peaking around 2021. The average year-over-year growth rate through 2021 is 0.86%. After 2021 and through the end of the forecast horizon, year-over-year growth declines, with an average annual growth rate of -0.6%. For the entire forecast horizon, the September 2016 forecast averages 1.7% higher than the last September 2015 forecast.

Figure 13: Vehicles Miles Traveled September 2016 and 2015 Forecast Comparison



Vehicle Weight Distribution and the Washington State Licenses, Permits, and Fees Forecast

Truck Weights Background

While we do not forecast the distribution of weights among cars and trucks, knowing that information is key to forecasting revenue in three of the revenue forecasts we do. We apply the distribution of truck weights to the truck forecast for both the combined license fee and the freight project fee. We also need to know the weight distribution of passenger cars to determine the revenue from the passenger weight fee.

Difficulty in Forecasting Truck Weight Distribution

There are several good reasons why WSDOT does not forecast truck weight distributions. First, there are just too many weight categories. Trucks register in weight categories starting at 0 to 4,000 pounds. The categories increase by 2,000 lbs increments up to 104,000 lbs, then top out at 105,500 lbs. That’s a total of 52 weight categories. Most of these weight categories are less than 1% of the vehicle fleet. In fact, 93% of the statewide truck fleet falls in the five lightest weight categories of 12,000 lbs and below, while the remaining 7% is distributed among the remaining 47 weight categories.

Second, the weights recorded in the vehicle registration database are not the vehicle’s actual weights. They are an estimate of the vehicle’s weight plus the load the truck owner plans to carry on the vehicle. This is called the vehicle’s declared gross weight. Because the declared gross weight is the decision of the truck’s owner, two identical trucks could be registered at two very different gross weights. To

make it more difficult, if a vehicle owners find they are hauling heavier loads, requiring them to purchase special permits for overweight loads, they may register the vehicle in the next registration period in a higher weight bracket. We find that due to economic swings, commercial truckers frequently adjust their registered weight from one year to the next.

Ninety-three percent of the trucks in the fleet, as previously stated, fall into the weight categories of 12,000 lbs and below. These are predominately pickup trucks. The remainder of the trucks are distributed among the other 47 weight categories. One might expect an even distribution of about 0.14% in each weight category, but that also is not the case. There are a few weight categories that are more popular than others. For instance, 0.97% of the trucks register at the 26,000 lb category. These trucks tend to be local delivery vans. The next standout is the 80,000 lb category, where 0.31% of the trucks are registered. These are over-the-road long haul trucks. The final category that exceeds expectations is 105,000 lbs, the highest weight category, with 0.35%. These are long haul trucks as well, but many of these are carriers of heavy loads and equipment.

Determining Weight Distributions

When truck owners register their trucks or fleet of trucks they have to declare a gross weight. This is recorded in the Department of Licensing (DOL) vehicle data base. DOL provides WSDOT with a monthly report showing the transaction and partial revenues collected by weight category. At the end of each fiscal year, WSDOT develops the weight distributions that are used in next year's forecasts for truck revenue and the freight project fee. Throughout the year, truck registrations behave in a distinct seasonal manner. Registrations are highest in the spring and summer and dip to their lowest in fall and winter. The problem, though, is that while the weight distributions are fairly consistent from one month to the next, commercial truck registrations tend to skew truck registrations and the weight distribution in November, December, and January. This is primarily because fleets are required to register in December. Some fleets will register early, while others register late. As a result, attempting to develop a seasonally sensitive weight distribution is just too complicated.

WSDOT found that from year to year, the weight distributions are fairly consistent. However, from time to time, due to economic activity, we do see interesting shifts in weight distributions. The table below shows the change in weight distributions for pickup trucks (4,000 to 12,000 lbs) for the five-year period from 2012 to 2016.

Figure 14: Vehicles Trends in Truck Weight Distributions and Vehicle Registrations – 2012-2016

Gross Weight	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Truck Weight Distributions – 2012-2016					
4,000	11.96%	11.51%	10.92%	10.32%	9.52%
6,000	41.30%	40.82%	40.03%	39.31%	38.27%
8,000	25.38%	25.92%	26.56%	27.35%	28.52%
10,000	8.69%	8.93%	9.17%	9.37%	9.67%
12,000	6.13%	6.37%	6.73%	7.06%	7.43%
2016 Registrations Allocated Based on Each Year's Weight Distributions – 2012-2016					
4,000	184,092	177,166	168,084	158,856	146,459
6,000	635,703	628,315	616,155	605,072	589,084
8,000	390,657	398,969	408,820	420,947	438,977
10,000	133,759	137,453	141,148	144,175	148,899
12,000	94,355	98,049	103,590	108,636	114,337

Note that the trend in the two lightest weight categories is that they slowly made up a smaller percentage of the fleet, while the three heaviest weight categories gained. While these are small year-over-year shifts, when one looks at the revenue shifts, this starts to have somewhat more significant implications.

To demonstrate how shifts in weight percentage impacts revenue, we will use the actual vehicle registrations from 2016 and redistribute them based on the shifting vehicle registrations above. See the bottom portion of the above table. By using one year’s actual registrations, we isolate the impact of the redistribution of weights, rather than compounding the distribution with forecast changes. Finally, we can demonstrate the revenue shift associated with moving vehicles into different weight categories by apply the current license fee to the vehicle numbers.

Figure 15: Revenue Impact from Different Years’Truck Weight Distributions – 2012-2016

New Law Rate	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	Change from 2012 to 2016
53	\$ 9,756,884	\$ 9,389,777	\$ 8,908,459	\$ 8,419,356	\$ 7,762,330	-\$ 1,994,554
73	\$ 46,406,306	\$ 45,866,959	\$ 44,979,284	\$ 44,170,242	\$ 43,003,159	-\$ 3,403,146
93	\$ 36,331,109	\$ 37,104,111	\$ 38,020,262	\$ 39,148,086	\$ 40,824,849	\$ 4,493,740
93	\$ 12,439,611	\$ 12,783,168	\$ 13,126,724	\$ 13,408,316	\$ 13,847,628	\$ 1,408,017
81	\$ 7,642,749	\$ 7,941,975	\$ 8,390,815	\$ 8,799,495	\$ 9,261,292	\$ 1,618,543
Total	\$112,576,659	\$113,085,990	\$113,425,544	\$113,945,495	\$114,699,258	\$ 2,122,600

As can be seen in the table above, just the small percentage shifts in these truck weight distributions, holding the total number of vehicles constant, accounts for large changes in revenue. For these categories of vehicles, the change in weight alone accounted for a total of \$2 million in additional revenue between 2016 and 2012 distributions.

Passenger Car Distributions

Passenger cars pay a vehicle weight fee, however, there are fundamental differences in the way that these fees work compared to trucks. For one, passenger cars register using the scale or curb weight, the actual weight of the vehicle. The vehicle owner does not have the option to change the registration weight, so shifts in weight categories are typically less noticeable. Passenger cars also have fewer weight categories with a smaller fee.

Like the truck data, we receive a report from DOL giving us the vehicles registered in each weight group and the revenue collected. Also like the trucks, we’ve seen the lightest weight group decline as a total percentage of total vehicles while the higher weight groups’ percentage increased. Since passenger car owners don’t change their registration weight from one year to the next, this change in weight seems to be a function of adding more SUVs to our fleet, which are registered as heavy passenger cars, at the expense of sedans and smaller lighter weight cars.

The table below shows how the weight distribution in passenger cars has changed over the last five years:

Figure 16: Trends in Passenger Vehicle Weight Distributions– 2012-2016

Gross Weight	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Truck Weight Distributions – 2012-2016					
4,000	80.23%	79.75%	79.27%	78.85%	78.30%
6,000	19.42%	19.89%	20.37%	20.78%	21.33%
8,000	0.34%	0.34%	0.34%	0.34%	0.35%
16,000 & above	0.02%	0.02%	0.02%	0.02%	0.02%

The next table shows how revenue collection changes just based on the new weight distribution. For this, we held redistributed the 2016 vehicle registrations using the weight distributions above, then multiplied the vehicles by the new law passenger weight fee:

Figure 17: Revenue Impact from Different Years' Weight Distributions – 2012-2016

New Law Rate	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	Change from 2012 to 2016
25	\$98,447,559	\$ 97,859,446	\$ 97,274,146	\$96,758,398	\$ 96,079,247	\$ (2,368,312)
45	\$42,884,966	\$ 43,932,883	\$ 44,984,165	\$45,904,984	\$ 47,112,327	\$ 4,227,361
65	\$1,070,056	\$1,083,081	\$1,090,133	\$1,100,447	\$1,118,353	\$ 48,297
72	\$ 78,621	\$ 81,294	\$77,095	\$ 77,715	\$ 82,087	\$ 3,466
Total	\$142,481,204	\$142,956,704	\$143,425,539	\$143,841,544	\$ 144,392,013	\$ 1,910,809

Overall, revenue increases by almost \$2 million from 2012 to 2016 just because of the weight shift alone, while revenue increases from 2015 to 2016 by half a million dollars just because of the tendency to have heavier vehicles.

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Appendix

Table Related to the September 2016 Forecast

Impact to Select Transportation Accounts

Figure 18: 2015 Transportation Revenue Package with the September 2016 Forecast Compared to the September 2015 Forecast

Transportation Revenue Bill - 2ESSB 5987 & SHB 1480 <i>dollars in millions</i>	2015-17		2017-19		10-Year Period (2015-2025)	
	Forecast Sep 16	Chg from Sep 15	Forecast Sep 16	Chg from Sep 15	Forecast Sep 16	Chg from Sep 15
Revenues						
Motor Vehicle Fuel Taxes Increase (7 cents 8/1/15 & 4.9 cents 7/1/16); Handling Loss Elimination and Increase in Off-highway Refunds by 11.9 cents	543.5	11.2	820.8	26.7	3,887.1	140.9
Vehicles paying Weight-based Registration Fee (All Trucks)	38.3	3.4	77.4	6.8	395.6	19.8
Vehicles paying Freight Project Fee (Trucks >10,000 lbs)	11.2	0.7	22.7	1.6	102.9	7.5
Passenger Vehicle Weight Fees	90.0	2.5	185.6	4.3	1,049.6	(24.2)
Intermittent-Use Trailers (\$187.50)	7.2	(0.0)	30.0	0.0	58.1	0.1
Plug-in Vehicle Renewal Fee (\$100)	0.2	-	0.4	0.0	2.0	0.0
Electric/Plug-in Vehicle Renewal Fee (\$50)	0.7	0.1	1.8	0.4	15.6	8.4
Title Service Fee \$12 (Vessels)	0.1	0.0	0.2	0.1	0.7	1.0
Registration Service Fee \$5 (Vessels)	0.5	0.1	0.5	0.2	2.2	0.4
Commercial Driver's License (CDL) Fees HIGHWAY SAFETY	1.6	0.2	3.1	(0.7)	13.7	0.4
Enhanced Driver's License Fees (EDL/EID) HIGHWAY SAFETY	4.8	2.8	11.5	7.7	56.6	39.6
DOL Report of Sale Fees	-	-	5.2	(0.0)	19.6	0.1
Studded Tire Fee	0.2	-	1.0	-	4.3	-
Total Revenues	698.2	21.0	1,160.0	47.1	5,607.8	194.1
Distributions						
Motor Vehicle Fund (108)	36.2	2.4	87.4	5.1	354.0	16.4
Transportation 2003 Nickel Account (550)	2.6	0.2	5.2	0.4	26.1	1.4
Transportation Partnership Account (09H)	5.7	0.5	11.5	1.0	57.5	3.1
Connecting Washington Account (NEW)	543.5	11.2	820.8	26.7	3,887.1	140.9
Puget Sound Capital Construction Account (099)	-	-	-	-	-	-
Puget Sound Ferry Operations Account (109)	0.8	0.1	1.7	0.1	7.5	0.4
Capital Vessel Replacement Account (18J)	0.6	0.1	3.6	0.2	14.2	1.5
Multimodal Transportation Account (218)	90.6	2.5	188.5	4.6	1,069.5	(16.0)
Special Category C Account (215)	-	-	-	-	-	-
License Plate Technology Account (06T)	-	-	0.1	(0.0)	0.4	(0.0)
DOL Services Account (201)	-	-	0.3	0.0	1.2	0.1
WSP Highway Account (081)	11.8	0.9	25.6	1.9	117.8	6.1
Highway Safety Fund (106)	6.4	3.0	15.2	7.0	72.3	40.0
Rural Arterial Trust Account (102)	0.02	0.01	0.02	(0.00)	0.1	(0.0)
Transportation Improvement Account (144)	0.02	0.01	0.02	-	0.1	(0.0)
Total Distributions	698.2	21.0	1,160.0	47.1	5,607.8	194.1

* Intermittent-Use trailer fee impact is the gross impact from the new trailer fee not the net impact

In 2015 lawmakers passed 2SSB 5987 which was the new 2015 Transportation Revenue package. The new revenue package has a variety of fee increases with the largest tax increase being from the motor fuel tax increase. The new legislation also authorized various transfers of funds and tax credits which are also listed in the table above.