Washington State
Department of Transportation

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The Gray Notebook

WSDOT's quarterly performance report on transportation systems, programs, and department management
Quarter ending September 30, 2016 • Published November 2016 Roger Millar, Secretary of Transportation, PE, AICP

Safety in numbers

WSDOT analyzes transit safety records in the state

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Looking at buildings from the ground floor up

How WSDOT is taking steps to maintain and preserve its aging facilities

p. 13

WSDOT Aviation programs reaching new heights

State-operated airports seeing wide scale improvements

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15 YEARS

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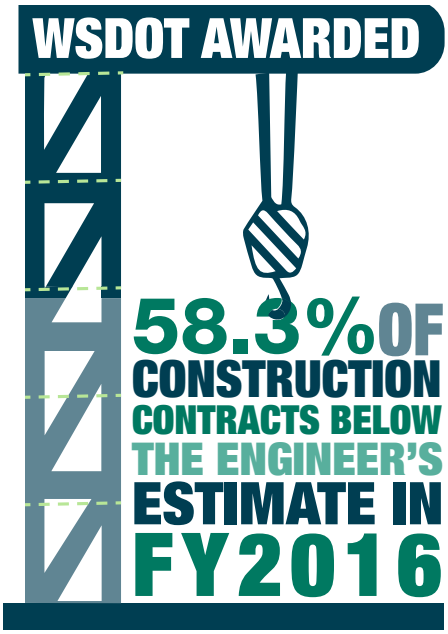
PERFORMANCE HIGHLIGHTS reported for the quarter ending September 30, 2016

3
transit-related **fatalities** occurred in Washington in 2015, showing no change in the total number of these fatalities from 2014

98%
of WSDOT's 2,002 **stormwater management facilities** were inspected in FY2016

374
construction projects have been completed with **Nickel** or **Transportation Partnership Account** funds



43 years
average age of WSDOT's 284 **primary buildings**; 35% of these structures are more than 51 years old

3
new **Lean improvement projects** were launched by WSDOT during the quarter, bringing the total to 83

$22.7 million
in economic benefit was provided by WSDOT's **Incident Response** teams clearing 15,102 incidents during the quarter

On the cover: An Intercity Transit bus drives on the State Capitol Campus in Olympia.

WSDOT celebrates 15 years of the *Gray Notebook*

Continuing WSDOT's celebration marking 15 years of the *Gray Notebook*, editions published in 2016 include a look back to articles from 2001, 2006 and 2011 to provide insight on how the report, agency and state have changed since the *Gray Notebook's* inception as *Measures Markers and Mileposts* in 2001.

WSDOT announces new Incident Response program and sees it flourish

In the September 2001 edition of *Measures Markers and Mileposts*, WSDOT announced a turning point in the evolution of what has become widely known as Incident Response.

"The Washington State Department of Transportation and the Washington State Patrol have agreed to begin a special operations initiative to help relieve freeway and highway traffic congestion created by non-recurring incidents. The organizations are working together on a plan that puts an emphasis on clearing accidents and reopening lanes, removing stalled vehicles, providing better traveler information and minimizing the effects of rush hour construction and maintenance work."

In this edition, WSDOT reports that its Incident Response teams assisted at 15,102 incidents during the third quarter (July through September) of 2016. WSDOT's assistance at incident scenes provided an estimated $22.7 million in economic benefits during the third quarter of 2016 by reducing the impacts of incidents on drivers. See pp. 24-25.

WSDOT expands congestion reporting to provide a multimodal perspective

In *Measures, Markers and Mileposts* edition 23 (published in September 2006) WSDOT's annual travel time analysis determined that Bellevue-based worksite commutes were the worst in the state, noting, "The worst two commutes were going home from Bellevue. The worst route was Bellevue to Tukwila, I-405 evening commute, with five hours and 35 minutes in congestion duration; for four hours and 10 minutes of that period, average speeds fell below 35 mph (severe congestion). Since 2003, the Average Travel Time has increased by seven minutes and 95% Reliable Travel Time by 13 minutes—indicating that traffic conditions have become much less predictable for this route. The second worst commute was a reverse commute, Bellevue to Seattle, SR 520 evening commute. Duration of congestion was four hours and 50 minutes, up 40 minutes from 2003. Another commute that shares the same route, Redmond to Seattle, SR 520 evening commute, turned out to be similarly bad, with a 45 minute increase in peak period duration to three hours and 55 minutes."

While the 2006 edition provided performance analyses of delay, congestion, travel time analysis, lost throughput productivity and High Occupancy Vehicle lanes on state highways, WSDOT's reporting on congestion was just getting started.

More recent editions of this earlier report have dramatically expanded the scope of what is measured to include multimodal transportation as well myriad of additional subjects. The new, recently published *2016 Corridor Capacity Report*—which is no longer in the *Gray Notebook* and is a standalone publication—still reviews corridor-based congestion data, but the performance measures include in-depth analyses ranging from greenhouse gas emissions to drive alone, carpooling, bicycling and public transit commuting rates. See pp. 26-27.

Statewide transportation policy goals

Laws enacted in 2007 established policy goals for transportation agencies in Washington (RCW 47.04.280). The six statewide transportation policy goals are:

- **Safety:** To provide for and improve the safety and security of transportation customers and the transportation system;
- **Preservation:** To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services;
- **Mobility (Congestion Relief):** To improve the predictable movement of goods and people throughout Washington, including congestion relief and improved freight mobility;
- **Environment:** To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment;
- **Economic Vitality:** To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy; and
- **Stewardship:** To continuously improve the quality, effectiveness, and efficiency of the transportation system.

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Statewide policy goal/ WSDOT performance measure	Previous period	Current period	Goal	Goal met	Five-year trend *(unless noted)*	Desired trend
Safety						
Rate of **traffic fatalities** per 100 million vehicle miles traveled statewide (Annual measure: calendar years 2014 & 2015)	0.80	0.95[1]	<1.00	✓		↓
Rate of **recordable incidents** for every 100 full-time WSDOT workers (Annual measure: calendar years 2014 & 2015)	5.4	4.3	<5.0	✓		↓
Preservation						
Percentage of state **highway pavement** in fair or better condition by vehicle miles traveled (Annual measure: calendar years 2013 & 2014)	92.6%	93.3%	≥ 90.0%	✓		↑
Percentage of **state bridges** in fair or better condition by bridge deck area (Annual measure: as reported for 2015 & 2016)	92.1%	91.2%	≥ 90.0%	✓		↑
Mobility (Congestion Relief)						
Highways: Annual (weekday) vehicle **hours of delay** statewide relative to **maximum throughput speeds**[2] (Annual measure: calendar years 2014 & 2015)	32.3 million	N/A	N/A	N/A		↓
Highways: Average **incident clearance times** for all Incident Response program responses (Calendar quarterly measure: Q2 2016 & Q3 2016)	11.3 minutes	12.0 minutes	N/A	N/A	(Five-quarter trend)	↓
Ferries: Percentage of trips departing on time[3] (Fiscal quarterly measure: year to year Q1 FY2016 & Q1 FY2017)	91.1%	90.9%	≥ 95%	—		↑
Rail: Amtrak Cascades on-time performance[4] (Annual measure: fiscal years 2015 & 2016)	72.1%	74.8%	≥ 80%	—		↑
Environment						
Number of WSDOT **stormwater management facilities** constructed (Annual measure: fiscal years 2015 & 2016)	130	151	N/A	N/A		Not applicable
Cumulative number of WSDOT **fish passage improvement projects** constructed (Annual measure: calendar years 2014 & 2015)	291	301	N/A	N/A		↑
Stewardship						
Cumulative number of Nickel and TPA **projects completed**[5] and **percentage on time**[6] (Calendar quarterly measure: Q2 2016 & Q3 2016, trendline for percentage on time)	371/ 87%	374/ 87%	≥ 90% on time	—	(Five-quarter trend)	↑
Cumulative number of Nickel and TPA **projects completed**[5] and **percentage on budget**[6] (Calendar quarterly measure: Q2 2016 & Q3 2016, trendline for percentage on budget)	371/ 91%	374/ 92%	≥ 90% on budget	✓	(Five-quarter trend)	↑
Variance of total project costs[5] compared to **budget expectations**[6] (Calendar quarterly measure: Q2 2016 & Q3 2016)	Under budget by 1.9%	Under budget by 2.2%	On or under budget	✓	(Five-quarter trend)	Not applicable

Data source: WSDOT Office of Strategic Assessment and Performance Analysis.

Notes: N/A = not available: goal has not been set. Dash (—) = goal was not met in the reporting period. For the Economic Vitality Policy Goal, see p. 8 for Results Washington Goal 2: Prosperous Economy measures. **1** Traffic fatality data for 2015 is considered preliminary until January 1, 2017. **2** Compares actual travel time to travel time associated with "maximum throughput" (defined as 70-85% of the posted speeds), where the greatest number of vehicles occupy the highway at the same time. **3** WSDOT Ferries' on-time departures include any trip recorded by automated tracking as leaving the terminal within 10 minutes of scheduled time. **4** Amtrak Cascades' on-time performance includes any trip arriving within 10-15 minutes, depending on the route, of scheduled arrival time. **5** Construction projects only. **6** Budget and schedule expectations are defined in the last approved State Transportation Budget. See p. 34 for more information.

WSDOT, partners working on MAP-21 safety targets

WSDOT is currently working with partners to set Moving Ahead for Progress in the 21st Century (MAP-21) goals for the final safety rule, which became effective April 14, 2016. WSDOT has 12 months from the effective date to develop performance targets for each of the new nationally-established performance measures and report those to the Federal Highway Administration (FHWA). Following the initial 12 months given to state departments of transportation (DOTs), affected Municipal Planning Organizations (MPOs) will have an additional six months to adopt the states' targets or establish their own performance targets.

This is the first time all state DOTs and MPOs are required to track and report performance data using a national framework of consistent performance measures. State DOTs have been encouraged to coordinate with MPOs to establish consistent targets, to the maximum extent practicable. WSDOT must report its targets and the most recent five years of data on the measures in the annual Highway Safety Improvement Plan report that is due April 14, 2017, and each following year. In order to avoid penalties, WSDOT must meet (or be making significant progress to meet) performance targets set for four out of the five measures. Significant progress is defined under 23 U.S.C. 148(i).

Fatalities on all public roads see increases
2011 through 2015; Washington state

	2011	2012	2013	2014	2015
Traffic Fatalities					
Number of fatalities	454	438	436	462	567
Fatality rate (per 100 million VMT[1])	0.80	0.77	0.76	0.80	0.95
Traffic Serious Injuries					
Number of serious injuries	2,136	2,200	1,917	2,006	2,072
Serious injury rate (per 100 million VMT[1])	3.75	3.89	3.35	3.46	3.52
Bicyclist/Pedestrian Fatalities and Serious Injuries					
Number of fatalities and serious injuries	481	534	403	493	494

Data source: Washington Traffic Safety Commission, Fatality Analysis Reporting System, WSDOT Transportation Data and GIS Office.
Notes: Data for 2015 is preliminary until January 2017. **1** VMT = Vehicle miles traveled.

MAP-21 measures by program area	Federal threshold/ benchmark[1]	MAP-21 target[2]	WSDOT penalty[3] (Yes/No)	Rule release date	Existing WSDOT performance measures for this program area
Highway Safety Improvement Program – FINAL RULE					**Federal Register Vol. 79, No. 60**
Rate of traffic fatalities per 100 million vehicle miles traveled (VMT) on all public roads	No	To be determined (TBD)	Yes	Final 3/15/16	Traffic fatality rates using the NHTSA[4] methodology; see GNB 62, p. 13
Rate of serious traffic injuries per 100 million VMT on all public roads	No	TBD	Yes	Final 3/15/16	WSDOT does not currently track the data or metrics for this measure as it is proposed in this Final Highway Safety Rule
Number of traffic fatalities on all public roads	No	TBD	Yes	Final 3/15/16	Traffic fatalities using the NHTSA[4] methodology; see GNB 62, p. 10
Number of serious traffic injuries on all public roads	No	TBD	Yes	Final 3/15/16	Serious injuries using the NHTSA[4] methodology; see GNB 62, p. 10
Number of non-motorized traffic fatalities and serious injuries	No	TBD	Yes	Final 3/15/16	Non-motorized (pedestrian/bicyclist) fatalities and serious injuries using the NHTSA[4] methodology; see GNB 61, p. 10
Rate of per capita traffic fatalities for drivers and pedestrians 65 or older	No	TBD	No	Final 3/15/16	The rate of traffic fatalities for pedestrians (65 or older) is part of Washington's Target Zero[5] traffic safety campaign
Rate of fatalities on high-risk rural roads	No	TBD	Yes	Final 3/15/16	Traffic fatality rates on high-risk rural roads as part of Target Zero[5]
Highway-railway crossing fatalities	No	TBD	No	Final 3/15/16	Number of fatalities at highway-railway crossings

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WSDOT submits Initial State Performance Report

WSDOT submitted its Initial State Performance Report to the Federal Highway Administration (FHWA) in September 2016. The report highlights the agency's current efforts to address or provide information in the following areas:

- The condition/performance of the National Highway System (NHS) in the state;
- The effectiveness of the investment strategy document in the State Asset Management plan for the NHS;
- A description of the state department of transportation's progress in achieving performance targets; and,
- A description of the ways in which the state department of transportation is addressing congestion at freight bottlenecks.

For additional information on WSDOT's Initial State Performance Report and how it ties into MAP-21, visit www.wsdot.wa.gov/Accountability/MAP-21.

MAP-21 measures by program area	Federal threshold/ benchmark[1]	MAP-21 target[2]	WSDOT penalty[3] (Yes/No)	Rule release date	Existing WSDOT performance measures for this program area
Combined Draft Rule – Notice for Proposed Rule Making (NPRM)					**Federal Register Vol. 81, No. 78**
- System Performance (Congestion)					
Percent of the Interstate System providing for reliable travel	No	TBD	No	Draft 4/22/16	WSDOT does not currently track the specific data or metrics for this measure as it is proposed in this NPRM
Percent of the non-Interstate National Highway System (NHS) providing for reliable travel	No	TBD	No	Draft 4/22/16	WSDOT does not currently track the specific data or metrics for this measure as it is proposed in this NPRM
Percent of the Interstate System where peak hour travel times meet expectations	No	TBD	No	Draft 4/22/16	WSDOT does not currently track the specific data or metrics for this measure as it is proposed in this NPRM
Percent of the non-Interstate NHS where peak hour travel times meet expectations	No	TBD	No	Draft 4/22/16	WSDOT does not currently track the specific data or metrics for this measure as it is proposed in this NPRM
- National Freight Movement Program					
Percent of the Interstate System mileage providing for reliable truck travel time	No	TBD	No	Draft 4/22/16	WSDOT does not currently track the specific data or metrics for this measure as it is proposed in this NPRM
Percent of the Interstate System mileage uncongested	No	TBD	No	Draft 4/22/16	WSDOT does not currently track the specific data or metrics for this measure as it is proposed in this NPRM
- Congestion Mitigation and Air Quality Program					
Annual hours of excessive delay per capita	No	TBD	TBD	Draft 4/22/16	WSDOT does not currently track the specific data or metrics for this measure as it is proposed in this NPRM
Two- and four-year total emission reductions for each applicable criteria pollutant and precursor	No	TBD	TBD	Draft 4/22/16	No existing performance measure for criteria pollutants
National Highway Performance Program – Notice for Proposed Rule Making					**Federal Register Vol. 80, No. 2**
National Highway System interstate pavement in good and poor condition	% of interstate pavement lane miles in poor condition not to exceed 5%	TBD	Yes	Draft 1/5/15	See GNB 60, p. 19 for an update on MAP-21 implications for pavement. On February 20, 2015, the Asset Management Plan draft rule was released which is linked to the draft rule for pavement and bridge performance measures.
National Highway System bridges classified in good and poor condition	% of SD[6] bridges not to exceed 10%	TBD	Yes	Draft 1/5/15	Several measures of bridge condition including good/fair/poor condition rating and structural deficiency rating; see GNB 62, p. 14

Data source: WSDOT Office of Strategic Assessment and Performance Analysis.

Notes: **1** Minimum threshold or benchmark to be established by the U.S. Department of Transportation, Secretary of Transportation. **2** Performance targets to be set for each performance measure by WSDOT in coordination with Metropolitan Planning Organizations (MPOs) statewide. **3** Penalties apply for some measures if WSDOT or the MPO does not attain the target within a given time frame. Penalties apply only to WSDOT and include minimum allocations of federal funding toward programs to progress toward the desired target. **4** NHTSA = National Highway Traffic Safety Administration. **5** Washington state's strategic highway safety plan. **6** SD = structurally deficient.

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Results WSDOT – Setting WSDOT's Direction

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Results WSDOT is the agency's strategic plan for 2014-2017. The plan directs WSDOT's work with partners and communities and includes three agency emphasis areas for 2016-2017: workforce development, inclusion and practical solutions. The strategic plan focuses on how the agency makes investments and delivers projects with limited resources.

To date, all strategies are on track to achieve their desired results. For a copy of Results WSDOT, go to bit.ly/ResultsWSDOTStrategicPlan.

Implementation plans define the actions and deliverables needed to achieve WSDOT's goals from 2014 through 2017.

Results WSDOT is based on six goals: Strategic Investments, Modal Integration, Environmental Stewardship, Organizational Strength, Community Engagement, and Smart Technology.

Goals are defined in the table below, and are supported by strategies and tasks. Select *Gray Notebook* articles in this issue, indicated by a box with a goal logo, show how the plan's goals are being implemented.

Results WSDOT sets agency direction

2014 through 2017 Strategic Plan	**Recent *Gray Notebook* articles linked to goals**
Goal 1: STRATEGIC INVESTMENTS Effectively manage system assets and multimodal investments on corridors to enhance economic vitality	-Aviation: GNB 63, pp. 16-19 -Bridges: GNB 62, pp. 14-22 -Capital facilities: GNB 63, pp. 13-15 -Ferries preservation: GNB 62, pp. 23-28 -Highway maintenance: GNB 60, pp. 20-21 -Multimodal assets: GNB 63, pp. 9-10 -Pavement conditions: GNB 60, pp. 11-19
Goal 2: MODAL INTEGRATION Optimize existing system capacity through better interconnectivity of all transportation modes	-Ferries: GNB 63, pp. 20-21 -Freight: GNB 62, pp. 39-42 -Highway system safety: GNB 62, pp. 10-13 -Pedestrian and bicyclist safety: GNB 61, pp. 10-12 -Public transit: GNB 63, pp. 11-12 -Rail: Amtrak Cascades: GNB 63, pp. 22-23 -Trip reduction: GNB 60, pp. 22-24
Goal 3: ENVIRONMENTAL STEWARDSHIP Promote sustainable practices to reduce greenhouse gas emissions and protect natural habitat and water quality	-Air quality: GNB 61, pp. 22-23 -Environmental compliance: GNB 60, pp. 32-33 -Fish passage barriers: GNB 62, pp. 35-36 -General permitting: GNB 62, p. 38 -Water quality: GNB 63, pp. 28-30 -Wetlands protection: GNB 61, pp. 26-28
Goal 4: ORGANIZATIONAL STRENGTH Support a culture of multi-disciplinary teams, innovation and people development through training, continuous improvement and Lean efforts	-Lean: GNB 63, p. 33 -Worker safety and health: GNB 60, p. 10 -Workforce levels and training: GNB 61, p. 33
Goal 5: COMMUNITY ENGAGEMENT Strengthen partnerships to increase credibility, drive priorities and inform decision making	-Disadvantaged Business Enterprise: GNB 60, p. 40 -Local programs: GNB 62, p. 37
Goal 6: SMART TECHNOLOGY Improve information system efficiency to users and enhance service delivery by expanding the use of technology	-Commercial Vehicle Information Systems and Networks: GNB 61, p. 29 -Tolling: GNB 60, pp. 36-38 -Travel information: GNB 61, p. 21

Data source: WSDOT Office of Strategic Assessment and Performance Analysis.

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Results Washington, the state's performance management system, outlines Gov. Jay Inslee's priorities. This strategic framework sets the state's vision and mission, as well as the foundational expectations for state agencies to achieve goals collaboratively. Results Washington has five focus areas: World Class Education; Prosperous Economy; Sustainable Energy and a Clean Environment; Healthy and Safe Communities; and Efficient, Effective and Accountable Government. For more information, visit http://www.results.wa.gov/.

Results Washington measures by goal area[1]	Previous period	Current period	On target[2]	Current trend	Desired trend
Annual measures for which WSDOT is the lead agency					
Goal 2: Prosperous Economy					
Based on current funding levels, maintain the percent of Washington infrastructure assets in satisfactory condition at 2013 baseline levels through 2020 (2013 & 2014)	86%[3]	85%	No	↓	↑
Based on current funding levels, control the percent of state and local bridges[4] in poor condition from increasing over 10% by 2017 (Fiscal years 2015 & 2016)	8.8%	9.3%	Yes	↑	↓
Based on current funding levels, control the percent of state and local pavement[4] in poor condition from increasing over 10% by 2017 (2013 & 2014)	6.0%	6.0%[3]	Yes	↔	↓
Based on current funding levels, control the percent of ferry terminal systems that are past due for replacement from increasing over 6% by 2020 (Fiscal years 2015 & 2016)	3.7%	5.4%[3]	Yes	↑	↓
Based on current funding levels, control the percent of ferry vessel systems that are past due for replacement from increasing over 10% by 2020 (Fiscal years 2015 & 2016)	8.3%	10.9%	No	↑	↓
Maintain percentage of transit fleet that exceeds the Federal Transit Administration's minimum useful life at 25% or below through 2020 (2014 & 2015)	37.3%[5]	34.6%[5]	No	↓	↓
Increase the percentage of Washingtonians using alternative transportation commute methods to 29% by 2020 (2014 & 2015)	27.6%	27.6%	No	↔	↑
Ensure travel and freight reliability (impacted by economic growth) on strategic corridors does not deteriorate beyond 5% from 2012 levels through 2017 (2014 & 2015)	6.6%	8.1%	No	↑	↓
Operate strategic corridors at 90% efficiency or higher through 2017 (2014 & 2015)	94.6%	93.4%	Yes	↓	↑
Reduce the number of pedestrian and bicyclist fatalities on public roadways from 84 in 2012 to zero in 2030 (2014 & 2015)	85[3]	100[6]	No	↑	↓
Annual measures for which WSDOT is not the lead agency, but has an interest					
Goal 2: Prosperous Economy					
Increase state agency and educational institution utilization of state-certified small businesses in public works and other contracting and procurement by 2017 to: Minority-owned businesses, 10%; Women-owned businesses, 6%; Veteran-owned businesses, 5%	*Measure is under development. Expected to report in December 2016*				
Goal 3: Sustainable Energy and a Clean Environment					
Reduce transportation related greenhouse gas emissions from 44.9 million metric tons/year (projected 2020) to 37.5 million metric tons/year (1990) by 2020 (2012 & 2013)	42.4	40.4[3]	Yes	↓	↓
Reduce the average emissions of greenhouse gases for each vehicle mile traveled in Washington by 25% from 1.15 pounds in 2010 to 0.85 pounds by 2020 (2012 & 2013)	1.11[3]	1.11	No	↔	↓
Increase the average miles traveled per gallon of fuel for Washington's overall passenger and light duty truck fleet (private and public) from 19.2 mpg in 2010 to 23 mpg in 2020 (2013 & 2014)	20.2	20.6	No	↑	↑
Increase the number of plug-in electric vehicles registered in Washington from approximately 8,000 in 2013 to 50,000 by 2020 (2014 & 2015)	12,351	16,529	No	↑	↑
Increase miles of stream habitat opened from 350 to 450 (per year) by 2016 (2014 & 2015)[7]	599[3]	365	No	↓	↑
Increase number of fish passage barriers corrected per year from 375 to 500 by 2016 (2014 & 2015)[7]	424[3]	479	No	↑	↑
Goal 4: Healthy and Safe Communities					
Decrease number of traffic-related fatalities on all roads from 454 in 2011 to zero in 2030 (2014 & 2015)	462	567[6]	No	↑	↓

Data sources: WSDOT Office of Strategic Assessment and Performance Analysis and Results Washington's Open Performance Program.

Notes: **1** In addition to the measures listed in the table, WSDOT contributes performance information that is combined and reported with data from all state agencies in Goal 5: Efficient, Effective and Accountable Government. **2** "On target" is defined as currently meeting the goal or making enough progress to meet the goal by the target date. Some measures may be trending in the desired direction but are not on track. **3** Data has been corrected from previous *Gray Notebook* editions. **4** This measures assets on the National Highway System. **5** Values differ from previous editions. To better align with the FTA, WSDOT has updated its method for calculating useful life; it is now based on age or mileage instead of just age. **6** Data is preliminary. **7** Includes work completed by all state agencies.

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Multimodal Asset Performance Dashboard

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WSDOT performance measure	Previous period	Current period	Goal	Goal met	Five-year trend *(unless noted)*	Desired trend
Highway Assets						
Bridges					53.5 million square feet of bridge deck	
Percentage of state bridges in fair or better condition by bridge deck area (Calendar years 2015 & 2016, GNB 62, p. 14)	92.1%	91.2%	≥90.0%	✓		↑
Number of state bridges load restricted or load posted (Fiscal years 2015 & 2016, GNB 62, p. 18)	120	126	*	N/A		↓
Current steel bridge painting backlog; Millions of dollars (Fiscal years 2015 & 2016, GNB 62, p. 20)	$394.0	$414.5	*	N/A		↓
Steel bridge projected 10-year painting backlog; Millions of dollars (Fiscal years 2015-2025 & 2016-2026, GNB 62, p. 20)	$684.0	$706.6	*	N/A		↓
Current state bridge deck area due or past due for replacement; Millions of dollars (Fiscal years 2015 & 2016, GNB 62, p. 19)	$70.8	$115.6	*	N/A	(Two-year trend)	↓
State bridge projected 10-year deck area due or past due for replacement; Millions of dollars (Fiscal years 2015-2025 & 2016-2026, GNB 62, p. 19)	$71.5	$726.5[1]	*	N/A	(Two-year trend)	↓
Structurally deficient state NHS bridges; Percentage of deck area (MAP-21 proposed criteria) (Fiscal years 2015 & 2016, GNB 62, p. 15)	8.8%	9.3%	≤10.0%	✓		↓
Pavement					18,680 lane miles of pavement	
Percentage of state highway pavement[2] in fair or better condition; (Calendar years 2013 & 2014, GNB 60, p. 11)	92.6%	93.3%	≥90.0%	✓		↑
Highway Pavement Asset Sustainability Ratio; Long term service replenishment rate[3] (Calendar years 2013 & 2014, GNB 60, p. 11)	65%	53%	≥90.0%	—		↑
Highway Pavement Deferred Preservation Liability (backlog); Millions of dollars (Calendar years 2013 & 2014, GNB 60, p. 11)	$391	$351	$0	—		↓
Highway Pavement Remaining Service Life as percentage of total useful life (Calendar years 2013 & 2014, GNB 60, p. 11)	46.1%	46.9%	45%-55%	✓	(Four-year trend)	↑
Percentage of lane miles of interstate pavement in poor condition (MAP-21 proposed criteria) (Calendar years 2014 & 2015)	3.9%	4.0%	≤5.0%	✓	(Two-year trend)	↓
Safety Rest Areas					47 safety rest areas	
Safety rest area score[4] through the Maintenance Accountability Process (Calendar years 2014 & 2015, GNB 61, p. 13)	B	B	B	✓		↑
Total visitors at safety rest areas; Millions of visitors (Calendar years 2014 & 2015, GNB 61, p. 13)	22.5	23.1	*	N/A		N/A
Highway Maintenance						
Percentage of funded maintenance condition targets achieved[5]; (Calendar years 2014 & 2015, GNB 60, p. 20)	79%	85%	100%	—		↑

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WSDOT tracks asset performance statewide

WSDOT performance measure	Previous period	Current period	Goal	Goal met	Five-year trend *(unless noted)*	Desired trend
Ferry Assets						
Vessels and Terminals					22 vessels, operating out of 20 terminals	
Ferry vessel systems past due for replacement[6] (Fiscal years 2015 & 2016, GNB 62, p. 24)	8.3%	10.9%	≤10.0%	—		↓
Ferry terminal systems past due for replacement[7] (Fiscal years 2014 & 2015, GNB 62, p. 27)	3.7%	5.3%	≤6.0%	✓	(Three-year trend)	↓
Ferry vessel preservation needs percentage backlog of total vessel value (Fiscal years 2015 & 2016, GNB 62, p. 27)	26.1%	30.6%	*	N/A	(Three-year trend)	↓
Ferry terminal preservation needs percentage backlog of total terminal assets (Calendar years 2014 & 2015, GNB 62, p. 26)	11.3%	12.8%	*	N/A	(Three-year trend)	↓
Multimodal Assets						
Aviation					16 airports managed, nine owned, 135 public use	
Airport combined (federal, state, local) grant funding[8]; Millions of dollars (Fiscal years 2016 & 2017, GNB 63, p. 16)	$40.7	$59.7	*	N/A		↑
Percentage of airports due for and inspected by WSDOT[8] (Calendar years 2015 & 2016, GNB 63, p. 18)	76%	100%	100%	✓	(Three-year trend)	↑
Other Assets						
Facilities					3.59 million square feet	
Facilities[9] Preventive Maintenance Plan Completion Rate[10] (Fiscal years 2014 & 2015, GNB 59, p. 8)	88%	88%	71%	✓	(Four-year trend)	↑
Percentage of primary buildings[9] in fair or better condition (Biennial measure: 2013-2015 & 2015-2017, GNB 59, p. 8)	60%	58%	*	N/A	(Two-biennium trend)	↑
10-year forecast of unmet needs (backlog)[11]; Millions of Dollars (Biennial measure: 2013-2015 & 2015-2017, GNB 59, p. 9)	$473.0	$475.5	*	N/A	(Two-biennium trend)	↓

Data source: WSDOT Office of Strategic Assessment and Performance Analysis.

Notes: N/A = not available or not applicable. Asterisk(*)= goal has not been set. Dash (—) = goal was not met in the reporting period. **1** The significant increase in projected liabilities is due to the deterioration of physical assets and changes in accounting. Since 2009, many concrete overlays could not be adequately maintained as a result of budget constraints and are now coming due for rehabilitation. A change in accounting for projected asset deterioration to more accurately capture future needs was also implemented in FY2016. **2** Data includes only conditions for asphalt and concrete pavement; budget constraints prohibited data collection for chip seal pavement. Condition data is weighted by vehicle miles travelled. **3** Years of service life replenished through rehabilitation divided by service life consumed on an annual basis (long-term measure). **4** Safety rest areas are assigned a score according to the Maintenance Accountability Process on a level of service (LOS) scale, A through F. **5** Maintenance activities are assigned asset condition targets based upon an A through F level of service scale and funding levels; actual conditions are compared to funded asset condition levels on the LOS scale. See GNB 32, p. 19 for additional information on LOS standards. **6** WSDOT Ferries vessels uses a risk assessment matrix, which combines the probability of system component failure with information on the failure's impact on ferry operations to gauge when ferry systems are past due for replacement; systems in condition rating 3 are past due for replacement. **7** WSDOT Ferries use an economic-based model for assessing terminal needs; the model has been updated each subsequent year to improve accuracy and is not directly comparable to previous data. **8** Asset condition data is not currently available for the WSDOT aviation programs; grant funding and inspections for the Airport Master Record are being used as stand-in measurements until data is available. Both measurements apply to public-use non-primary commercial airports. **9** Data is unavailable prior to 2012. **10** The Preventive Maintenance Plan is developed biennially and ranks maintenance activities based upon a criticality assessment scale. Funding is insufficient to complete all activities; completion rate is measured only for funded work categories. **11** Measured as backlog of unmet needs over the next 10 years as identified by the capital facilities strategic plan.

Notable results

- *Washington had three transit-related fatalities in 2015, showing no change from the number of fatalities in 2014*
- *There was a 26% increase in reported injuries on Washington's transit systems, from 234 in 2014 to 295 in 2015*
- *There were 274 transit incidents in 2015, a 21% increase from the 227 events reported in 2014*
- *WSDOT helps Washington's 31 transit agencies comply with federal and state rules and requirements*

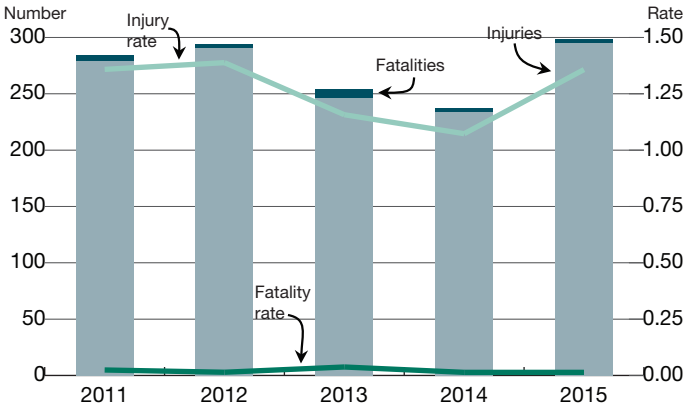
No change in transit-related fatalities in 2015

There were three transit-related fatalities in Washington state across all modes (including bus, light rail, trolley bus and vanpool) in 2015, the same as in 2014. The fatality rate in 2015 was 0.01 per million unlinked passenger trips (UPT; the number of boardings on transit vehicles), showing no change from 2014 (see graph below). UPT decreased from 218.1 million in 2014 to 217.3 million in 2015.

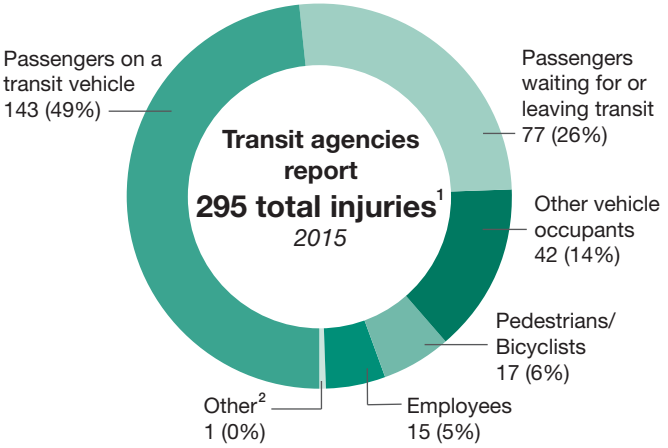
Injuries on transit increased by 26%—from 234 in 2014 to 295 in 2015. Of the 295 injuries in 2015, 220 (75%) involved passengers either on, waiting for or exiting a transit vehicle (see graph at right). The injury rate was 1.36 per million UPT in 2015, a 26% increase from the 2014 injury rate of 1.07.

There were 274 incidents involving transit in 2015, a 21% increase from the 227 incidents reported in 2014. The number of transit-related incidents has shown a five-year decrease of nearly 6% since 2011, when 290 incidents occurred. For reporting purposes, incidents are categorized as collision, derailment, fire, security (such as a bomb threat, theft or assault) or not otherwise classified (NOC). NOCs, which can include slips, trips and falls, electric shocks, vehicles leaving the roadway and train derailments in a rail yard, accounted for 61% (167) of incidents in 2015. The remaining incidents were 93 collisions (34%), 12 fires (4%), and two security events (1%); no derailments were reported. Some rural transit agency data is not included in these calculations; see p. 12 for more information on transit reporting requirements.

Transit-related injuries increase by 26%, fatalities remain the same from 2014 to 2015 in Washington
2011 through 2015; Number of injuries and fatalities; Rate of injuries and fatalities per million unlinked passenger trips[1]



Data source: WSDOT Public Transportation and the National Transit Database.
Note: **1** Unlinked passenger trips (UPT) refers to the number of passenger boardings on transit vehicles.



Data source: WSDOT Public Transportation and the National Transit Database.
Notes: Percentages may not add to 100 due to rounding. **1** Includes injuries reported to the Federal Transit Administration; injury types are not specified. **2** "Other" includes trespassing, suicide and persons not otherwise specified.

WSDOT administers three transit safety programs statewide

WSDOT administers three different statewide transit safety and compliance oversight programs to promote safe public transportation services throughout the state. The State Safety Oversight, Transit Asset Management, and Drug and Alcohol Policy programs ensure Washington's 31 transit agencies provide public transportation systems that are safe for passengers, employees and the communities they serve.

WSDOT assists transit agencies with federal regulations

State Safety Oversight program

WSDOT's State Safety Oversight (SSO) program, established in response to a Federal Transit Administration (FTA) rule, ensures that rail transit agencies in Washington design, construct and operate safe and secure transit systems while remaining compliant with federal and state regulations. Washington state has four transit services that fall within the SSO program: Seattle's Link light rail, the Seattle Streetcar, Seattle Center Monorail and the Tacoma Link light rail.

The SSO program's primary focus is on the FTA requirement for rail transit agencies to develop and implement a comprehensive safety and security program. WSDOT submits annual reports to the FTA that include accident data, corrective action plans (CAPs) and updates to an agency's comprehensive safety and security plan. WSDOT maintains a monthly tracking log of CAPs to monitor progress on tasks that address specific improvement opportunities.

The SSO program is required to conduct investigations of incidents that involve a fatality, multiple injuries, a collision at an intersection or grade crossing, a mainline derailment, an evacuation for life safety reasons, or damage in excess of $25,000. The program's goal is to eliminate or mitigate the hazards or deficiencies that caused the incident.

Transit Asset Management program

As part of the Moving Ahead for Progress in the 21st Century Act (see pp. 5-6), the FTA adopted Transit Asset Management (TAM) rules and processes with the aim of improving safety and increasing service reliability and performance for public transportation providers. TAM is a model that uses assets' conditions and performance to guide prioritization of transit system funding to maintain an overall state of good repair. Transit assets are defined as rolling stock (vehicles), facilities, infrastructure and equipment.

Strategic Plan Goal 2:
MODAL INTEGRATION
Multimodal Safety Strategy – Align multimodal safety policy-making across the agency.

In support of this strategy, WSDOT has created modal safety reports that have been integrated into the *Gray Notebook*. The inclusion of this Public Transit Safety report completes the list of modes represented in this effort: pedestrians and bicyclists, ferry passengers, aviation passengers, rail passengers and highway system users.

Federal and state codes require WSDOT to ensure Washington's transit agencies are in compliance with these federal and state asset management rules. Transit agencies that receive federal financial assistance and own, operate or manage transit capital assets for public transportation are required to develop and implement a TAM plan. Agencies must provide this plan for WSDOT's review and approval and provide regular updates on the status of their assets. For more information, visit bit.ly/MAP21TAM.

Drug and Alcohol Policy program

WSDOT provides technical assistance in the form of training, networking and policy development to transit agencies receiving federal grants from the FTA that require drug abuse and alcohol misuse testing for safety-sensitive employees, such as vehicle operators, dispatch staff and maintenance crews. When an agency receives a grant, WSDOT requires the agency to submit their policies and procedures for review and approval. WSDOT conducts regular on-site reviews of transit agencies to ensure compliance with federal drug and alcohol program requirements. WSDOT has conducted 16 of the 21 site reviews scheduled for 2016 and is on track to complete the remaining five by December 20, 2016.

Contributors include Mike Flood, Robert Gibson, Debbie Ruggles, Hiep Tran, Helen Goldstein and Tricia Hasan

Reporting to the Federal Transit Administration

Washington state has 31 transit agencies that provide public transportation services. Transit agencies receiving federal grants from the Federal Transit Administration (FTA) are required to report safety data to the FTA on an annual basis for all modes of transit provided, including bus, light rail, trolley bus, and vanpool. Agencies that operate 30 or fewer transit vehicles can submit a Small Systems Waiver for reduced reporting requirements (this does not pertain to MAP-21 Transit Asset Management rules and regulations). Agencies that do not receive federal grants may choose to voluntarily report data to the FTA.

Transit agencies report the numbers of fatalities and injuries by person type (passengers, employees, other vehicle occupants, pedestrians/bicyclists and other) for each transit mode. Additionally, transit agencies submit data to the FTA on incident events, which are categorized into five types: collision, derailment, fire, security and not otherwise classified.

Notable results

- *WSDOT's planned water and energy improvements are expected to save over $1 million annually*
- *WSDOT-owned primary buildings have an average age of 43 years, and more than one-third are 51 years or older*

WSDOT's primary buildings 43 years old on average

Out of its inventory of nearly 1,300 buildings and structures, WSDOT owned 284 buildings that are 2,000 square feet or larger as of September 2016. WSDOT categorizes structures of this size as primary buildings, and they support the majority of agency staff. Primary buildings represent approximately 21% of WSDOT capital facilities and 63% of total building area by square footage.

Approximately one-third of WSDOT's primary buildings are more than a half-century old
Number of WSDOT's primary buildings by age as of September 2016 compared to September 2015

Building age	Sept 2015[1]	Sept 2016
25 years or less	83 (29%)	84 (30%)
26 to 50 years	109 (39%)	102 (36%)
51 years or older	91 (32%)	98 (35%)
Total	283	284[2]

Data source: WSDOT Capital Facilities Office.
Notes: Percentages may not add to 100 due to rounding. **1** Building age counts as of September 2015 have been updated from *Gray Notebook 59*. **2** Adding the new Northwest Region Traffic Management Center, which opened in October 2015, increased the number of primary buildings WSDOT owns from 283 to 284.

The average age of WSDOT's 284 primary buildings is 43 years old. Less than one-third of the primary building inventory (30%) is 25 years old or less, and 36% of primary buildings fall in the 26-50 years old category. Primary buildings 51 years or older increased to 35% of WSDOT's inventory after seven buildings transitioned into the category during 2016:

- Everett signals/bridge office
- Preston storage building
- Lakeview vehicle storage building
- Morton salt storage building
- Morton vehicle storage building
- Washougal office/vehicle storage building
- Copalis storage building

Of the 98 primary buildings that are 51 years or older, 16 were 80 years or older as of September 2016.

Connecting Washington funds two new regional headquarters

The 2015 Connecting Washington funding package will invest $16 billion in Washington's multimodal transportation system over the next 16 years. Two capital facilities projects are included in the funding package and address high-priority facility replacements.

North Central Region headquarters

WSDOT is in the final planning stages for construction of a new North Central Region administration building on Euclid Avenue in Wenatchee. The Legislature authorized $10 million for the 2015-2017 biennium and $2 million for the 2017-2019 biennium for this project. The project contract was awarded in October 2016 with a scheduled completion date in spring 2018.

The project will construct a new regional headquarters to house both administrative and project engineering staff and will replace two existing buildings—the Wenatchee Avenue Administration Building built in 1936 and the modular Euclid Avenue Project Engineering Office built in 1984, which was originally intended to be temporary. For more information on the project, visit: bit.ly/NCRheadquarters.

Olympic Region headquarters

The current Olympic Region headquarters in Tumwater was built in 1938 to serve regional maintenance and administrative functions. The site cannot accommodate newer equipment and vehicles, and no longer supports modern transportation operations in the region.

The new Olympic Region headquarters will be constructed on Marvin Road in Lacey and will be designed to meet new guidance for state-owned buildings. It will meet or exceed LEED standards, an environmental building certification program. For more information, see www.usgbc.org/LEED.

WSDOT works to reduce building energy use

The Legislature approved $4 million for the 2015-2017 biennium, with $21 million and $15 million expected in the next two biennia for the Olympic Region headquarters relocation. The project has a planned advertisement date for spring 2017 and is scheduled to be completed during winter 2020.

WSDOT slates $4.23 million for minor projects in the 2015-2017 biennium

Projects in support of ongoing preservation and repairs in WSDOT's facilities have been allocated $4.23 million in the 2015-2017 biennium The table below provides examples of projects that have been funded in this biennium.

WSDOT facility minor repair and preservation projects funded for the 2015-2017 biennium
Examples of projects; Dollars in thousands

Project description	Estimate
Projects addressing occupant safety and code compliance	
SW Region HQ building chiller replacement	$584.8
Ephrata wash pad	$75.0
Projects addressing preservation	
Vancouver Main Street office roof replacement	$342.2
Spokane Street shop building roof replacement	$240.6
Everett signals/bridge shop structural wall repair	$150.0
Ritzville vehicle storage building roof repairs	$108.2
White Pass office and shop overhead door replacement	$100.7

Data source: WSDOT Capital Facilities Office.
Note: Additional project categories include environmental compliance and emergent need (when there is a facility failure or immediate operational need). See *Gray Notebook* 43, pp. 11-12 for WSDOT's minor works project prioritization. Cost estimates were updated from *Gray Notebook* 59, p. 10.
SW = Southwest; HQ = headquarters; HVAC = heating, ventilation and air conditioning.

WSDOT updates program to improve facility condition tracking

WSDOT implemented Facilities Inventory Condition Assessment Program (FICAP) software in 2016 to provide the most accurate facility condition data for both the preservation backlog (repair needs) and facility replacement while remaining cost-effective. Facility condition data is unavailable for 2016 because WSDOT is still testing the program to ensure consistent results throughout the state. The system is expected to be fully calibrated and deployed in time to generate reportable preservation backlog and condition assessments in summer 2017.

Results Washington Leading Indicator

Reduce the energy use by state-owned facilities from 7,580,195 million British thermal units (mBtu)/ square feet/year to 5,306,137 mBtu/ square feet/year by 2017

Status: On plan (green)

Strategies:

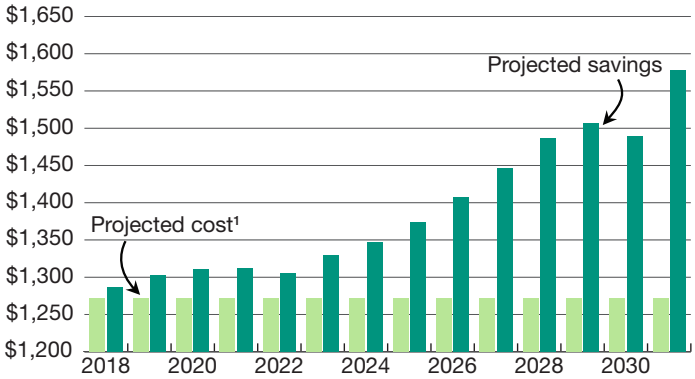
1. **Energy savings performance contracting** - WSDOT is working with an energy service company to make energy conservation improvements to more than 60% of its buildings.
2. **Improving benchmarking efforts** - WSDOT is updating its facility condition tracking program.

WSDOT investments in energy conservation reduce emissions

WSDOT reduced its estimated greenhouse gas emissions (GHGs) from stationary sources, which include building energy use and highway utilities, by 16% from approximately 55,520 metric tons of carbon dioxide equivalents (CO_2e) in 2014 to 46,680 CO_2e in 2015. WSDOT's estimated GHG emissions from natural gas, fuel oil, propane and diesel decreased 4% from 2014 to 2015. Estimated GHG emissions from electricity decreased 17% during the same period. In addition to a change in fuel and electricity consumption, the Washington Department of Ecology updated the formulas for converting energy consumption to CO_2e to better reflect current methodologies.

WSDOT is working with the Governor's budget office at the Office of Financial Management on a potential

Project upgrades expected to conserve energy, result in long-term cost savings
2017 through 2030; Projected annual savings and costs in thousands of dollars



Data source: WSDOT Capital Facilities Office.
Note: **1** Projected costs represent the cost of financing ($1.27 million annual loan payments) the Energy Savings Performance Contract.

WSDOT seeks conservation with proposed energy project

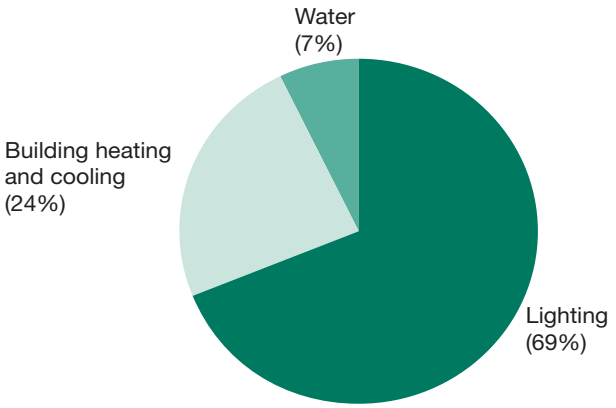
Energy Savings Performance Contract (ESPC), which would include hiring an energy service company to make conservation upgrades to more than 60% of its buildings. This contract allows WSDOT to save energy and improve facilities, including lighting fixtures, plumbing components, mechanical systems and building modifications, with no up-front capital costs. The contract also requires the energy service company to guarantee 94% of projected cost savings from recommended facility upgrades. If actual savings are less than 94%, the energy savings company will pay WSDOT the difference.

Statewide building improvements, anticipated to begin in 2017, are expected to have significant environmental and economic benefits. Energy and water savings are projected to be in excess of $1.2 million each year (see graph at the bottom of p. 14), and maintenance staff will be able to reallocate hours to more critical tasks. Net savings from the project fluctuate year to year due to the expiration of product warranties, evaluation studies and expected maintenance.

The $14.7 million facility energy conservation upgrade project would likely be funded by a combination of grants ($350,000), utility rebates and incentives ($1.2 million), and a loan financed through the Office of the State Treasurer ($13.1 million). Budget savings from reduced utility costs will be redirected from utilities to loan payments.

WSDOT expects 69% of total project savings to come from more efficient lighting, 24% from improved building heating and cooling, and 7% from reduced water usage. The project is also expected to avoid more than 11 million pounds of CO_2e emissions annually.

Bulk of new energy contract savings from lighting
Projected percentages of savings by source

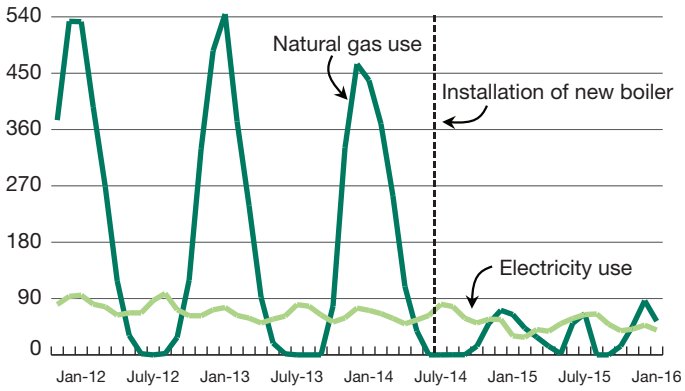


Data source: WSDOT Capital Facilities Office.

Strategic Plan Goal 3:
ENVIRONMENTAL STEWARDSHIP
Promote sustainable practices to reduce greenhouse gas emissions and protect natural habitat and water quality.

The Energy Savings Performance Contract is one example of WSDOT's ongoing efforts to preserve and improve its transportation assets. Energy conservation projects also align with Goal 1 (Strategic Investments) of Results WSDOT and Governor's Executive Order 12-06, which directs public agencies to make cost-effective energy conservation upgrades.

Boiler upgrade reduces building energy use by 84%
November 2011 through January 2016; Energy use in thousands of British thermal units per month



Data source: WSDOT Capital Facilities Office.
Note: The above data represents energy use at the North Central Region Wenatchee Avenue Admistration Building before and after the installation of a new boiler in July 2014.

In addition to the ESPC, WSDOT continues to implement small energy efficiency projects as part of an agency-wide effort to reduce emissions and save energy costs. An example of this occurred in July 2014 when WSDOT replaced a failing boiler with a modern version at the North Central Region administration building in Wenatchee (see graph above).

The upgrade resulted in an 84% reduction of monthly average natural gas use from 173,530 British thermal units (BTUs) in the year preceding installation to 28,110 BTUs in the year after installation, with an associated cost savings of $16,700 (85%) between the years. WSDOT plans to relocate the new boiler to another suitable building when the North Central Region administration building is replaced in spring 2018 (see p. 13).

Contributors include Steve Holloway, Jim Hurst, Zak Swannack, Erica Bramlet and Zach Mason

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Notable results

- *WSDOT's Airport Aid Grant Program leveraged federal funding, making $59.7 million available for airport investments in fiscal year 2017*
- *Reallocation of the aircraft excise tax is estimated to create 104 jobs and return $1.7 million to the state's general fund*
- *WSDOT completed 100% of the Airport Master Record inspections scheduled for calendar year 2016*
- *WSDOT streamlined the aircraft registration process, saving customers 3,200 hours of time and letting WSDOT redeploy 29 labor hours*

State awards $1.8 million to leverage federal funds

WSDOT awarded $1.8 million for airport investments through its Airport Aid Grant Program in fiscal year (FY) 2017 (July 2016 through June 2017), and public-use airports in the state leveraged $1.3 million of those funds to secure $51.3 million from federal sources. These grant awards will benefit 30 projects at 32 airports in FY2017. WSDOT's leveraged dollars are a subset of the $1.8 million in total state funds for the Airport Aid Grant Program (see table below). Approximately $500,000 will go to airports not eligible for federal funding.

The state and federal funds, combined with $6.6 million in local and other matching contributions, amount to $59.7 million in total dollars for FY2017, 50% of which ($30.0 million) is slated for safety projects. One major recipient of those safety funds will be a runway realignment project at the Pullman-Moscow Regional Airport that includes property acquisition, power line relocation, and construction of airfield improvements to further separate runway and taxiway to meet federal safety standards and reduce the potential for accidents.

Half of total airport investment funding slated for safety projects in FY2017
Funding by source, project type; Millions of dollars

			Funding Source			
Project type	Total		Local	State	Federal	Other
Pavement	$25.7	(43%)	$3.6	$1.2	$20.3	$0.6
Safety	$30.0	(50%)	$2.2	$0.3	$27.5	$0.0
Other[1]	$4.0	(7%)	$0.2	$0.3	$3.5	$0.0
Total	$59.7	(100%)	$6.0	$1.8	$51.3	$0.6

Data source: WSDOT Aviation Division.
Note: **1** "Other" project types include planning, maintenance, security, and equipment acquisition.

Projects that preserve and improve airport pavement account for 43% of the total dollars ($25.7 million), with the remaining 7% ($4.0 million) allocated for planning, maintenance, security, and equipment acquisition projects. For more information about WSDOT's Airport Aid Grant Program, visit: www.wsdot.wa.gov/aviation/Grants.

Aviation tax reallocation funds state's public-use airports

In 2015, Gov. Jay Inslee signed the Transportation Appropriations Bill, which mandated that 100% of state

Statewide general aviation passenger safety

WSDOT actively tracks general aviation safety by monitoring the percent of investments allocated to airport safety projects such as runway obstruction removal. In FY2016, 50% of Airport Aid Grant funding went to safety projects. While WSDOT does not track passenger safety, it assists the National Transportation Safety Board (NTSB) after aviation accidents, providing information to help NTSB investigations.

WSDOT also supports general aviation passenger safety efforts through its Aviation Emergency Services Program, which manages aerial search and rescue missions. For more information on aerial search and rescue within the state, see: www.wsdot.wa.gov/aviation/SAR/.

General aviation[1] fatalities in Washington state show little change during five-year period
Calendar year 2011 through 2015; General aviation passenger boardings and fatalities only

	2011	2012	2013	2014	2015
Total boardings	60,952	37,380	10,062	46,944	43,309
Total fatalities	*8*	*8*	*1*	*10*	*9*
(percent)	*(0.01%)*	*(0.02%)*	*(0.01%)*	*(0.02%)*	*(0.02%)*

Data sources: Federal Aviation Administration; National Traffic Safety Board, Aviation Accident Database.
Note: **1** General aviation includes all non-commercial passenger aviation.

Tax reallocation improves state's public-use airports

aircraft excise tax fees fund airport projects. Previously, 10% of aircraft excise tax funds went toward airport projects, with the remaining 90% deposited into the state general fund. Due to the reallocation, an additional $637,000 in aviation funding became available during the 2015-2017 biennium.

In FY2016, the tax reallocation allowed 24 additional projects across the state to be funded, and leveraged $10.6 million in Federal Aviation Administration (FAA) funding. The reallocation ultimately resulted in more than $13 million for airport preservation, safety and improvement projects when combined with local matching and federal grant funds. These funds were a subset of the total awarded through WSDOT's Airport Aid Grant program in FY2016.

All revenue from the aircraft excise tax now funds WSDOT's Airport Aid Grant Program, which supports airport preservation, safety and improvement projects, including runway rehabilitation and realignment, taxiway reconstruction, and beacon and wind cone installations. These projects help keep airport facilities up-to-date and support safety measures.

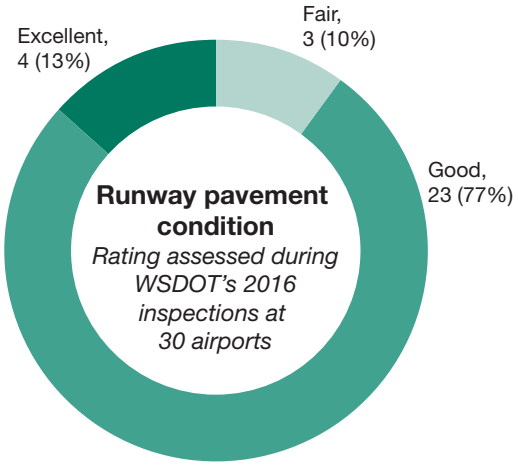
Positive impacts of aircraft excise tax reallocation could exceed expectations

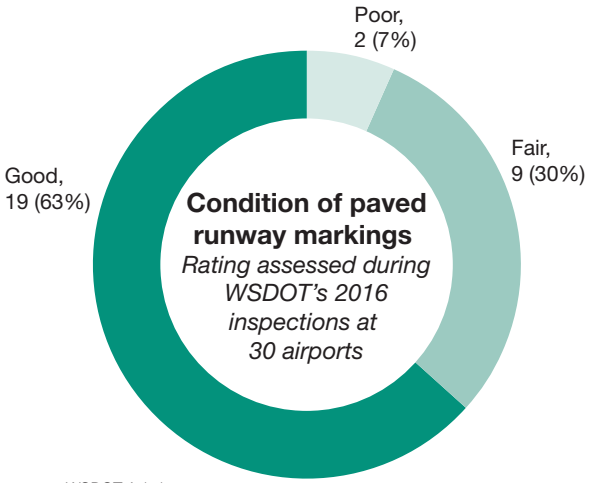
Two estimates indicate positive economic benefits from the aircraft excise tax reallocation. An initial analysis from the Office of Financial Management identified the creation of 64 jobs and almost $910,000 in additional state general fund revenue. A second analysis completed by WSDOT Economic Analysis predicted 104 new jobs would garner $1.7 million in sales and Business and Occupation tax revenue.

WSDOT hits milestone with Airport Master Record inspections

WSDOT successfully completed 100% of the 42 airport inspections scheduled in 2016 for the first time since bringing the process in-house three years ago. In 2014 and 2015, WSDOT completed 50% and 75%, respectively, of the scheduled inspections, with the remainder completed by a contractor.

WSDOT inspected 30 of the 42 airports for runway pavement condition, and for condition of paved runway markings this year. The remaining 12 airports





Data source: WSDOT Aviation.
Note: The condition of runway markings was assessed at 30 of the 42 inspected airports because runways at the other 12 locations were turf, gravel, or water surfaces.

were not rated with respect to those facets because their runway surfaces were turf, gravel or water.

Of the 30 airports inspected for runway pavement condition in 2016, all were ranked as being in fair or better condition. None were ranked as being in poor condition, and none failed the assessment. The condition of runway markings was assessed as being in fair or good condition at 28 of those same 30 airports (93%).

During the past three years, WSDOT has taken the lead on performing these inspections, gradually reducing its need for consultant support. The change has benefitted both WSDOT and airport partners by allowing WSDOT to get firsthand knowledge and ideas from airport sponsors on the condition of their airports. Physical and operational characteristics at 123 of the 135 public-use airports (excluding primary commercial airports like Seattle-Tacoma

WSDOT streamlines aircraft registration program

International) are inspected approximately every three years in order to update the Airport Master Record for the FAA.

Approximately every five years, WSDOT conducts a study to assess the relative condition of pavements for selected Washington state airports. Results from the prior 2012 study are featured in GNB 51, p. 8, and online at: bit.ly/WSDOTAviationPavement. Look for highlights from the upcoming 2017 pavement condition study in future editions of the *Gray Notebook*.

Aircraft registration program undergoes process improvement

During the 2016 renewal cycle (November 2015 through February 2016), WSDOT registered 6,519 aircraft and provided 3,469 total exemptions to aircraft that qualified, reaching its goal of registering 95% of aircraft for the fifth consecutive year.

WSDOT undertook an innovative effort to improve this aircraft registration program after listening to customer feedback. The Aircraft Registration Lean Project has made the program more efficient, user-friendly and cost-effective.

WSDOT saved customers 3,239 hours during the 2016 renewal cycle by reducing the average time needed for non-airworthy aircraft to submit an exemption request from two hours to two minutes, a 98% reduction. There were 1,647 such aircraft owners requesting this type of exemption, amounting to 47% of all exemptions. There were 1,270 such cases in the 2015 renewal cycle.

Time spent processing all exemption request types also decreased for WSDOT staff after program improvements were made. The average time required to process any type of exemption request was reduced from 90 to 45 seconds, making 29 hours of staff time available for redeployment during the 2016 renewal cycle.

To streamline the program for customers and staff, the following changes were implemented:

- The Legislature passed a bill to eliminate escalating late-registration penalties in favor of a one-time, $100 late fee. Through the Lean process, WSDOT conducted a customer satisfaction survey and determined the previous penalty system was cumbersome to customers and staff. The prior system involved issuing escalating penalties over time, resulting in numerous notifications for staff to process and steep late penalties for aircraft owners to pay. The bill was signed by Gov. Jay Inslee and went into effect July 2016.
- WSDOT stopped requiring backup documentation for non-airworthy aircraft requesting exemption from registration, as this was not required per Revised Code of Washington.
- WSDOT launched an online exemption request form to improve customer service and user-friendliness, and reduce administrative paperwork.
- WSDOT's Aviation Division routed aircraft registration payments directly to WSDOT's Accounting Division, centralizing the processing system and avoiding duplication.
- Accounting and Aviation staff received training on methods to increase efficiencies and communications.

Because this Lean project created policy changes and internal reorganization of duties, no costs were associated with this phase of the project. WSDOT has set aside funding for the final phase to redesign the current registration system by providing automated programs for customers to access their accounts and complete their registrations. WSDOT continues to review feedback and suggestions from customers for streamlining this program.

Washington state law requires that most airworthy general aviation aircraft be registered with WSDOT. Aircraft registration fees directly support WSDOT's airport preservation, maintenance and improvement programs.

Capital improvement program prioritizes projects efficiently

After the Statewide Capital Improvement Program (SCIP) submission window closed on October 31, 2016, WSDOT analyzed 480 projects valued at $441 million. WSDOT analyzed more than 500 airport projects totaling approximately $454 million during last year's cycle. The SCIP helps WSDOT and the FAA prioritize projects at the state's 135 public-use airports. The five-year list of prioritized projects helps WSDOT and the FAA better allocate resources and award grants, and increases the predictability, consistency and efficiency among airport authorities requesting funds.

WSDOT hosts joint planning conferences with the FAA and airport sponsors after projects are submitted. These conferences allow open discussion about projects, helping refine the airports' project lists into an approved plan for each airport.

WSDOT's Airport Investment Study sparks legislation

WSDOT's Airport Investment Study leads to improved airport funding

The Airport Investment Solutions Handbook was released in 2015 as the second and final phase of WSDOT's Airport Investment Study, which identified $3.6 billion in needed investment and a $1.6 billion gap between needs and available funding over the coming 20 years. The new handbook proposed solutions to cover the state's share—$8.4 million annually—of the current airport investment funding gap. Among the top solutions resulting from the study were:

1. Establish a state-sponsored revolving aviation infrastructure loan fund
2. Realign current transportation revenue allocations
3. Modify the state aircraft excise tax program
4. Develop a best management practices guidebook/toolkit for state airports

Of these solutions, modifying the state aircraft excise tax (Solution 3) has been implemented through legislative action. Approximately $637,000 in state aviation funding was reallocated to fund airport projects during the 2015-2017 biennium (see p. 16).

WSDOT is moving forward with Solution 4 by developing a best management practices guidebook/toolkit for state airports. The guidebook is planned to be available by summer 2018.

WSDOT is providing technical assistance to the Washington State Aviation Alliance (WSAA) as that group prepares proposals for the upcoming legislative session based on findings from the 2014 Airport Investment Study and the 2015 Airport Investment Solutions Handbook. WSDOT is also assisting WSAA to propose an increase to the cap for WSDOT Airport Aid Grants. The higher cap would enable the state to match the typical 5% share of larger federally-funded projects more often. It would also increase grant aid contributions to larger infrastructure preservation and improvement projects at smaller airports, decreasing the need to phase work over serval grant periods, thereby increasing the efficiency of both project implementation and grant administration.

"Cascadia Rising" exercise improves disaster response

In June 2016, WSDOT led aviation partners from across the nation during "Cascadia Rising," a multi-state, multi-agency exercise to prepare the Pacific Northwest for a coordinated response to a major Cascadia Subduction Zone earthquake and resulting tsunami. The scenario simulated a 9.0 magnitude earthquake lasting 5-10 minutes, a 13-foot peak tsunami, and landslide incidents affecting areas from Canada to California. WSDOT integrated liaisons from Civil Air Patrol, Washington Military Department, Northwest Regional Aviation, Washington State Guard, Washington National Guard, Kansas Air National Guard, and NORTHCOM Joint Personnel Recovery Center. All participants operated within WSDOT's Aviation Emergency Coordination Center alongside WSDOT staff serving as the state's Air Operations Branch (AOB).

WSDOT focused on refining processes that support airport operations and the availability of critical aviation resources during a post-disaster response. WSDOT strengthened partnerships with aviation stakeholders critical to emergency response and recovery efforts. Major tasks accomplished included:

- Further training of staff positions within the state AOB
- Coordinating and reporting airfield damage assessments
- Coordinating airfield repairs
- Monitoring aviation-related resources at airports
- Strengthening emergency communications with the public
- Developing an all-hazards plan for state aviation operations during large-scale emergencies

Incorporating lessons learned from last year's "Evergreen Tremor" exercise, WSDOT improved disaster response communications and equipment during "Cascadia Rising" by coordinating a mobile, high-bandwidth, satellite communications capability referred to as a Joint Incident Site Communications Capability through the Kansas Air National Guard. This preserves WSDOT's ability to correspond via phone, internet and radio in situations when communications would normally deteriorate.

WSDOT continues to work with the FAA, Federal Emergency Management Agency, State Emergency Management Division, National Guard and other critical aviation partners to better prepare the state's aviation system for the risks associated with a major event in the Cascadia Subduction Zone. An aviation exercise is scheduled for summer 2017 to further refine areas of improvement identified during "Cascadia Rising."

Contributors include Eric Johnson, John Macarthur, Nisha Marvel, Matt Clark and Dan Davis

63 WSDOT Ferries Quarterly Update

The online version of this article links to an interactive map with more route information; visit bit.ly/GNBferriesmap.

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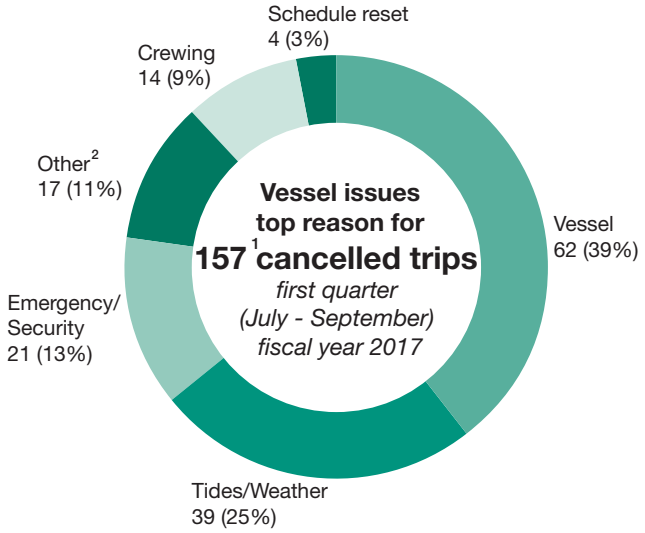
Notable results

- *Ferries made 99.8% of its regularly scheduled trips in the first quarter of fiscal year 2017, exceeding its annual reliability goal of 99%*
- *Ferries ridership was more than 7.46 million in the first quarter of fiscal year 2017, roughly 300,000 more people than live in Washington*

Ferries reliability increases, exceeds annual goal of 99%

There were 42,591 regularly scheduled ferry trips during the first quarter of fiscal year (FY) 2017 (July through September 2016). WSDOT Ferries completed 99.8% (42,488) of them, exceeding its annual reliability performance goal of 99% and coming in 0.4 percentage points higher than the same quarter in FY2016 (see table on p. 21). In the first quarter of FY2017, Ferries cancelled 157 trips and was able to replace 54 of them, resulting in 103 net missed trips. This was 145 fewer net trips missed compared to the same quarter in FY2016 and the fewest since the fourth quarter of FY2011.

Vessel mechanical and electrical problems were the leading reasons for cancellations during the quarter, totaling 62 (39%) of all cancellations. The Motor/Vessel (M/V) *Klahowya* had four separate mechanical problems that resulted in 32 cancelled sailings. The remaining 30 vessel mechanical cancellations were distributed among nine different vessels, with the M/V *Walla Walla* missing eight sailings due to a generator problem. Weather and tides accounted for an additional 39 (25%) cancelled trips during the quarter, with all of them occurring on the Port Townsend – Coupeville route.



Data source: WSDOT Ferries.
Notes: Fiscal years run from July 1 through June 30. Percentages may not add to 100 due to rounding. **1** Ferries replaced 54 of the 157 cancelled trips, for a total of 103 net missed trips. **2** "Other" includes events like disabled vehicles, issues at terminals, environmental reasons or non-ferries related incidents that can impact operations.

Ridership once again booms during the summer quarter

WSDOT ferries' ridership was more than 7.45 million during the first quarter of FY2017. This was about 26,600 (0.4%) higher than WSDOT projected for the quarter and about 147,300 (2.0%) more in total ridership than the corresponding quarter in FY2016. To put the quarterly ridership in perspective, 7.45 million is also roughly 300,000 more than the entire population of Washington state as of April 2016.

The increase in ridership last quarter can be mostly attributed to a strong regional economy and lower fuel prices increasing discretionary travel.

On-time performance decreases

On-time performance dropped slightly from the same quarter in FY2016, decreasing from 91.1% to 90.9% for the first quarter of FY2017. The quarterly rate misses Ferries' annual on-time performance goal of 95%.

The increase in ridership that accompanies the summer months results from more people traveling and typically causes a decrease in Ferries' on-time performance. Ridership during the first quarter has increased 7.6% since FY2013, adversely affecting on-time performance.

On average in the first quarter of FY2017, 42 out of 467 daily trips did not leave the terminal within 10 minutes of the scheduled departure time, an increase from an average of 41 out of 463 trips for the same quarter last year.

On-time performance declined on seven of nine routes compared to the first quarter of FY2016. During the quarter, the Anacortes/Friday Harbor – Sidney, B.C., route

Ferries revenue follows increasing ridership numbers

Ferries' on-time performance dips slightly, trip reliability increases for the first quarter of fiscal year 2017

July through September FY2016 and FY2017; Annual on-time goal = 95%; Annual reliability goal = 99%

	On-time performance (first quarter)				Trip reliability (first quarter)			
Route	**FY2016**	**FY2017**	**Status**	**Trend**	**FY2016**	**FY2017**	**Status**	**Trend**
San Juan Domestic	86.7%	84.3%	-2.4%	↓	99.8%	99.8%	0.0%	↔
Anacortes/Friday Harbor – Sidney, B.C.	93.6%	88.0%	-5.6%	↓	100.0%	100.0%	0.0%	↔
Edmonds – Kingston	97.4%	94.2%	-3.2%	↓	99.8%	99.8%	0.0%	↔
Fauntleroy – Vashon – Southworth	87.3%	89.8%	+2.5%	↑	99.1%	99.8%	+0.7%	↑
Port Townsend – Coupeville	94.3%	94.2%	-0.1%	↓	96.2%	98.6%	+2.4%	↑
Mukilteo – Clinton	92.8%	92.8%	0.0%	↔	99.9%	99.8%	-0.1%	↓
Point Defiance – Tahlequah	99.3%	99.1%	-0.2%	↓	99.8%	100.0%	+0.2%	↑
Seattle – Bainbridge Island	87.1%	86.9%	-0.2%	↓	99.9%	99.9%	0.0%	↔
Seattle – Bremerton	95.4%	94.4%	-1.0%	↓	100.0%	99.8%	-0.2%	↓
Total system	**91.1%**	**90.9%**	**-0.2%**	↓	**99.4%**	**99.8%**	**+0.4%**	↑

Data source: WSDOT Ferries.

Notes: FY = fiscal year (July 1 through June 30). A trip is considered delayed when a vessel leaves the terminal more than 10 minutes later than the scheduled departure time. Ferries operates 10 routes but combines the Anacortes – Friday Harbor route with the San Juan Interisland route as the San Juan Domestic for on-time performance and service reliability. Due to unique fare collection methods in the San Juan Islands, and similar origin and destination legs on both routes, some statistics cannot be separated between the two routes.

had the biggest decline compared to the first quarter of FY2016, decreasing from 93.6% to 88.0% in FY2017. Heavy traffic on the international route was the primary reason for the overall decrease in on-time performance during the quarter. Because this route had 342 scheduled departures during the first quarter of FY2017, small changes in the number of late or on-time departures has a larger impact on the on-time performance percentage.

WSDOT also experienced a large decrease in on-time performance on the Edmonds – Kingston route during this period, where it declined from 97.4% to 94.2%. Edmonds – Kingston departure delays were mostly caused by heavy weekend traffic in July and August.

The one improvement in on-time performance was on the Fauntleroy – Vashon – Southworth route, which increased from 87.3% in the first quarter of FY2016 to 89.8% in the corresponding quarter in FY2017. This route benefited from a modification to the weekend schedule that improved on-time performance.

Passenger injuries increase, employee injuries decrease

The rate of passenger injuries per million riders increased from 0.27 in the first quarter of FY2016 to 0.94 in the first quarter of FY2017, representing a jump from two to seven total passenger injuries. The rate of Occupational Safety and Health Administration recordable crew injuries per 10,000 revenue service hours decreased from 4.4 in FY2016 to 3.0 in FY2017. This represents five less injuries compared to the same quarter in FY2016, and continues to be well below Ferries' annual goal of having a rate of less than 7.6 crew injuries per 10,000 revenue service hours.

Revenue trends up for the quarter

Ferries farebox revenue followed higher ridership numbers, continuing its upward trend and coming in at about $61.1 million for the first quarter of FY2017. Farebox revenue was $3.2 million (5.4%) more than the same quarter in FY2016, and about $1.6 million (2.7%) more than projections. Farebox revenue is the largest source of funding for ferry operations, bringing in about 70% of these funds.

Reservation complaints decrease

In total, Ferries received 392 complaints and 41 compliments from 7.46 million riders during the first quarter of FY2017. This was a decrease of 58 complaints from the same quarter in FY2016. Compliments remained steady at 41. The biggest improvement was in reservations where complaints decreased from 80 to 34 during the period.

Contributors include Matt Hanbey, Kynan Patterson and Joe Irwin

63 Rail: Amtrak Cascades Quarterly Update

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Notable results

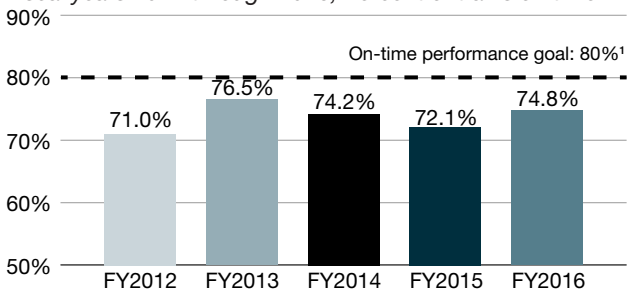
- *Rail infrastructure improvements helped increase trains' on-time performance FY2016 to 74.8%, up from 72.1% in FY2015*
- *Thirteen federally funded rail projects were complete and seven were in construction as of September 30, 2016*

On-time train performance improves in fiscal year 2016

An average of 74.8% of Washington's Amtrak Cascades trains were on time in fiscal year (FY) 2016 (July 2015 through June 2016). While not meeting the 80% performance goal, it marked a 2.7 percentage point improvement over 72.1% of trains on time in FY2015 (this FY2015 value has been updated since *Gray Notebook* 59). On-time performance improved in nine of the 12 months of the fiscal year, including a 13.0 percentage point improvement in August 2015 and an 11.8 percentage point improvement in February 2016, compared to the same months in the previous fiscal year.

On-time performance improves after two-year decline

Fiscal years 2012 through 2016; Percent of trains on time



Data source: WSDOT Rail, Freight and Ports Division.

Notes: See definition of "on time" in *Gray Notebook* 55, p. 13. Data is for trains traveling on Washington segments only. **1** The goal for on-time performance will become 88% in FY2018 once the 20 capital projects are complete (see p. 23).

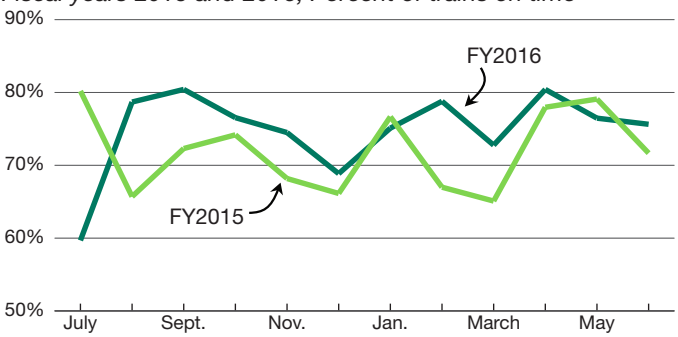
This increase in on-time performance was due in part to WSDOT completing several infrastructure improvement projects along the Amtrak Cascades corridor. As projects are completed, delays caused by construction activities decrease, and the corridor benefits from the infrastructure improvements. For example, in FY2016 there was a decrease in the number of landslides that reached the railroad tracks in the northern corridor during the winter months. This is due in part to WSDOT's landslide mitigation work to stabilize slopes and install walls to stop debris from reaching the tracks in the most landslide-prone areas along the corridor. Additionally, construction projects to address capacity at major chokepoints have decreased the congestion that results when too many trains are competing for the same tracks.

In contrast to the rest of the year, July 2015 saw a substantial decrease in year-over-year on-time performance—a drop of 20.5 percentage points. July's 59.7% on-time performance was primarily due to heat restrictions that require trains to travel at reduced speeds. During July, 133 Amtrak Cascades trains were delayed by heat restrictions issued by the host railroads between Seattle and Portland. This safety measure delays train travel when the temperature reaches a point where tracks could get bent or kinked. The result is a domino effect of delayed trains throughout the corridor as schedules are compromised.

When all of WSDOT's rail capital improvement projects are completed in June 2017 (see gray box on p. 23) the goal will be to reach 88% on-time performance in the following fiscal year (FY2018).

Most months during FY2016 saw on-time performance improvements from FY2015

Fiscal years 2015 and 2016; Percent of trains on time



Data source: WSDOT Rail, Freight and Ports Division.

Note: Data is for trains traveling on Washington segments only.

Work continues at three Kelso Martin's Bluff sites

Construction activity continues at the three Kelso Martin's Bluff project sites, a trio of passenger rail improvement projects near Kalama and Kelso. When complete, the work at these three sites is expected to alleviate congestion on tracks used by both passenger and freight trains, which would make passenger train travel quicker and more reliable due to added tracks and improved intersections.

Kelso Martin's Bluff – Toteff Siding Extension: Work is wrapping up on this project, which added tracks to reduce train congestion and also improved a rail and roadway intersection on Toteff Road near the Port of Kalama. Work is planned to be complete in November 2016.

Kelso Martin's Bluff – New Siding: Construction continues on this project, which adds four miles of new siding track near the Port of Kalama. The new track will relieve freight train congestion as trains enter and leave the port. Work is planned to be complete in spring 2017.

WSDOT continues to make progress on its 20 federally funded passenger rail projects

As of September 30, 2016, WSDOT had seven passenger rail projects in construction and 13 projects completed. Work includes purchasing new locomotives, adding tracks to handle increased passenger train traffic, and upgrading tracks, signals and stations. More than 96% ($767 million) of federal funding for these projects is from the American Recovery and Reinvestment Act of 2009.

When the program is completed in 2017, passengers are expected to benefit from two additional daily round trips between Seattle and Portland, with an expected travel time reduction of 10 minutes. In addition, WSDOT, Amtrak, Sound Transit and BNSF are committed to achieving an average of 88% on-time performance for trains traveling between Portland and Seattle, and between Seattle and Vancouver, British Columbia. To view the interactive map of the federally funded rail projects, visit bit.ly/GNBrailmap.

Kelso Martin's Bluff – Kelso to Longview Junction: A rail bridge is being installed over the Coweeman River as part of this project's work. In addition to the new bridge, work on this project includes adding a third main line near the junction that serves the Port of Longview, which will enable passenger trains to move around freight trains entering and departing the railyard. Work is planned to be complete in spring 2017.

Construction is underway at the new Freighthouse Square station near the Tacoma Dome and is planned to be complete in summer 2017.

New Amtrak Cascades station in Tacoma breaks ground

WSDOT contractors began construction on the new Amtrak Cascades station in Tacoma's Freighthouse Square. The station is scheduled to be complete in summer 2017, with service beginning in the fall. Time-lapse cameras allow viewers to follow construction progress online; the cameras display the worksite from multiple angles, showing the area where the new station is being built and the back of the building where a new platform will be constructed. The camera feed also lets viewers scroll back to watch already-completed work: www.wsdot.wa.gov/projects/Rail/pnwrc_PtDefiance/constructioncam/default.htm.

Contributors include Jason Biggs, Chris Dunster, Teresa Graham, Barbara LaBoe, Janet Matkin, David Smelser and Erica Bramlet

63 Incident Response Quarterly Update

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Notable results

- *WSDOT responded to 15,102 incidents during the quarter, providing an estimated $22.7 million in economic benefits*
- *WSDOT cleared incident scenes in an average of 12 minutes, reducing traffic delay and the risk of secondary incidents*

Incident Response teams help at 15,102 incidents

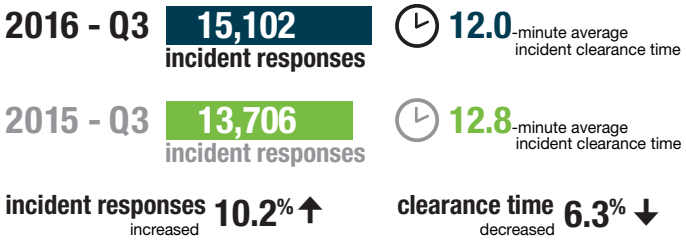
WSDOT's Incident Response (IR) teams assisted at 15,102 incidents during the third quarter (July through September) of 2016. This averages to a WSDOT team responding to an incident scene roughly every nine minutes during the quarter. There were 1,396 more incidents during the third quarter of 2016 compared with the same period in 2015, about a 10% increase.

WSDOT teams cleared incidents in an average of 12 minutes. This is 48 seconds faster than the average incident clearance time for the same quarter last year. During this time there was a 5.5% decrease in incidents lasting more than 90 minutes while incidents lasting 15-90 minutes increased 3.8% and incidents lasting less than 15 minutes increased 12.3%. The proportion of incidents which blocked at least one lane was 24% for this quarter compared to 22.3% during the same quarter last year.

WSDOT focuses on safety when clearing incidents, working to reduce incident-induced delay as well as the potential for secondary incidents to occur. Secondary incidents occur in the congestion resulting from a prior incident and may be caused by distracted driving, unexpected slowdowns or debris in the roadway. The IR teams help alert drivers about incidents and clear the roadway to reduce the likelihood of new incidents. A table summarizing the IR program's performance and benefits for the quarter is on p. 25.

WSDOT achieves reduced clearance times while responding to more incidents

Third quarter (July through September) 2015 and 2016



Data source: Washington Incident Tracking System.

Notes: Data above only account for incidents to which an IR unit responded. IR data reported for the current quarter (Q3 2016) are considered preliminary. In the previous quarter (Q2 2016), WSDOT responded to 14,923 incidents, clearing them in an average of 11.3 minutes. These numbers have been confirmed and are now finalized.

WSDOT's assistance at incident scenes provided an estimated $22.7 million in economic benefits during the third quarter of 2016 by reducing the impacts of incidents on drivers. These benefits are provided in two ways:

- WSDOT reduces the time and fuel motorists waste in incident-induced traffic delay by clearing incidents quickly. About $12.8 million of IR's economic benefits for the quarter result from reduced traffic delay.
- WSDOT helps prevent secondary incidents by proactively managing traffic at incident scenes. About $9.9 million of IR's economic benefits result from preventing an estimated 2,893 secondary incidents and resulting delay. This figure is based on Federal Highway Administration data that indicates 20% of all incidents are secondary incidents.

Based on WSDOT's budget for IR (see box at left), every $1 spent on the program this quarter provided drivers roughly $18.20 in economic benefit.

The mission of WSDOT's Incident Response program is to clear traffic incidents safely and quickly, minimizing congestion and the risk of secondary incidents. The statewide program has a biennial budget of $9 million, funding about 47 full-time equivalent positions (approximately 80 trained drivers) and 62 dedicated vehicles. Teams are on-call 24/7 and actively patrol 493 centerline miles (about 32% of all urban centerline miles) of highway on major corridors around the state such as I-5 or I-205 during peak traffic hours.

WSDOT's Incident Response prevents $22.7 million in costs due to traffic delays and secondary incidents
July through September 2016; Incidents by duration; Times in minutes; Costs and benefits in millions of dollars

Incident duration	Number of incidents[1]	Percent blocking[2]	Average *roadway* clearance time[3] (blocking only)	Average *roadway* clearance time[3] (all incidents)	Average *incident* clearance time[4] (all incidents)	Cost of incident-induced delay	Economic benefits from IR program[5]
Less than 15 min.	11,832	15.9%	4.2	0.7	4.8	$14.4	$6.7
Between 15 and 90 min.	3,097	52.3%	25.6	13.4	30.2	$26.3	$11.6
Over 90 min.	173	89.6%	170.9	153.1	181.4	$10.6	$4.4
Total	**15,102**	**24.0%**	**20.9**	**5.0**	**12.0**	**$51.3**	**$22.7**
Percent change from third quarter 2015	↑ **10.2%**	↑ **1.7%**	↔ **0%**	↓ **5.1%**	↓ **6.3%**	↑ **3.2%**	↑ **3.3%**

Data source: Washington Incident Tracking System.
Notes: Some numbers do not add up due to rounding. **1** Teams were unable to locate 636 of the 15,102 incidents. Because an IR team attempted to respond, these incidents are included in the total incident count, but are not factored into other performance measures. **2** An incident is considered blocking when it shuts down one or more lanes of travel. **3** Roadway clearance time is the time between the IR team's first awareness of an incident (when a call comes in or the incident is spotted by a patrolling IR unit) and when all lanes are available for traffic flow. **4** Incident clearance time is the time between an IR team's first awareness of an incident and when the last responder has left the scene. **5** Estimated economic benefits include benefits from delay reduction and prevented secondary incidents. See *WSDOT's Handbook for Corridor Capacity Evaluation*, 2nd edition, pp. 45-47, for WSDOT's methods to calculate IR benefits.

Incident-induced traffic delay on state highways cost motorists an estimated $51.3 million during the third quarter of 2016. This is about $1.6 million more than in the same quarter of 2015. Without WSDOT's assistance, this economic impact would have been roughly $74 million ($22.7 million in prevented delay and secondary incidents plus $51.3 million in actual delay costs).

For more information on how WSDOT calculates these figures and all IR performance metrics, see *WSDOT's Handbook for Corridor Capacity Evaluation*, 2nd edition, pp. 45-47.

WSDOT teams respond to 173 over-90-minute incidents

WSDOT Incident Response units provided assistance at the scene of 173 incidents that lasted more than 90 minutes during the third quarter of 2016. This is 10 fewer incidents—roughly a 5.5% decrease—than the same quarter in 2015. While these over-90-minute incidents accounted for 1.1% of all incidents, they resulted in 20.6% of all incident-related delay costs.

Twelve of the 173 over-90-minute incidents took six hours or more to clear (referred to as extraordinary incidents). This is three more incidents than the same quarter in 2015. The 12 extraordinary incidents took an average of eight hours and two minutes to clear, accounting for about 3.8% of all incident-induced delay costs for the quarter.

The average incident clearance time for all over-90-minute incidents was about three hours and one minute. This is about 10 minutes faster than the same quarter in 2015. Excluding the 12 extraordinary incidents, WSDOT's average clearance time for over-90-minute incidents was two hours and 39 minutes. Performance data reported in this article is from WSDOT's Washington Incident Tracking System, which tracks incidents to which a WSDOT IR team responded.

Contributors include Vince Fairhurst, Ida van Schalkwyk, Bradley Bobbitt, Sreenath Gangula and Zachary Mason

Customer feedback: Incident Response teams provide quick assistance during the third quarter

WSDOT IR teams give comment cards to drivers they help. Below are samples of the comments received from drivers WSDOT assisted during the third quarter of 2016:

- I was in a medical transport vehicle that broke down. I felt very unsafe sitting on a shoulder in a wheelchair. I felt safer when Glen pulled up behind us.
- Heather is a life saver. She makes Washington roads safer and the DOT support of this vital program must continue. Thank you so much!
- Frank was right there within five minutes of my blown tire. He did everything. I could not ask for more.

2016 *Corridor Capacity Report* Executive Summary

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Notable results

- ***Passenger vehicle registrations increased 8.3% while licensed drivers increased 4.0% between 2013 and 2015***
- ***Transit ridership on urban commute corridors during daily peak periods increased 5.3%, from 90,300 in 2013 to 95,100 in 2015***
- ***The number of travelers using WSDOT Ferries increased 6%, up from 22.5 million in 2013 to 23.9 million in 2015***
- ***Passenger miles traveled on Amtrak Cascades dropped by 3.3% from 110.6 million miles in 2013 to 106.9 million miles in 2015***

Travel indicators mirror growth in Washington

Washington state saw an increase in drivers on the road in 2015. Passenger vehicle registrations increased 8.3% while licensed drivers increased 4.0% between 2013 and 2015.

- More drivers in 2015 contributed to a 4.3% increase in the number of vehicle miles traveled (VMT) on all public roadways, up from 57.211 billion in 2013 to a new high of 59.653 billion miles
- More drivers also had a hand in a 5.3% increase in VMT exclusively on state highways, which hit a new high of 33.335 billion in 2015, up from 31.649 billion in 2013

Higher VMT, likely due to increased population, an improving economy and lower gas prices led to increased congestion on many major corridors throughout the state. Congestion on the five monitored freeway corridors in the central Puget Sound region increased by 35.7% between 2013 and 2015.

- Of the five monitored freeway corridors in the central Puget Sound region, three (I-5, I-405 and I-90) saw congestion increases. Tolling and carpooling brought congestion on SR 520 and SR 167 down to levels 62% and 2% below 2007 pre-recession peak levels, respectively
- High occupancy vehicle (HOV) lanes accounted for 38% of person miles traveled on central Puget Sound region freeways in 2015
- After I-405 express lane tolling began on September 27, 2015, the express lanes in both directions met the legislatively mandated HOV lane speed requirement of 45 mph or faster 90% of the time during the peak travel periods from January through June 2016

WSDOT Incident Response teams responded to 16.3% more incidents (50,092 total) in 2015 than in 2013, with the same average clearance time of 12 minutes and 45 seconds in both 2013 and 2015

- Proactive work by Incident Response teams resulted in $80.2 million in economic benefit in 2015, an 18.1% increase from 2013

Urban transit on commute corridors

More people are taking transit than before. Transit ridership on urban commute corridors during daily peak periods increased 5.3%, from 90,300 in 2013 to 95,100 in 2015.

- The number of miles passengers traveled using transit during daily peak periods increased 6% on urban commute corridors, from 1.16 million miles in 2013 to 1.23 million miles in 2015

Ferries

The number of travelers using WSDOT Ferries continues its upward trend as annual ridership increased 6%, up from 22.5 million in 2013 to 23.9 million in 2015. Meanwhile, annual vehicle capacity utilization increased by two percentage points, from 60% in 2013 to 62% in 2015.

- Annual ferry trip reliability did not change significantly, at 99.5% in both 2013 and 2015
- Ferries on-time performance dropped approximately one percentage point from 2013 to 94.4% in 2015

Amtrak Cascades

Passenger miles traveled on Amtrak Cascades decreased by 3.3% from 110.6 million miles in 2013 to 106.9 million miles in 2015, with ridership declining 3.2% during the same period, from approximately 694,000 to 672,000.

- Amtrak Cascades annual on-time performance fell by 4.6 percentage points, from 77.6% in 2013 to 73% in 2015

For WSDOT's comprehensive annual analysis of multimodal system performance, visit http://www.wsdot.wa.gov/accountability/congestion/.

2016 *Corridor Capacity Report* Dashboard of Indicators

	2011	2012	2013	2014	2015	Difference '13 vs. '15[1]
Demographic and economic indicators						
State population (in millions)	6.77	6.82	6.88	6.97	7.06	2.6%
Gasoline price per gallon (annual average)[2]	$3.92	$3.96	$3.71	$3.56	$2.70	-27.2%
Washington total employment (in thousands of workers)[3]	2,872	2,919	2,986	3,065	3,154	5.6%
Taxable retail sales (in billions of dollars)[2]	$109.3	$112.6	$119.2	$125.0	$135.4	13.5%
Statewide multimodal performance measures						
Drive alone commuting rate[4]	73.3%	72.2%	72.7%	72.4%	72.4%	-0.3%
Carpool commuting rate[4]	10.2%	10.7%	10.1%	10.1%	9.8%	0.3%
Bicycling and walking commuting rate[4]	4.2%	4.5%	4.3%	4.5%	4.7%	0.4%
Public transit commuting rate[4]	5.6%	5.8%	6.3%	6.3%	6.2%	-0.1%
Transit ridership[5] (in millions)	195.1	218.1	221.2	227.2	N/A	N/A
WSDOT Ferries ridership[5] (in millions)	22.3	22.2	22.5	23.2	23.9	6.2%
Amtrak Cascades ridership[6] (in thousands)	742	725	694	700	672	-3.2%
Statewide congestion indicators						
Per person, total vehicle miles traveled on all public roads, state highways only						
All public roads vehicle miles traveled (VMT) (in billions)	56.965	56.607	57.211	58.060	59.653	4.3%
All public roads per person VMT (miles)	8,417	8,303	8,313	8,332	8,448	1.6%
State highways VMT (in billions)	31.455	31.214	31.649	32.177	33.335	5.3%
State highways per person VMT (miles)	4,648	4,578	4,599	4,618	4,721	2.7%
Congestion on state highway system						
Total state highway lane miles	18,642	18,659	18,662	18,680	18,699	0.2%
Percent of state highway system congested[8]	5.4%	5.5%	5.5%	5.8%	N/A	N/A
Per person, total, and cost of delay on state highways						
Annual hours of per person delay on state highways[9]	4.8	4.7	4.7	4.7	N/A	N/A
Total vehicle hours of delay (in millions of hours)[9]	32.0	30.9	32.5	32.3	N/A	N/A
Cost of delay on state highways (in millions)[2,9]	$783	$773	$823	$834	N/A	N/A
Results Washington system performance measures						
Throughput productivity[10]	96.0%	95.7%	95.2%	94.6%	93.4%	-1.8%
Reliability index[10]	1.15	1.17	1.19	1.24	1.26	5.9%
Corridor-specific congestion indicators (84 commutes statewide)[11]						
Annual Maximum Throughput Travel Time Index (MT^3I)	1.26	1.29	1.34	1.37	1.42	6.0%
Number of commute routes with $MT^3I > 1$[12]	60	59	61	62	68	11.5%
WSDOT congestion relief projects (cumulative)						
Number of completed Nickel and Transportation Partnership Account mobility projects as of December 31 each year	82	91	94	98	99	5.3%
Project value (in millions of dollars)	$2,802	$3,851	$3,985	$4,287	$4,669	17.2%

Data sources: Washington State Office of Financial Management, U.S. Energy Information Administration, Bureau of Labor Statistics – Consumer Price Index, Washington State Employment Security Department, Washington State Department of Revenue, WSDOT State Highway Log, U.S. Census Bureau - American Community Survey, National Transit Database, Washington Department of Ecology.
Notes: N/A = Not available. **1** Due to rounding, some percentages are not computable based on numbers in the table. **2** These dollar values are inflation-adjusted using the Consumer Price Index, and are reported in 2015 dollars. **3** Employment only includes non-agricultural workers. **4** Based on 1-year estimates from the American Community Survey, commuting rates are of workers age 16 and older. Totals do not equal 100 because "Worked at home" and "Other" categories not included here. **5** Ridership is the number of boardings, also called unlinked passenger trips. Complete 2015 data was not yet available from the National Transit Database, as some rural transit agency data had not been updated. **6** These figures include riders on Washington segments only. **7** Values for 2013 and 2014 will be published by the Washington Department of Ecology in December 2016. See pp. 11, 15, 21, 25, 29, 36, 40, 43 and 49 of the 2016 *Corridor Capacity Report* for corridor-specific greenhouse gas emissions data. **8** Based on below 70% of posted speed. **9** Based on maximum throughput speed threshold (85% of posted speed). 2015 statewide delay data was unavailable at the time of this publication. **10** See pp. 6-7 of the 2016 *Corridor Capacity Report* for descriptions of these measures. **11** Does not include Tri-Cities data. **12** MT^3I greater than one means the commute route experiences congestion.

Notable results

- *WSDOT built 151 stormwater treatment and flow control facilities in fiscal year (FY) 2016 to help prevent adverse water quality effects from stormwater runoff*
- *WSDOT inspected 98% of its 2,002 existing stormwater management facilities in FY2016*
- *Roughly 1% of WSDOT's inspected stormwater management facilities required repairs costing more than $25,000 in FY2016*
- *WSDOT had 94% of its construction site stormwater samples meet water clarity benchmark criteria in FY2016*

WSDOT builds 151 facilities to manage stormwater

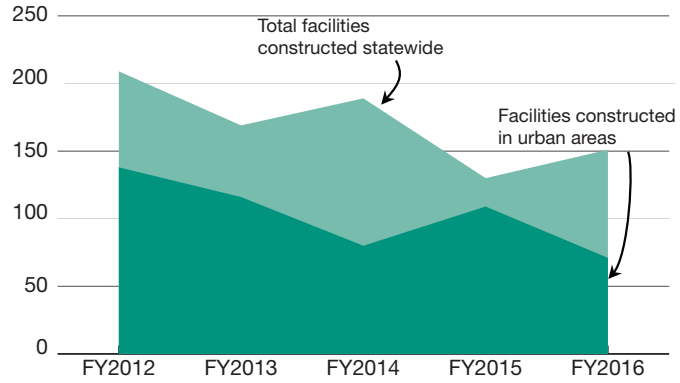
WSDOT built 151 stormwater treatment and flow control facilities during fiscal year (FY) 2016 (July 2015 through June 2016) to help prevent adverse effects to rivers, lakes and other water bodies. Stormwater systems collect and convey water running off roadways, and include components like catch basins, ditches and pipes. These facilities lead to discharge points and outfalls—places where stormwater flows off the right of way, infiltrates within the right of way, or enters a body of water.

Of the 151 facilities, 71 were constructed in urban areas of the state which are covered by the agency's municipal stormwater permit. The permit, issued by the Washington State Department of Ecology (Ecology), authorizes WSDOT to discharge stormwater into state waters from its stormwater system and sets pollution reduction requirements. WSDOT constructed these stormwater facilities (also called Best Management Practices or BMPs) as a part of transportation projects.

A WSDOT crew member works on mapping stormwater conveyance systems along Interstate 5 near Tumwater.

New stormwater facility construction align with declining transportation projects

Fiscal years (July through June) 2012-2016; Number of facilities constructed statewide and in urban areas covered by the municipal stormwater permit



Data source: WSDOT Environmental Services Office.

For example, when WSDOT adds new lanes to a highway, it may is required to add a stormwater facility such as a biofiltration swale, which is a vegetated ditch that helps remove pollutants from stormwater before it flows into a river, lake, or groundwater. The number of transportation projects under construction is the primary influence on the number of new stormwater facilities WSDOT builds each year. For more information on WSDOT's municipal stormwater permit, refer to bit.ly/WSDOTmunicipalstormwaterpermit.

WSDOT exceeds annual goal for stormwater facilities inspections

WSDOT completed inspections on 1,967 (98%) of its 2,002 existing stormwater facilities in FY2016. This exceeds the municipal stormwater permit requirement to inspect 95% of stormwater facilities annually. The exact number of stormwater facilities in WSDOT's inventory is constantly changing; the agency adds stormwater management

WSDOT completes facility maintenance on time

facilities to its inventory as they are constructed, and removes facilities as necessary. Reasons for removal include determining city ownership of a facility, discovering a duplicate record in the inventory or the determination that the facility was not designed for stormwater management. Inspecting stormwater facilities helps WSDOT identify deficiencies that might limit their effectiveness.

In FY2016, WSDOT performed all typical maintenance on stormwater management facilities within the one-year time frame required by the permit. Typical maintenance often includes vegetation control and debris removal to enhance stormwater facility performance. WSDOT also completed all non-typical maintenance costing less than $25,000 within the required two-year time frame. Non-typical maintenance may include major vegetation removal or structural repairs. Non-typical repairs that cost more than $25,000 must be prioritized and corrected as funding becomes available. Approximately 1% (23) of WSDOT's stormwater facilities require repairs costing more than $25,000.

WSDOT continues mapping its stormwater conveyance system

WSDOT began mapping the entire stormwater system along state highways within the agency's municipal stormwater permit coverage area in spring 2014. As required by the permit, WSDOT set a pace (in terms of centerline miles per year) for system mapping based on existing resources. Ecology approved WSDOT's pace to map 79.5 centerline miles per year in April 2016. With Ecology's approval, this pace is now a performance requirement, applicable during the remaining three years of WSDOT's permit. The status of meeting the first year of the established pace will be reported in the next Water Quality Annual Report in the *Gray Notebook*.

To set the target pace, WSDOT categorized highways based on common characteristics that affect the time needed to map the stormwater system. The agency also considered traffic control and staffing, and used data collected during pilot mapping efforts in 2014 and 2015 as supporting documentation.

Mapping complete stormwater systems will help WSDOT maintain facilities, meet permit requirements, and be an environmental steward.

WSDOT on track to meet permit conditions for 367 facilities that lacked documentation

In *Gray Notebook* 55, WSDOT reported that 367 stormwater facilities lacked the design documentation the agency uses to determine maintenance needs. WSDOT must complete maintenance work on these facilities by the end of 2016 to remain in compliance with its municipal stormwater permit. WSDOT removed 237 of the facilities from its inventory for various reasons such as determining city ownership. The agency completed maintenance on 120 of the facilities still in WSDOT's inventory and added five to the list needing non-typical maintenance exceeding $25,000. Four facilities are located at active construction sites and will be maintained at the end of the projects. WSDOT is on track to complete maintenance on the final facility before December 31, 2016.

WSDOT crews perform typical maintenance, including vegetation and sediment removal, on a retention pond in the Tri-Cities area near State Route 182. Maintenance activities like these ensure continued stormwater facility performance.

Majority of stormwater samples meet requirements

WSDOT streamlines construction site stormwater sample reporting

WSDOT began transferring the Construction Stormwater General Permit (CSWGP) for agency projects to contractors as a standard practice in February 2015 in order to improve contractor planning and stormwater facility performance. The CSWGP regulates the discharge of stormwater from construction sites. The agency was also able to retire an administratively intensive internal process for tracking and reporting construction site stormwater discharge sample data. This process was phased out in spring 2016, which is why the number of samples in the chart to the right decreases to four samples in June 2016. Discharge samples from WSDOT projects are now reported directly to the Department of Ecology's electronic reporting system and will no longer be reported in the *Gray Notebook*.

WSDOT tracking sediment removed by stormwater facilities in the *Gray Notebook*

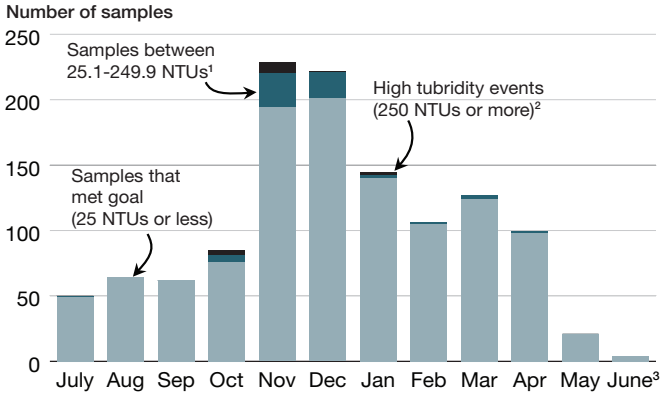
WSDOT began tracking how much sediment it removes from catch basins and stormwater facilities along highways statewide in July 2015. By removing sediment before it enters rivers, lakes or other water bodies, WSDOT reduces the pollutants, and protects habitat and water quality. During FY2016, WSDOT maintenance crews removed 2,553 cubic yards of sediment—almost enough to fill a hot air balloon. Once removed, WSDOT tests sediment for pollutant levels and can dispose of it or use it as fill based on the results. WSDOT will continue reporting cubic yards of sediment removed as a performance measure in the *Gray Notebook.* When reported in 2017, this performance measure will also include sediment removed from catch basins at ferry terminals.

Sediment is loose particles of sand, clay, silt and other substances produced by erosion and decomposing material. It can be deposited in, transported by or suspended in water. Suspended sediment decreases water clarity and prevents sunlight from reaching aquatic plants. Sediment that settles to the bottom of bodies of water can smother fish spawning areas and ruin habitat. Sediment particles also provide attachment places for other pollutants (like metals) and bacteria.

In FY2016, 94% of WSDOT's construction site stormwater discharge samples met the benchmark for turbidity (a measure of water clarity) as defined in the CSWGP. See *Gray Notebook* 59, pp. 25-26 for additional information about turbidity, the turbidity benchmark and WSDOT transferring CSWGP requirements to the contractor.

Most WSDOT construction site stormwater samples meet turbidity benchmark in fiscal year 2016

July 2015 through June 2016; Number of stormwater samples taken per month by Nephelometric Turbidity Units (NTUs) measurement



Data source: WSDOT Environmental Services Office.

Notes: Compliance is with the National Pollution Discharge Elimination System Construction Stormwater General Permit requirements. **1** Samples at 25.1 NTUs or higher require corrective action. **2** Samples at 250 NTUs or more are considered "High turbidity events." These events may violate water quality standards and must be reported to the Washington State Department of Ecology within 24 hours. **3** WSDOT phased out its internal reporting process for stormwater discharge samples in 2016 as it began having contractors report results directly to Ecology in February 2015. As a result, the number of samples shown decreases to four in June 2016.

Based on construction site stormwater discharge data collected in FY2016, about 1% (17) of the 1,214 discharge samples exceeded 250 Nephelometric Turbidity Units (NTUs; NTUs are the unit of measure for turbidity, or the cloudiness of a liquid). About 5% (60) of discharge samples were between 25.1 and 249.9 NTUs. The majority of the samples, 94% (1,137), were below the 25 NTU turbidity benchmark value. These percentages are consistent with FY2015 performance and show an improvement relative to past years, with 90% meeting the benchmark values during FY2014 and 86% in FY2013.

Contributors include Dick Gersib, Gregor Myhr, Sheena Pietzold, Elsa Pond, Jana Ratcliff, Cory Simon, Trett Sutter, Bradley Bobbitt and Helen Goldstein

Notable results

- *WSDOT completed 141 contracts valued at $540.3 million in FY2016, 10.3% below the WSDOT engineer's estimate*
- *WSDOT awarded 70 of 120 construction contracts (58.3%) below the engineer's estimate in FY2016*

WSDOT completes 141 construction contracts

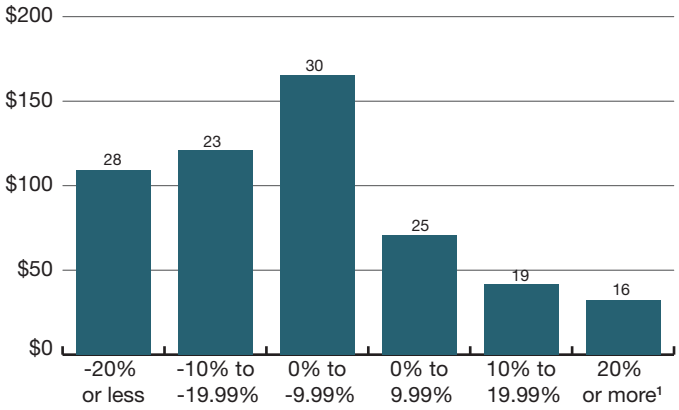
WSDOT completed 141 construction contracts valued at $540.3 million during fiscal year (FY) 2016 (July 2015 through June 2016). Final costs for these contracts were 10.3% ($61.9 million) less than the WSDOT engineer's estimate of $602.1 million. These competitively-bid projects, which do not include design-build contracts (see p. 32 for definition), were completed for 3.2% ($16.9 million) more than the total award amount of $523.3 million.

WSDOT completes $540.3 million in contracts
Fiscal years 2015 and 2016; Dollars in millions

	FY2015	FY2016
Number of contracts completed	147	141
Total award amount	$926.0	$523.3
Total final contract cost	$1,152	$540.3
Percent final contract cost exceeded award amount	24.4%	3.2%
Total engineer's estimate	$1,086	$602.1
Percent final cost above/below engineer's estimate	6.1%	-10.3%

Data source: WSDOT Construction Office.

WSDOT completes construction contracts for 10.3% less than original engineer's estimates
Fiscal year 2016; Dollars in millions; Total final cost of contracts by percent above or below WSDOT's estimate; Number of contracts in each category



Data source: WSDOT Construction Office.
Note: **1** The Mashel River Bridge – Bridge Scour contract had unusually large differences between the final cost and the engineer's estimate and between the final cost and the award amount. See p. 32 for details.

How WSDOT tracks cost estimation accuracy

Engineer's estimate

WSDOT engineers estimate the cost of a contract during the design phase. This estimate is based on current and forecasted material prices and takes into account the rate of inflation and recent bids on similar contracts. The engineer's estimate is WSDOT's forecasted cost for the work to be done by the contractor at the time it is advertised. WSDOT compares this estimate to the bids it receives to ensure they are reasonable. For more information on how WSDOT estimates construction costs, see *Gray Notebook* 56, p. 29.

Award amount

The award amount is equal to the lowest responsive bid (unless a contractor is unable to provide a satisfactory explanation for an unexpectedly low bid). WSDOT records the difference between the engineer's estimate and the award amount in order to track the agency's estimating accuracy and as an indicator of possible changes in market conditions. WSDOT's goal is to have the engineer's estimate be accurate and to award the contract to the lowest responsive bidder.

Final contract cost

For every completed contract, WSDOT tracks the final cost—the amount paid to the contractor at the end of construction—and compares it to the engineer's estimate and the award amount. WSDOT's goal is for the final cost to be no more than 10% above the award amount, a common benchmark in the construction industry.

Although WSDOT prepares detailed plans for estimating costs, changes may occur during construction. Final contract costs can be affected by unforeseen conditions, such as adding new items to the contract or changing the quantities of materials used. These changes can increase the cost of completing a construction contract as planned.

Awarded contracts $11.2 million less than estimates

The bridge scour contract for the Mashel River Bridge on State Route (SR) 161 near Eatonville saw the largest difference in percentage terms between award amount and final cost—95% percent ($1.5 million). Two sets of unexpected circumstances contributed to this increase: higher than normal river flow, which delayed the start of the in-water work and caused a second construction season to be added; and the presence of large boulders that obstructed much of the contractor's drilling work.

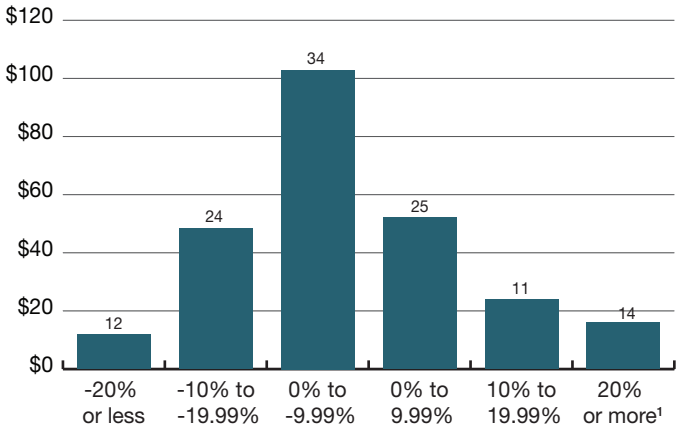
Of the 141 contracts completed, 127 (90.1%) met WSDOT's goal of costing less than 10% more than the award amount. The remaining 14 contracts came in higher than the goal due to factors such as change orders, construction materials needs and bid amounts. For more information on why contracts may have final costs higher than the goal, see *Gray Notebook* 50, p. 29.

More than half of FY2016 contracts awarded below estimates

Of the 120 WSDOT-awarded highway construction contracts in FY2016, bids for 70 (58.3%) of them were less than the WSDOT engineer's estimate. Overall, these construction contracts were awarded for $255.3 million, approximately $11.2 million (4.2%) less than the original engineer's estimate of $266.5 million.

One exception to the overall trend was the project bid for the replacement of the culvert on SR 112 west of West Twin River Bridge (about 30 miles west of Port Angeles), which was $159,614 (110%) higher than the engineer's estimate of $145,605. Most of this difference came from the need to a use pipe that was significantly longer, and therefore needed to be substantially heavier and thicker, than the pipes referenced in the engineer's estimate. The larger pipe required the use of larger and heavier equipment for installation, which in turn drove up the cost of constructing an access road to the site. Funding for this project comes from Connecting Washington.

Majority of contract bids less than WSDOT's estimates
Fiscal year 2016; Dollars in millions; Total awarded contract amounts by percent above or below engineer's estimate; Number of contracts in each category



Data source: WSDOT Construction Office.

Note: **1** The SR 112 Culvert Replacement west of West Twin River Bridge had an unusually large difference (110%) between the award amount and engineer's estimate. See above right for details.

WSDOT awards $255.2 million in contracts
Fiscal years 2015 and 2016; Dollars in millions

	FY2015	FY2016
Number of contracts awarded	107	120
Total engineer's estimate amount	$779.5	$266.5
Total award amount	$755.1	$255.3
Amount award total is below estimate	-$24.4	-$11.2
Percent award total is below estimate	-3.1%	-4.2%
Number of contracts awarded below estimate	63	70
Percent of contracts awarded below estimate	58.9%	58.3%

Data source: WSDOT Construction Office.

WSDOT completes two design-build projects, awards one in FY2016

WSDOT completed two design-build contracts in FY2016. One contract, completed for 11% less than the engineer's estimate of $3.9 million, created roundabouts to improve traffic flow on SR 92 near Granite Falls and on Interstate 90 (I-90) near Lake Sammamish. The second project, which included construction of both the pontoons for the SR 520 bridge and the facility in which they were built, was completed for about 25% below the engineer's estimate of $600 million.

WSDOT also awarded one design-build contract for $115.8 million, about 43% less than the engineer's estimate of $205 million. This project will construct two direct connector ramps between I-405 and SR 167 near Renton.

Design-build is a method of project delivery in which WSDOT hires one contractor to provide both design and construction services for a project. WSDOT and the design-builder agree on a fixed contract price based on the scope of work. These projects are not included in the measures presented earlier because they follow a different planning, estimating and delivery process. For more information on the design-build process, see *Gray Notebook* 55, p. 23.

Contributors include Kari Beardslee, Dacia Dunbar, Helen Goldstein and Joe Irwin

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Lean Process Improvements Quarterly Update

63

Notable results

- *WSDOT trained a total of 259 employees in Lean problem solving in 2016, with 69 trained this quarter*
- *WSDOT's out of state travel planning process improvement resulted in 18.9 hours of staff time redeployed to other valuable tasks*

WSDOT's Lean training numbers remain steady

WSDOT continues to train its employees on Lean tools and practices with in-house training delivered by trainers and practitioners. WSDOT's practitioners provided Introduction to Lean training to 88 active WSDOT employees during the third quarter of 2016 (July through September). Since the class began in January 2015, 3,228 active (current) employees have received introductory Lean training—46% of the WSDOT workforce (this percentage remained the same as last quarter due to attrition, with a net gain of 15 employees this quarter after accounting for those who have left the agency). This exceeds the goal of training 2,600 employees by November 2016. The percent of the current workforce trained is a more stable measure of Lean participation as it accounts for WSDOT employees who gradually retire or leave the agency.

WSDOT continues to offer Lean problem solving training. In the third quarter of 2016, 69 employees participated in the problem solving class. As of September 30, 2016, a total of 259 active WSDOT employees have participated in this half-day training. The course better enables participants to evaluate the current state of an issue, conduct a root-cause analysis, and test and implement countermeasures.

WSDOT's Lean practitioners launched three new Lean improvement projects this quarter. One focuses on a six-year planning process which communicates WSDOT's intentions regarding the agency's transportation infrastructure investments. The second new project is to improve quality, consistency and speed in processing construction project documents. The third new project looks to improve the reporting and reimbursement process for third party damages. Results from a recently completed project are highlighted in the table below.

Contributors include Russell Burgess, Amber Sander, Bryan Turner and Yvette Wixson

Strategic Plan Goal 4: ORGANIZATIONAL STRENGTH
Workforce Strategy – Implement various strategies that foster a safe, capable, engaged and valued workforce.

WSDOT has set calendar year 2016 goals for the number of Lean process improvement projects, as well as training targets for two of the in-house Lean classes that WSDOT offers, to be achieved by November 2016. See table below for progress toward these goals.

WSDOT's 2016 goals for Lean endeavors

Measure	As of Sep 2016	Goal for Nov 2016
Total Lean process improvement projects[1]	83	100
Employees trained through Intro to Lean[2]	3,228	2,600
Employees trained through problem solving[2]	259	500

Data source: WSDOT Lean Process Improvement Office.
Notes: **1** Includes new, in progress and completed projects.
2 In-house course offered by WSDOT.

WSDOT's Lean project streamlines out of state travel processes
July through September 2016; Progress reported on a sample project

Project, program	Changes to process	Measuring success	Results
COMPLETE: Streamlining proposed out of state travel plan yearly process *Development Division and Office of Engineering and Policy Innovation*	■ Developed a system to track and monitor work-related trips that are substituted for other pre-approved trips (the system includes data on availability of trips, cost comparisons and expenditures) ■ The new system provides real-time tracking of expenditures and pending payments	In the **past 12 months**: ■ Reduced time required to access information for a substitute trip from 30 to 3 minutes ■ Reduced steps in the process from six to two, and eliminated four points at which rework often occurred in the past	■ WSDOT typically processes more than 90 travel requests per year. There were 21 substitute trips in the first year after implementation of the Lean process improvement. As a result, WSDOT employees redeployed 18.9 hours per year to work on higher priority items

Data sources: WSDOT Development Division, Office of Engineering and Policy Innovation and WSDOT Lean Process Improvement Office.

63 Capital Project Delivery Programs Quarterly Update

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Notable results

- *WSDOT completed three additional Nickel and TPA construction projects during the fifth quarter of the 2015-2017 biennium*
- *WSDOT reconciled its Nickel and TPA counts this quarter to include non-construction projects, bringing the total to 379 completed*
- *WSDOT removed five projects from its Watch List during the fifth quarter of the 2015-2017 biennium; three remain*
- *WSDOT advertised 16 of 21 Pre-existing Funds projects on time; two emergent projects were also advertised*

WSDOT completes three new Nickel, TPA projects

WSDOT completed three Nickel and Transportation Partnership Account (TPA) construction projects during the fifth quarter of the 2015-2017 biennium (July through September 2016). WSDOT has completed 374 of 421 Nickel and TPA construction projects since July 2003, with 87% on time and 92% on budget. The agency has 12 Nickel and TPA projects underway; see p. 41 for details.

This quarter, WSDOT reconciled its Nickel and TPA project counts to update how they have progressed since their inception. Changes include:

- Removing four former Nickel and TPA projects that are now funded by the Connection Washington transportation package;
- Counting five non-construction commitments (which include studies, right of way and engineering work) that have been completed. (These, added to the 374 construction projects, brings the overall total completed to 379); and,
- Removing 13 projects from the list that have been deleted or deferred indefinitely.

As a result of this reconciliation process, 17 of the 421 projects will be removed from future *Gray Notebook* reporting of Nickel and TPA projects, bringing the new total project count to 404.

The cost at completion for the 374 Nickel and TPA construction projects is $6.66 billion, 2.2% less than the baseline cost of $6.81 billion. As of September 30, 2016, WSDOT has 25 projects (including the 12 projects currently underway) that have yet to be completed. These remaining projects have a total value of more than $8.69 billion.

—Goal for Nickel and TPA is 90%—

374 construction projects[1] complete **87** % on time **92** % on budget

Data source: WSDOT Capital Program Development and Management.

Notes: Construction projects complete are cumulative since July 2003. A project is "on time" if it is operationally complete within the quarter planned in the last approved schedule, and "on budget" if the costs are within 5% of the last approved budget. The goal for both measures is 90% or higher.
1 The count of total completed projects (including non-construction) is 379 out of the planned 421 projects.

WSDOT has completed eight Nickel and TPA construction projects so far in the 2015-2017 biennium on time and on budget when compared to the lastlegislatively approved schedules and budgets. The cost at completion for these eight projects is $609.1 million, 5.1% less than the baseline cost of $641.5 million.

Nickel, TPA funding remains short of original 2003, 2005 projections

Fuel tax collections show that the revenue forecasts from 2003 and 2005, which were used to determine the project lists, did not anticipate the economic recession in projecting future growth in fuel tax revenues. The 2003 Nickel and 2005 TPA gas taxes that fund projects are based on a fixed tax rate per gallon and do not change with the price of fuel. As a result, reduced gasoline and diesel consumption leads to reduced tax revenue.

Strategic Plan Goal 1:
STRATEGIC INVESTMENTS
Project Delivery – Deliver transportation projects that are on time and on budget.

WSDOT continues to deliver its Nickel and TPA program funded projects with a high rate of success. Of the total 374 construction projects completed to date, 87% have been on time and 92% have been on budget.

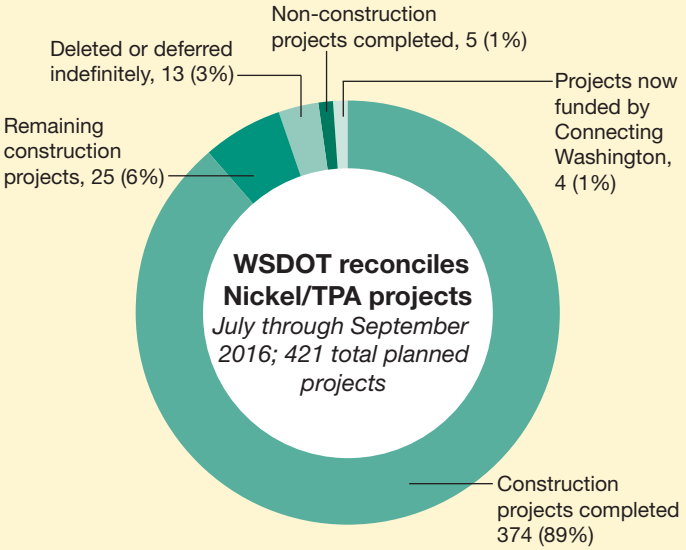
Not all Nickel/TPA projects involve construction

The 2003 Nickel transportation package was originally a 10-year plan, with revenues forecasted to total $1.9 billion from 2003 through 2013. Fuel tax revenues collected during this period came in 10.2% less than the original March 2003 projections. Four Nickel projects have been deferred indefinitely (see chart below) while other projects have continued past the original 10-year period.

Fuel tax funding from the 2005 TPA package is also less than the original March 2005 projections. The original projection for the TPA account was $4.9 billion over a 16-year period from 2005 through 2021. The current projections through 2021 are estimated to be $4 billion, roughly $900 million less (18.2%) than the original 2005 projection. This revenue shortfall has caused nine TPA projects to be deferred indefinitely (see chart below).

Nickel and TPA gas tax revenues are used to pay the debt on the bonds sold to finance the planned projects. Once all the bonds are sold, revenues collected will be used to pay the debt.

Beige Page contributors include Mike Ellis, Mitzi Frick, Penny Haeger, Heather Jones, Claudia Lindahl, Thanh Nguyen, Theresa Scott. Aaron Ward. Matt Clark and Joe Irwin



Data source: WSDOT Capital Project Delivery Programs.

WSDOT confirms Nickel and TPA project reconciliation I
June 2013 through September 2016

Completed non-construction projects[1] (5)	
I-90/Issaquah to North Bend - Route Development Study	SR 167 Improvement Projects - Corridor Mobility Improvement Analysis
SR 167/I-5 to SR 161 Stage Two - New Freeway	SR 509/I-5/SeaTac to I-5 - Design and Critical Right of Way
SR 302/Elgin Clifton Rd. to SR 16 - Corridor Study	
Projects deleted or deferred indefinitely (13)	
I-5/SR 525 Interchange Phase	SR 161/36th to Vicinity 24th St. East - Widen to Five Lanes
SR 9/SR 528 - Improve Intersection	SR 305/Agate Pass Bridge - Upgrade Bridge Rail
SR 3/Fairmont Ave. to Goldsborough Creek Bridge - Replace Bridge	I-5/Columbia River Crossing/Vancouver - Environmental Impact Statement
US 101/Dawley Rd. Vicinity to Blyn Highway - Add Climbing Lane	US 12/Old Naches Highway - Build Interchange
US 101/Gardiner Vicinity - Add Climbing Lane	US 195/Spring Flat Creek - Bridge Replacement
US 101/Corriea Rd. Vicinity to Zaccardo Rd. - Slope Flattening	I-405/NE 44th St. to 112th Ave. Southeast - Widening
SR 109/Moclips River Bridge - Replace Bridge	
Former Nickel/TPA projects now funded by Connecting Washington (4)	
SR 20/Sharpes Corner Vicinity - New Interchange	SR 4/Abernathy Creek Bridge - Replace Bridge
SR 3/Belfair Bypass - New Alignment	I-405/NE 132nd St. - New Interchange

Data source: WSDOT Capital Program Development and Management.
Note: **1** Completed non-construction projects include right of way, design work, and studies for the projects listed.

WSDOT has 25 Nickel, TPA projects left to complete

Highway construction performance summary shows about $9.6 billion in projects remain to be completed

Current Legislative Evaluation and Accountability Program as of September 30, 2016; Dollars in millions

Combined Nickel and TPA programs	Number of projects	Value of program
Subtotal of completed projects[1]	**374**	**$6,808.7**
Non-construction projects that have been completed or otherwise removed from Nickel/TPA lists[2, 3]	*5*	*$74.4*
Projects included in the current transportation budget but not yet complete	25	$8,693.9
Projects that have been deferred indefinitely or deleted and removed from Nickel/TPA lists[2, 4]	*13*	*$499.2*
Projects now funded by Connecting Washington and removed from Nickel/TPA lists (see p. 37)	*4*	*$101.7*
Total number of projects[4] in improvement and preservation budget	**421**	**$16,177.9**
Schedule and budget summary Nickel & TPA combined: Results of completed projects in the current Legislative Transportation Budget and prior budgets.	**Completed in 2015- 2017 biennium budget**	**Cumulative program**
Number of projects completed	8	374
Percent completed early or on time	100%	87%
Percent completed under or on budget	100%	92%
Baseline cost at completion	$641.5	$6,808.2
Current cost at completion	$609.1	$6,657.9
Percent of total program over or under budget	5.1% under	2.2% under
Advertisement record: Results of projects entering into the construction phase or under construction, detailed on p. 41.		**Combined Nickel & TPA**
Total current number of projects in construction phase as of September 30, 2016		12
Percent advertised early or on time		83%
Total number of projects advertised for construction in the 2015-2017 biennium (July 1, 2015, through June 30, 2017)		2
Percent advertised early or on time		50%
Projects to be advertised: Results of projects now being advertised for construction or planned to be advertised, detailed below.		**Combined Nickel & TPA**
Total projects being advertised for construction bids (October 1, 2016, through March 31, 2017)		0
Percent on target for advertisement on schedule or early		0%
Budget status for the 2015-2017 biennium:		**WSDOT biennial budget**
Budget amount for 2015-2017 biennium		$1,769.7
Actual expenditures in 2015-2017 biennium to date (July 1, 2015, through September 30, 2016)		$953.5
Total 2003 Transportation Funding Package (Nickel) expenditures		*$58.9*
Total 2005 Transportation Partnership Account expenditures		*$549.8*
Total Pre-existing Funds expenditures[5]		*$344.8*

Data source: WSDOT Capital Program Development and Management.

Notes: Numbers have been rounded. This chart was updated in GNB 63 to reflect reconciled Nickel and TPA project counts, and as a result it does not exactly match Current Legislative Evaluation and Accountability Program charts from previous editions. **1** Cumulative projects completed from July 1, 2003, to September 30, 2016. **2** Non-construction projects include commitments for engineering and right of way work. **3** Projects that have been deferred indefinitely or deleted include projects that have no funding available, projects that have been halted by the Legislature and those for which other entities (e.g., cities and counties) are now serving as the lead agency. **4** The project total has been updated to show "unbundled" projects which may have been previously reported in programmatic construction groupings (such as Roadside Safety Improvements or Bridges Seismic Retrofit). See *Gray Notebook* 38, p. 55 for more details. **5** For full details of the Pre-existing Funds program, see pp. 45-46.

WSDOT completes 19 rail and 22 ferries project to date

WSDOT did not complete any new Legislative Evaluation and Accountability Program rail or ferry projects this quarter. WSDOT has used the 2003 (Nickel) and 2005 (TPA) funding packages to complete 19 rail projects and 22 ferries projects since 2003. Approximately $524.2 million in ferries projects have been funded by the Nickel, TPA and multimodal accounts. The multimodal account has also funded approximately $103.3 million in rail projects. WSDOT advertised three multimodal account rail projects, with awards amounting to $146.7 million. An additional new $123 million ferry vessel, funded with Nickel cash and bond proceeds, is also currently under construction.

WSDOT finishes 12 Nickel rail projects since 2003

Current Legislative Evaluation and Accountability Program as of September 30, 2016; Dollars in millions	2003 Nickel Package	2005 TPA Package	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed LEAP projects			
Cumulative to date (July 1, 2003, through September 30, 2016)	12	7	19
Percent completed early or on time[1]	100%	100%	100%
Percent completed within scope[1]	100%	100%	100%
Percent completed under or on budget[1]	100%	100%	100%
Baseline cost at completion	$72.6	$41.0	$113.6
Current cost at completion	$72.6	$41.0	$113.6
Percent of total program on or under budget[1]	100%	100%	100%
Advertisement record: LEAP projects under construction or entering construction phase			
Cumulative to date (July 1, 2003, through September 30, 2016)	1	2	3
Total advertised	1	2	3
Percent advertised early or on time	100%	100%	100%
Total award amounts to date	$119.6	$27.1	$146.7

Data source: WSDOT Capital Program Development and Management.
Notes: Numbers may not total 100% due to rounding. The rail projects are primarily delivered through master agreements with BNSF, which administers construction activities on the projects. The data above is unchanged from the previous quarter because no additional rail projects were completed. **1** Rail projects are commitments delivered by BNSF, Sound Transit, ports and operators. Master agreements between WSDOT and lead agencies become the documents that govern the delivery of the project including budget, scope and schedule. The administrative process allows for amendments enabling the projects to be delivered within the parameters of the new amended agreement (on time, and on budget).

WSDOT finishes 12 Nickel ferries projects since 2003

Current Legislative Evaluation and Accountability Program as of September 30, 2016; Dollars in millions	2003 Nickel Package	2005 TPA Package	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed LEAP projects[1]			
Cumulative to date (July 1, 2003, through September 30, 2016)	12	10	22
Percent completed early or on time[2]	100%	100%	100%
Percent completed within scope[2]	100%	100%	100%
Percent completed under or on budget[2]	100%	100%	100%
Baseline cost at completion	$180.7	$343.5	$524.2
Current cost at completion	$180.7	$343.5	$524.2
Percent of total program on or under budget[2]	100%	100%	100%
Advertisement record: LEAP projects under construction or entering construction phase			
Cumulative to date (July 1, 2003, through September 30, 2016)	1	0	1
Percent advertised early or on time[2]	100%	N/A	100%
Total award amounts to date	$123.0	$0	$123.0

Data source: WSDOT Capital Program Development and Management.
Notes: Numbers may not total 100% due to rounding. **1** Ferries completed projects record includes two 144-car vessels: the Motor/Vessel *Samish,* which started service in June 2015, and the M/V *Tokitae*, which started service in June 2014. It also includes three 64-car vessels: the M/V *Chetzemoka,* which started service in November 2010, the M/V *Salish*, which started service in July 2011, and the M/V *Kennewick*, which started service in February 2012. **2** The Legislature funds Ferries' projects at a grouped-project or Budget Identification Number (BIN) level for terminals and vessels; however, the delivery of construction projects requires that each of these BIN groups be broken into sub-projects with specific scopes, budgets and schedules. The list of sub-projects is updated as the project progresses into the design phase and the budget and schedule are better defined. This process enables WSDOT to deliver the projects within the updated budget amounts and milestones (on time, and on budget).

WSDOT completes three TPA projects in the quarter

WSDOT completed three Transportation Partnership Account (TPA) projects in the fifth quarter of the 2015-2017 biennium (July through September 2016).

I-5/Blakeslee Junction Railroad Crossing to Grand Mound Interchange – Add Lanes (TPA) *Lewis County*

A scope of work to add capacity to Interstate 5 (I-5) from Centralia north to Grand Mound was originally wholly contained within this project but was divided into four subprojects to provide better clarity when reporting progress. This subproject focused on the four-mile section between Blakeslee Junction and Grand Mound and was completed in November 2011 (see GNB 44, p. 84), but it is also serves as the principal reference project for all subprojects comprising the original scope. With the completion of work on the interstate section from Blakeslee Junction south to Centralia (described next) the original scope of work is now reported as operationally complete.

I-5/Mellen Street to Blakeslee Junction – Add Lanes, Interchange Improvements (TPA) *Lewis County*

This project widened I-5 to three lanes in each direction between Blakeslee Junction and the interchange at Harrison Street in Centralia to the south. Additionally, a new overcrossing was constructed south of Mellen Street, the Harrison Avenue interchange was improved and a new bridge over the railroad tracks was built at Blakeslee Junction. Additionally, two Skookumchuck River bridges were repaired and painted.

Project benefits: Separated, additional lanes aim to reduce congestion, improve traffic flow and enhance safety by eliminating traffic weaving and merging, and by keeping local traffic off of the freeway.

Budget performance: The project was completed for $110 million, on target with the original and last legislatively approved budget. The original budget allocated $155 million.

Schedule performance: The original schedule approved by the legislature and the most recently approved schedule called for project completion in November and December 2015, respectively. The project was completed in August 2016.

Measuring operationally complete projects
Delivery performance of completed projects is measured against the last legislatively approved schedules and budgets in accordance with criteria established by the Legislature. For this quarter, it is the 2016 transportation supplemental budget. In addition to the projects' last approved budgets and schedules, original legislative budgets and schedules are included to show changes that may have occurred during design and construction phases.

Projects are "on time" if they are operationally complete within the quarter planned in the last approved schedule, and "on budget" if the costs are within 5% of the last approved budget.

Nickel and TPA budgets and schedules reset whenever changes are made in the last approved legislative budget. For information on previously completed Nickel and TPA projects, visit www.wsdot.wa.gov/projects/completed.

Highlights/challenges: Repair and repainting work on the Skookumchuck River bridges was not completed in time for paving work to be carried out during summer 2015, delaying project completion until August 2016.

I-205/Mill Plain Interchange Stage 2 – Build Interchange (TPA) *Clark County*

This project constructed a new Interstate 205 (I-205) northbound off-ramp and a new southbound on-ramp at Northeast 18th Street in Vancouver.

Project benefits: The new ramps aim to improve safety and mobility on I-205 by preventing traffic backups forming on congested interchanges.

Budget performance: The project was completed at a cost of $40.6 million, consistent with the last legislatively approved budget. The original budget allocated $58 million.

Schedule performance: The project was completed on time compared with the last legislatively approved timeline (December 2016) despite the project's advertisement date being postponed. This project was not completed on time with the original schedule, which called for completion in June 2013.

Highlights/challenges: Originally designed in 2007, the project's advertisement date was delayed to incorporate construction aspects identified through

Capacity grows for fish traveling under State Route 532

value engineering and practical design in May 2014. WSDOT redesigned a roundabout which eliminated the need for left-turn lanes, and preserved two overpasses instead of reconstructing them.

Further cost reductions occurred because revised traffic projections warranted only single-lane instead of two-lane exit ramps, and material costs on several bid items had declined since the initial design.

SR 532/Pilchuck Creek Tributary (Secret Creek) – Fish Barrier Removal (TPA) *Snohomish County*

The culvert at Secret Creek, a tributary to Pilchuck Creek, was replaced with an oversized box culvert to recreate natural stream conditions and improve fish passage under State Route 532. This relates to five other projects which target enhanced traffic flow and motorist safety for those traveling between Camano Island and I-5.

Project benefits: The project aims to improve access to nearly three miles of habitat for salmon, trout and steelhead.

Budget performance: The project was completed at a cost of $3.4 million, in line with the last legislatively approved budget. The original budget approved by the legislature for this project was $170,000. That budget was later adjusted when WSDOT decided against retrofitting the existing fish passage, and opted to construct a new box culvert.

A worker moves chains on the new Secret Creek box culvert watches an excavator bury it to allow SR 532 to be reconstructed on top. The 18-foot wide by 10-foot tall culvert replaces a 4-foot diameter pipe and will feature a rebuilt streambed and native vegetation.

Schedule performance: The project was completed three weeks ahead of the last legislatively approved date, October 2016. The project was not completed on time compared with the originally scheduled date (January 2010).

Highlights/challenges: In coordination with Washington Department of Fish and Wildlife, WSDOT decided against retrofitting the existing fish passage, and elected to construct a new box culvert.

Challenges with right-of-way acquisition and a schedule to relocate power lines as part of interrelated projects along the SR 532 corridor led to delays, and these also had an impact on the construction of this project.

I-90/Freya Street Interchange – Ramp Improvements (TPA) *Spokane County*

This TPA subproject addressed operational inefficiencies at the westbound off-ramp of I-90, and modified its intersection with the local roadway. Work on this subproject is complete, but it does not count as an operationally complete project in the quarter because it is part of the larger North Spokane Corridor project.

Subproject benefits: The lengthened ramp has capacity for vehicles queueing during peak hours, preventing backups onto mainline I-90.

Budget performance: The project was completed under budget for $3.1 million, 21% less than the $3.9 million allocated in the original and the last legislatively approved budgets.

Schedule performance: The project was completed in August 2016, on time with the last legislatively approved schedule. The original schedule approved by the legislature called for completion in November 2015.

Highlights/challenges: Budget constraints in the previous biennium and a planned delay to enable federal funding meant all construction expenditures for this project were postponed until the 2015-2017 biennium.

WSDOT and Spokane Regional Transportation Council jointly agreed to a further delay to coordinate funding with the federal Congestion Mitigation and Air Quality Improvement Program, ensuring those funds would be available to the project.

WSDOT's Watch List steady as three projects remain

WSDOT added four new projects to its Watch List and removed five this quarter (July through September 2016), leaving three projects on the Watch List as of September 30. See table below for this quarter's Watch List projects.

WSDOT maintains the Watch List to deliver on the agency's commitment to "No Surprises" reporting. WSDOT continuously monitors its projects' performance to ensure issues affecting schedule or budget are brought to the attention of legislators, executives and the public. The Watch List provides information on issues that currently affect projects or have the potential to impact project schedules and budgets.

The Watch List helps WSDOT track these projects, providing status reports, explaining the factors affecting delivery and what the agency is doing to address them. Projects are removed from the Watch List when these issues are resolved.

See *Gray Notebook* 51, p. 40, for a list of common issues that might put projects on the Watch List. To read more about the Watch List items, visit: bit.ly/WSDOTWatchList. Future editions of the *Gray Notebook* will also report Watch List issues for projects funded by the Connecting Washington transportation package. For an overview of the 2015 revenue package, see *Gray Notebook* 58, p. 9.

WSDOT's Watch List projects with schedule or budget concerns
Quarter ending September 30, 2016

Project (County)	Date added	Date removed	Watch List issue
Projects no longer on Watch List			
SR 18/Westbound East of Green River Bridge - Unstable Slope (King)	Sep-2016	Sep-2016	Heavy rainfall in November 2015 caused a landslide which impacted the westbound lanes of State Route (SR) 18 near Auburn. WSDOT temporarily closed the westbound lane and shoulder, removed trees and debris and placed plastic sheeting on the hillside to allow for drainage. Permanent restoration work will stabilize the failing hillside by backfilling the site with large rocks and installing new drains. This project has been removed from the Watch List.
US 101/Elwha River Bridge - Scour Repair (Clallam)	Sep-2016	Sep-2016	The bridge pier foundations require emergency scour protection from erosion during the winter, as it has experienced significant scour resulting from the Elwha River Dam removal and changes in river flow. The emergency work will be completed in November 2016, but the bridge may require emergency closure for specific river flow events. WSDOT is also establishing a monitoring system and may construct a permanent solution. This project has been removed from the Watch List.
SR 539/Nooksack River Bridge - Special Repair (Whatcom)	Sep-2016	Sep-2016	A truck traveling northbound on SR 539 struck the Nooksack River Bridge in September, damaging the support beams. One lane of SR 539 was closed temporarily while WSDOT inspectors worked to determine the bridge had not been structurally compromised. All lanes were re-opened to traffic. WSDOT will install replacement beams during summer 2017. This project has been removed from the Watch List
I-5 Chamber Way Overpass - Repair Bridge (Lewis)[1]	Sep-2016	Sep-2016	The Chamber Way overpass bridge was damaged by an over-height load and was closed as a safety precaution. After an inspection, bridge engineers determined that most of the girders supporting the bridge deck were not repairable, and the bridge span over the southbound lanes of I-5 was removed. A temporary bridge span has been installed and traffic access was restored. Construction work for a permanent bridge restoration project is planned to begin in fall 2017, and the project has been removed from the Watch List.
SR 3/Belfair Area – Widening and Safety Improvements (Mason)	Mar-2016	Sep-2016	Heavy rainfall and a higher than expected water table caused three detention ponds to flood. The ponds are being redesigned, resulting in cost increases and project delays. This project has been removed from the Watch List.
Projects remaining on Watch List			
SR 161/24th St. East to Jovita – Add Lanes (Pierce)	Sep-2014		This project was operationally complete in August 2014 and is facing a potential cost increase pending a claim from the contractor.
SR 112/Nordstrom Creek – Remove Fish Barrier (Clallam)[2]	Mar-2016		Continued delays in acquiring a temporary construction easement have further delayed advertisement for the project. WSDOT is currently in negotiations with the property owner to secure the easement. Construction is anticipated to begin in 2017.
SR 99/South King St. Vicinity to Roy St. – Viaduct Replacement (King)	Dec-2013		The project completion date has been delayed. The project's contractor, Seattle Tunnel Partners, updated the projected tunnel opening date to early 2019[3].

Data sources: WSDOT Capital Program Development and Management and WSDOT Regions.

Notes: **1** This project was originally added to the Watch List in July 2016 when the bridge was struck by an over-height load. It was removed from the Watch List in August 2016 when a temporary bridge span was installed. In September 2016 WSDOT decided on a permanent restoration project for the bridge; it was then added and removed again in that month. **2** This project was originally added to the Watch List in March 2016. It was removed in May 2016. Further delays in the project's advertisement date occurred and it was added again in September 2016. **3** The schedule for this project changes frequently and WSDOT cannot verify the contractor's schedule.

WSDOT continues to complete Nickel, TPA projects

Twelve WSDOT projects in construction phase as of September 2016
Nickel and Transportation Partnership Account projects; Costs estimated at completion; Dollars in millions

Project description Cumulative to date (County)	Fund Type	On-time advertised	Ad date	Contractor	Operationally complete date	Award amount
I-5 Concrete Rehabilitation Program (King)	Nickel	√	Jul-2009	Multiple contractors	May-2023	$9.8
Multiple contractors continue to work on this project.						
SR 99/Alaskan Way Viaduct – Replacement (King)						
This project replaces an aging viaduct with a new viaduct on the south end and adds a tunnel in downtown Seattle. WSDOT is funding or leading 30 contracts or projects as part of the viaduct replacement effort. Active Nickel/TPA projects are shown below:						
• SR 99/South King Street Vicinity to Roy Street – Viaduct Replacement	Nickel/TPA	√	May-2010	Seattle Tunnel Partners	TBD	$1,089.7
			Oct-2013	Guy F. Atkinson Construction	TBD	$41.6
This subproject has several contract components; the bored tunnel, north and south access connections and associated work. The schedule for this project changes frequently and WSDOT cannot verify the contractor's schedule at this time.						
US 395/North Spokane Corridor (NSC) – Design and Right of Way – New Alignment (Spokane)	Nickel/TPA					
SR 502/I-5 to Battle Ground – Add Lanes – Stage 2 (Clark)	TPA	√	Jan-2014	Rotschy	Oct-2016	$27.5
I-90/Concrete Rehabilitation						
• I-90/Oakes Avenue Interchange to Peoh Road Bridge Vicinity Westbound – Replace/Rehabilitate Concrete (Kittitas)	Nickel	√	Mar-2015	Midmountain Contractors	Nov-2016	$10.6
SR 520/Bridge Replacement and HOV (King)						
• SR 520/I-5 to Medina – Evergreen Point Floating Bridge and Landings	TPA	√	Dec-2010	Kiewit-General, A Joint Venture	Jul-2017	$586.6
An additional contract award for this project is pending.						
SR 3/Belfair Area – Widening and Safety Improvements (Mason)	TPA	Late	Apr-2015	Ceccanti	Nov-2016	$10.3
Advertisement was delayed due to revised project limits, which affected right of way acquisition.						
SR 167/8th St. East Vicinity to South 277th St. Vicinity – Southbound Managed Lane (King, Pierce)	TPA	√	Aug-2014	Guy F. Atkinson Construction	Jun-2017	$53.9
SR 167/SR 18 Interchange West-North Ramp North-East Ramp Overcrossing – Seismic Retrofit (Pierce)	TPA	√	Combined with project above for construction efficiencies.			
I-5/Tacoma HOV Improvements (Pierce)	Nickel/TPA					
• I-5/M Street to Portland Avenue – Add HOV Lanes	Nickel	√	Mar-2014	Mid-Mountain Contractors	Feb-2017	$1.7
I-90/Snoqualmie Pass East – Hyak to Keechelus Dam – Corridor Improvement (Kittitas)	TPA					
• I-90/Snowshed to Keechelus Dam Phase 1C – Replace Snowshed and Add Lanes	TPA	Late	Apr-2011	Guy F. Atkinson Construction	Oct-2017	$177.1
Advertisement was delayed to address fire and safety issues with the original snowshed design, resulting in long-term savings.						
SR 16/Anderson Creek Tributary to Sinclair Inlet — Fish Barriers (Kitsap)	TPA	Late	Feb-2016	Scarsella Bros.	Oct-2016	$4.4

Data source: WSDOT Capital Program Development and Management.

TPA projects on budget for 2015-2017 biennium

Biennial summary: Eight projects completed in 2015-2017 biennium

Nickel and Transportation Partnership Account projects; Costs estimated at completion; Dollars in millions

Cumulative to date	Fund type	On-time advertised	On-time completed	Within scope	Baseline estimated cost	Current estimated cost	On budget completed
Current biennium reporting on capital project delivery							
2015-2017 biennium summary[1] This information is updated quarterly throughout the biennium.	0 Nickel 8 TPA	4 on time[2] 4 late	7 on time 1 late	8	$641.2	$609.1	8 on budget 0 over budget
Earlier biennia reporting on capital project delivery							
2013-2015 biennium summary See *Gray Notebook* 58, p. 55.	6 Nickel 15 TPA	16 on time 5 late	15 on time 6 late	21	$555.7	$514.0	18 on budget 3 over budget
2011-2013 biennium summary See *Gray Notebook* 50, p. 31.	5 Nickel 36[1] TPA	31[1] on time 10 late	32[1] on time 9 late	41[1]	$1,485.5[1]	$1,459.6[1]	37[1] on budget 4 over budget
2009-2011 biennium summary[1] See *Gray Notebook* 42, p. 45.	16 Nickel 74 TPA	73 on time 17 late	80 on time 10 late	90	$1,641.6	$1,597.0	85 on budget 5 over budget
2007-2009 biennium summary See *Gray Notebook* 34, p. 58.	42 Nickel 69 TPA	91 on time 20 late	96 on time 15 late	111	$1,685.7	$1,685.2	102 on budget 9 over budget
2005-2007 biennium summary See *Gray Notebook* 26, p. 5.	52 Nickel 24 TPA	71 on time 5 late	68 on time 8 late	76	$673.9	$668.8	67 on budget 9 over budget
2003-2005 biennium summary See *Gray Notebook* 19, p. 5.	27 Nickel	25 on time 2 late	27 on time 0 late	27	$124.6	$124.4	25 on budget 2 over budget

Data source: WSDOT Capital Program Development and Management.

Notes: Dollar amounts are rounded up. **1** In *Gray Notebooks* published before the 2009-2011 biennium, WSDOT used a project count of 391 combined Nickel and TPA projects for project completion data. In conjunction with the 2009-2011 biennium wrap-up, the tables were reorganized to present the completed information for the current project count of 421. In the revised count, several projects that were developed as part of larger programs, like bridge, rail, and roadside safety, were included in the new count though they had been completed earlier. **2** Number of on-time projects was updated in the chart above for *Gray Notebook* 63.

WSDOT delivers 135 Nickel projects since 2003

The performance summaries below and those on p. 44 provide status reports on WSDOT's delivery of the Nickel and Transportation Partnership Account programs compared to the original legislative funding packages presented in the 2003 and 2005 Legislative Evaluation and Accountability Program lists.

The Legislature has approved changes to these funding packages and assigned funds to different projects since these two funding packages were created. As a result, the data listed below and on the next page show the original LEAP, which differs from the current legislative budgets on pp. 36-37.

The 2003 and 2005 tables feature budget items including pre-construction and environmental studies that were in the original funding packages. The original LEAP tables do not include projects that cities, counties and tribes collaborate on with WSDOT to complete.

These tables show the total number of projects and the percentage of projects that are complete, underway, scheduled to start or affected by a legislatively approved change of project scope. They also give budget updates showing original planned budgets and the current planned or actual expenditure, breaking out programs by category: highways, ferries and rail.

WSDOT project delivery and budget update: Original 2003 Nickel Transportation Funding Package
As of September 30, 2016; Dollars in millions

	Total program		Highways		Ferries		Rail	
Project delivery update	**Number of projects**	**Percent of total**	**Number of projects**	**Percent of program**	**Number of projects**	**Percent of program**	**Number of projects**	**Percent of program**
Project number and phase	**156**		**127**		**5**		**24**	
Completed projects	135	87%	119	94%	2	40%	14	58%
Total projects underway	8	5%	5	4%	2	40%	1	4%
In pre-construction phase	*4*		*3*		*1*		*0*	
In construction phase	*4*		*2*		*1*		*1*	
Projects starting in the future	1	1%	0	0%	0	0%	1	4%
Projects deferred or deleted from program	12	8%	3	2%	1	20%	8	33%
Number of legislatively approved scope changes	*20*		*18*		*0*		*2*	
Pre-construction starts within six months	*0*		*0*		*0*		*0*	
Construction starts within six months	*0*		*0*		*0*		*0*	

Data source: WSDOT Capital Program Development and Management.
Notes: Totals do not include projects that cities, counties and tribes collaborate on with WSDOT to complete. Percents may not add to 100 due to rounding.

	Total program		Highways		Ferries		Rail	
Project budget update	**Budget**	**Percent of total**	**Budget**	**Percent of program**	**Budget**	**Percent of program**	**Budget**	**Percent of program**
Total original legislative planned budget	**$3,887.5**		**$3,380.1**		**$297.9**		**$209.5**	
Original plan, 2003 through 2013-2015 biennium	$3,887.5	100%	$3,380.1	100%	$297.9	100%	$209.5	100%
Actual expenditures, 2003 through 2013-2015 biennium	$4,093.7	105%	$3,537.7	105%	$423.2	142%[1]	$132.8	63%
Original plan through 2015-2017 biennium	$3,887.5	100%	$3,380.1	100%	$297.9	100%	$209.5	100%
Current plan through 2015-2017 biennium	$4,323.8	111%[1]	$3,644.8	108%[1]	$545.2	183%[1]	$133.7	64%
Actual expenditures, 2003 through June 30, 2016	$4,227.8	109%[1]	$3,597.7	106%[1]	$497.0	167%[1]	$133.1	64%

Data source: WSDOT Capital Program Development and Management.
Notes: Expenditures are Nickel funds only. Totals do not include projects that cities, counties and tribes collaborate on with WSDOT to complete. **1** The Legislature added funds for construction of a second 144-vehicle ferry for WSDOT Ferries and for highway construction during the first quarter (July through September 2013) of the 2013-2015 biennium. These funds put WSDOT Ferries above its original funding level and will result in continued over-performance by this program.

WSDOT completes 206 TPA projects since 2005

WSDOT project delivery and budget update: Original 2005 Transportation Partnership Account
As of September 30, 2016; Dollars in millions

	Total program		Highways		Ferries		Rail	
Project delivery update	**Number of projects**	**Percent of total**	**Number of projects**	**Percent of program**	**Number of projects**	**Percent of program**	**Number of projects**	**Percent of program**
Project number and phase	**248**		**229**		**4**		**15**	
Completed projects	206	83%	197	86%	1	25%	8	53%
Total projects underway	22	9%	19	8%	0		3	20%
In pre-construction phase	*8*		*7*		*0*		*1*	
In construction phase	*14*		*12*		*0*		*2*	
Projects starting in the future	6	2%	2	1%	1	25%	3	20%
Projects deferred or deleted from program	15	6%	12	5%	2	50%	1	7%
Number of legislatively approved scope changes	*23*		*23*		*0*		*0*	
Pre-construction starts within six months	*1*		*1*		*0*		*0*	
Construction starts within six months	*0*		*0*		*0*		*0*	

Data source: WSDOT Capital Program Development and Management.
Notes: Totals do not include projects that cities, counties and tribes collaborate on with WSDOT to complete. Percents may not add to 100 due to rounding. Since the Transportation Partnership Account program was passed in 2005, the Legislature has approved changes to WSDOT Ferries' construction program so that the current budget does not match the original budget. Among the changes, TPA funding was provided for three 64-car ferries. For definitions about terminology used in Original LEAP, see *Gray Notebook* 53, p. 40.

	Total program		Highways		Ferries		Rail	
Project budget update	**Budget**	**Percent of total**	**Budget**	**Percent of program**	**Budget**	**Percent of program**	**Budget**	**Percent of program**
Total original legislative planned budget	**$6,982.1**		**$6,678.5**		**$185.4**		**$118.3**	
Original plan, 2005 through 2013-2015 biennium	$6,472.5	93%	$6,218.0	93%	$136.3	74%	$118.3	100%
Actual expenditures, 2005 through 2013-2015 biennium	$4,627.1	66%	$4,476.3	67%	$77.1	42%	$73.7	62%
Original plan through 2015-2017 biennium	$6,472.5	93%	$6,218.0	93%	$136.3	74%	$118.3	100%
Current plan through 2015-2017 biennium	$5,706.0	82%	$5,548.6	83%	$77.1	42%	$80.4	68%
Actual expenditures, 2005 through June 30, 2016	$5,179.5	74%	$5,026.2	75%	$77.1	42%	$76.3	65%

Data source: WSDOT Capital Program Development and Management.
Notes: Expenditures are TPA funds only. Totals do not include projects that cities, counties and tribes collaborate on with WSDOT to complete. Since the Transportation Partnership Account program was passed in 2005, the Legislature has approved changes to WSDOT Ferries' construction program so that the current budget does not match the original budget.

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WSDOT advertises 18 Pre-existing Funds projects

WSDOT advertised 18 of 22 Pre-existing Funds (PEF) projects in the fifth quarter of the 2015-2017 biennium (July through September 2016).

Of the 22 total projects, 16 were on time and two were emergent. Of the remaining PEF projects scheduled for advertisement this quarter, one was advertised in an earlier quarter and three were delayed to a future quarter within the 2015-2017 biennium. See p. 46 for this quarter's PEF advertisements, and *Gray Notebook* 51, p. 38 for full definitions of PEF terms.

WSDOT's current cost to complete the 244 PEF projects actually advertised through the fifth quarter of the 2015-2017 biennium is $398.2 million, about $1.1 million (0.3%) more than the original value of $397.1 million.

Actual cost to complete project advertisements about $4.5 million less than the original value

2015-2017 biennium (July 2015 through June 2017); Quarter ending September 30, 2016; Dollars in millions

	Number of projects	Original value	Current cost to complete
Total PEF advertisements planned for the 2015-2017 biennium	485	$876.7	$884.4
Planned advertisements through September 30, 2016	246	$402.7	$402.7
Actual advertisements through September 30, 2016	244	$397.1	$398.2

Data source: WSDOT Capital Program Development and Management.

WSDOT completes 244 Pre-existing Funds project advertisements so far during 2015-2017 biennium

Project status	Quarter[1]	Cumulative[2]
Projects advanced[3]	0	21
Projects advertised on time+5+	16	183
Emergent projects advertised	2	12
Projects advertised late	0	28
Total projects advertised	**18**	**244**
Projects advertised early[4]	1	20
Projects delayed within the biennium	3	44
Projects deferred out of the biennium	0	7
Projects deleted	0	1

Data source: WSDOT Capital Program Development and Management.
Notes: **1** Quarter refers to July through September 2016. **2** Cumulative refers to July 2015 through June 2017. **3** Advanced includes projects that were moved up from future quarters. **4** Early includes projects from the quarter that were advertised in an earlier quarter.

The current estimated cost to complete all 485 advertisements planned for the 2015-2017 biennium is $876.7 million, about $7.7 million (0.9%) less than the original value of $884.4 million for these projects. Much of this reduction is due to the lower cost of oil (a primary ingredient in asphalt and chip seal paving), which has led to reduced costs on PEF paving projects.

Improvement and preservation cash flows less than projections

Cumulatively, WSDOT planned to have $794.7 million in the combined improvement and preservation cash flow during the fifth quarter of the 2015-2017 biennium, but had $765.1 million instead (approximately 3.7% less). This $29.6 million variance was due to WSDOT basing initial improvement and preservation program allotments on historical averages for the quarter.

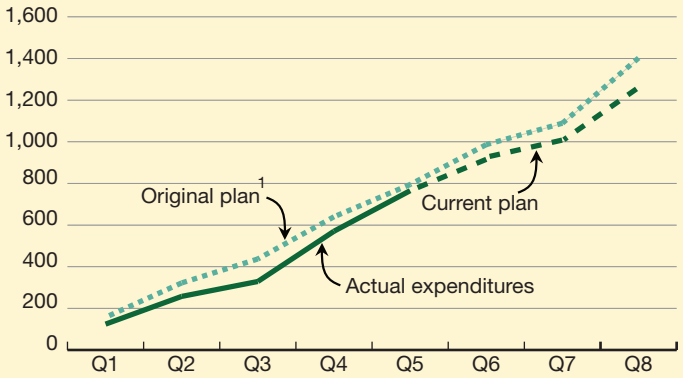
WSDOT adjusted its baseline allotments and its planned expenditures during the 2015-2017 biennium to better reflect the six-year spending plan.

WSDOT uses improvement program funds for projects that optimize highway capacity, enhance safety and reduce the environmental impact of construction projects. The preservation program includes pavement, bridges and other projects that maintain the structural integrity of the existing highway system.

Contributors include Mike Ellis and Joe Irwin

Cumulative Pre-existing Funds preservation and improvement combined cash flows lower than planned

2015-2017 biennium; Quarter ending September 30, 2016; Planned vs. actual expenditures; Dollars in millions



Data source: WSDOT Capital Program Development and Management.
Note: Q5 refers to the fifth quarter (July through September 2016) of the 2015-2017 biennium (July 2015 through June 2017). **1** Baseline was reset after *Gray Notebook* 62 when WSDOT's six-year plan was updated.

WSDOT advertises two emergent Pre-existing Funds projects

Sixteen Pre-existing Funds projects advertised on time
July through September 2016

On time (16)	
Wireless Communication	Olympic Region - Intersection Safety Implementation Program 2015-2017
SR 104/Northeast 195th St. - Failed Gabion Basket Wall	US 12/West of Porter - Emergency Slope Stabilization
I-405/Northeast 6th St. to I-5 - Northbound Hard Shoulder Running and Electronic Tolling Lane Improvements	SR 167/Valley Ave. and Union Pacific Railroad Bridge - Special Repair
SR 524/Westbound 21st Ave. West to 196th Place Southwest - Pedestrian Improvements	SR 302/South of East Victor Rd. - Culvert Replacement
US 2/West of Alice Rd. Bridge Deck Rehabilitation	SR 507 City of Rainier - Sidewalk Improvements
US 2/Pine Canyon Emergency Repair	SR 503/Padden Parkway - Intersection Improvements
2015-2017 Olympic Region - Regionwide Basic Safety - Signing	US 12/3 Miles West of White Pass Summit - Culvert Repair
Olympic Region - Regionwide Curve Warning Signing - Chevron Alignment 3	SR 124/Monument Drive/Railroad Crossing - Construct Bridge
Emergent (2)	
SR 18/Westbound East of Green River Bridge - Unstable Slope	US 101/Elwha River Bridge - Scour Repair
Early (1)	
SR 112/Field Creek - Remove Fish Barrier	
Delayed (3)	
2015-2017 Olympic Region Centerline Rumble Strips - Install Rumble Strips	SR 401/0.85 Miles North of Astoria Bridge - Culvert Replacement
2015-2017 Olympic Region Shoulder Rumble Strips - Install Rumble Strips	

Data source: WSDOT Capital Program Development and Management.

WSDOT reports four change orders costing $500,000 or more during the quarter ending September 30, 2016

- The State Route (SR) 520 West Approach Bridge North project was modified through two change orders to eliminate $603,000 of individual bid items relating to the construction of the stormwater system. These items will instead be included as part of upcoming subprojects.
- The SR 520 Floating Bridge and Landings project saw adjustments of $2.8 million after an agreement was reached with the primary contractor to pay for unanticipated costs.
- Electrical equipment was relocated as part of the SR 99 Alaskan Way Viaduct project, resulting in $1.4 million in additional costs.

After an extensive review, which can involve subject matter experts, contract specialists, and other outside stakeholders, WSDOT must sometimes change its engineers' original plans and specifications in order to complete projects. When this occurs, WSDOT issues a formal modification (or change order) to the contract, containing a description of the change and details about how or if the contractor may be compensated for it. Each month, WSDOT posts all change orders estimated to cost $500,000 or more online at: bit.ly/WSDOTchangeorders.

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Gray Notebook subject index, archives and acronym list online

Readers can access the *Gray Notebook* subject index online at bit.ly/GNBsubjectindex. *Gray Notebook* editions are available at bit.ly/GNBarchives, and WSDOT's transportation acronym guide can be viewed at bit.ly/WSDOTacronyms.

Understanding reporting periods

WSDOT programs report their performance data during different periods to best fit the work they do. For example, a program that receives substantial federal funds may report performance based on the federal fiscal year.

The charts below show the reporting periods for *Gray Notebook* 63. July through September 2016 is the third quarter of the calendar year (Q3 2016); the first quarter of the state's fiscal year (Q1 FY2017); and the fourth quarter of the federal fiscal year (Q4 FFY2016). It is also the fifth quarter of the 2015-2017 biennium, which follows the current budget set by the Washington State Legislature.

Calendar, fiscal and federal fiscal quarters

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
GNB 61			GNB 62			**GNB 63**			GNB 64		
Q1 2016			Q2 2016			**Q3 2016**			Q4 2016		
Q3 FY2016			Q4 FY2016			**Q1 FY2017**			Q2 FY2017		
Q2 FFY2016			Q3 FFY2016			**Q4 FFY2016**			Q1 FFY2017		

2015-2017 biennial quarters

Period	Quarter	Period	Quarter
Jul – Sep 2015	Q1	**Jul – Sep 2016**	**Q5**
Oct – Dec 2015	Q2	Oct – Dec 2016	Q6
Jan – Mar 2016	Q3	Jan – Mar 2017	Q7
Apr – Jun 2016	Q4	Apr – Jun 2017	Q8

Notes: A calendar year begins January 1 and ends December 31. Washington state's fiscal year begins July 1 and ends June 30. The federal fiscal year begins October 1 and ends September 30. Biennia begin July 1 and end two years later on June 30.

Gray Notebook credits

The *Gray Notebook* is developed and produced by the small team at WSDOT's Office of Strategic Assessment and Performance Analysis (OSAPA), and articles feature bylines indicating key contributors from dozens of WSDOT programs.

The *Gray Notebook* and *Gray Notebook Lite* are printed in-house by Ronnie Jackson, Trudi Phillips, Talon Randazzo, Larry Shibler, Oma Venable and Deb Webb. OSAPA's Kate Wilfong coordinates distribution. WSDOT's graphics team of Erica Mulherin and Steve Riddle provides creative help and assists with graphics, while WSDOT communicators typically take the photographs featured throughout each edition.

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