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, 2015 • Published November 2015
Lynn Peterson, Secretary of Transportation

Putting construction contracts into perspective

WSDOT tracks awarded and completed projects to determine accuracy of engineer's estimates

p. 27

Aviation program soars

WSDOT moves ahead with projects to improve, preserve airports

p. 12

Building issues

WSDOT working hard to maintain and preserve its aging structures

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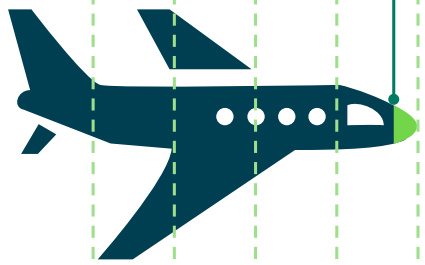
PERFORMANCE HIGHLIGHTS reported for the quarter ending September 30, 2015

WSDOT SURPASSED ITS 95% GOAL



FOR REGISTRATION COMPLIANCE WITH 6,487 WASHINGTON AIRCRAFT THROUGH SEPTEMBER 30, 2015

113,200

riders used **transit** on Washington's urban commute corridors during daily peak periods in 2014, a 7.8% increase from the 104,970 riders in 2012

6

new **Lean improvement projects** were launched by WSDOT during the quarter, bringing the total to 70

10th

high-speed rail project completed by WSDOT, putting the state halfway through its 20 federally funded capital improvement program projects

95%

of construction site **stormwater samples** met state water clarity benchmark criteria in FY2015

$22 million

in economic benefit was provided by WSDOT's **Incident Response** teams clearing 13,706 incidents during the quarter

367

of 421 projects have been completed that are fully or partially funded by the **Nickel** or **Transportation Partnership Account**

WSDOT AWARDED

58.9% OF CONSTRUCTION CONTRACTS BELOW THE ENGINEER'S ESTIMATE IN FY2015

On the cover: crews prepare a rebar cage in the early stages of the US 395 – North Spokane Corridor – US 2 to Wandermere Vicinity project, which was fully completed in fiscal year 2015. See p. 27 for more details on construction contracts and awards.

Gray Notebook supports Results WSDOT goals

The *Gray Notebook* (GNB) continues to support the agency's strategic plan, Results WSDOT, showing how the programs covered in this quarterly publication link with the plan's goals. By implementing Results WSDOT, the agency is able to:

- Effectively manage system assets and multimodal investments on corridors to enhance economic vitality;
- Optimize existing system capacity through better interconnectivity of all transportation modes;
- Promote sustainable practices to reduce greenhouse gas emissions and protect natural habitat and water quality;
- Support a culture of multi-disciplinary teams, innovation and people development through training, continuous improvement and Lean efforts;
- Strengthen partnerships to increase credibility, drive priorities and inform decision making; and,
- Improve information system efficiency to users and enhance service delivery by expanding the use of technology.

See p. 7 for more information on Results WSDOT and the *Gray Notebook* articles that relate to the strategic plan.

WSDOT publishes its 2015 *Corridor Capacity Report*

WSDOT recently published its 2015 update on multimodal system performance, the annual *Corridor Capacity Report*. The report provides a complete picture of how traffic affects the state as a whole. This year's report introduces Amtrak Cascades passenger rail performance, a pilot arterial corridor performance analysis of the Tri-Cities region, and interactive maps to help visualize the data (see bit.ly/CCR15statewidemap). A summary of the *Corridor Capacity Report* is featured on pp. 16-17. For the full report, including appendices, visit http://www.wsdot.wa.gov/Accountability/Congestion/2015.htm.

WSDOT participating in state and federal performance reporting plans

WSDOT is an active participant in Results Washington (p. 6), Gov. Jay Inslee's plan to build a working Washington, and serves as a lead agency for Goal 2: Prosperous Economy. For more information, visit data.results.wa.gov/economy. At the same time, WSDOT is working on future federal transportation reporting requirements for the Moving Ahead for Progress in the 21st Century Act (MAP-21). For more information, see *Gray Notebook* 49, p. vii, and p. 5 of this issue. MAP-21, Results Washington and Results WSDOT are helping guide WSDOT's future performance reporting. Results WSDOT aligns with Results Washington while supporting the 10 agency-wide reforms being implemented by Transportation Secretary Lynn Peterson (see GNB 58, pp. 10-11).

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 Linda Pasta coordinates distribution. WSDOT's graphics team of Jinger Hendricks, Diana Lessard, Fauziya Mohamedali, Erica Mulherin and Steve Riddle provides creative help and assists with graphics, while WSDOT communicators typically take the photographs featured throughout each edition.

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.

59 Statewide Transportation Policy Goals

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 (VMT) statewide (Annual measure: calendar years 2013 & 2014)	0.77	0.80[1]	Below 1.00	✓		↓
Rate of **recordable incidents** for every 100 full-time WSDOT workers (Annual measure: calendar years 2013 & 2014)	5.7	5.4	Below 5.0	—		↓
Preservation						
Percentage of state **highway pavement** in fair or better condition by vehicle miles traveled (Annual measure: calendar years 2012 & 2013)	91.9%	92.6%	Above 90.0%	✓		↑
Percentage of **state bridges** in fair or better condition by bridge deck area (Annual measure: fiscal years 2014 & 2015)	91.8%	92.1%	Above 90.0%	✓		↑
Mobility (Congestion Relief)						
Highways: Annual (weekday) vehicle **hours of delay** statewide at **maximum throughput speeds**[2] (Annual measure: calendar years 2013 & 2014)	32.5[3] million	32.3 million	N/A	N/A		↓
Highways: Average **incident clearance times** for all Incident Response program responses (Calendar quarterly measure: Q2 2015 & Q3 2015)	12.3 minutes	12.8 minutes	N/A	N/A	(Five-quarter trend)	↓
Ferries: Percentage of trips departing on time[4] (Fiscal quarterly measure: year to year Q1 FY2015 & Q1 FY2016)	90.5%	91.1%	Above 95%	—		↑
Rail: Amtrak Cascades on-time performance (Annual measure: fiscal years 2014 & 2015)[5]	74.2%	71.5%	Above 80%	—		↑
Environment						
Number of WSDOT **stormwater management facilities** constructed[6] (Annual measure: fiscal years 2014 & 2015)	189	130	N/A	N/A		Not applicable
Cumulative number of WSDOT **fish passage improvement projects** constructed (Annual measure: calendar years 2013 & 2014)	282[7]	291	N/A	N/A		↑
Stewardship						
Cumulative number of Nickel and TPA **projects completed,** and **percentage on time**[8] (Calendar quarterly measure: Q2 2015 & Q3 2015, trendline for percentage on time)	366/ 87%	367/ 87%	More than 90% on time	—	(Five-quarter trend)	↑
Cumulative number of Nickel and TPA **projects completed** and **percentage on budget**[8] (Calendar quarterly measure: Q2 2015 & Q3 2015, trendline for percentage on budget)	366/ 91%	367/ 91%	More than 90% on budget	✓	(Five-quarter trend)	↑
Variance of total project costs compared to **budget expectations**[8] (Calendar quarterly measure: Q2 2015 & Q3 2015)	under budget by 1.9%	under budget by 1.9%	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. 6 for "Goal 2: Prosperous Economy" measures. 1 Data considered preliminary until January 2016. 2 Compares actual travel time to travel time associated with "maximum throughput" (defined as 70 to 85 percent of the posted speeds), where the greatest number of vehicles occupy the highway at the same time. 3 Data differs from previous edition as numbers were updated. 4 WSDOT Ferries' on time departures include any trip recorded by automated tracking as leaving the terminal within 10 minutes of scheduled time. 5 Rail is now measured on a fiscal year basis. 6 Data point for 2012 does not match previous editions as numbers were updated. 7 Data from 2013 does not match previous editions as numbers were updated. 8 Budget and schedule expectations are defined in the last approved State Transportation Budget. See p. 31 for more information.

MAP-21 federal performance reporting requirements

MAP-21 goals by program area	Federal threshold/ benchmark[1]	MAP-21 target[2]	WSDOT penalty[3] (Yes/No)	Date draft rule was released	Existing WSDOT performance measures for this program area
Highway Safety Improvement Program					**Federal Register Vol. 79, No. 60**
Rate of **traffic fatalities** per 100 million vehicle miles traveled (VMT) on all public roads	No	TBD[4]	Yes	3/11/14	Traffic fatality rates using the NHTSA[5] methodology, see *Gray Notebook* 58, p. 12
Rate of **serious traffic injuries** per 100 VMT on all public roads	No	TBD	Yes	3/11/14	Serious injury rates using the NHTSA[5] methodology, see *Gray Notebook* 58, p. 12
Number of **traffic fatalities** on all public roads	No	TBD	Yes	3/11/14	Traffic fatalities using the NHTSA[5] methodology, see *Gray Notebook* 58, p. 12
Number of **serious traffic injuries** on all public roads	No	TBD	Yes	3/11/14	Serious injuries using the NHTSA[5] methodology, see *Gray Notebook* 58, p. 12
Rate of per capita **traffic fatalities** for drivers and pedestrians 65 years of age or older	No	TBD	No	Guidance provided 10/1/2012	Traffic fatalities for pedestrians 65 years of age or older. See *Gray Notebook* 48, p. 8 for MAP-21 implications. The rate of traffic fatalities for older pedestrians is part of Washington's Target Zero[6] campaign.
Rate of fatalities on high-risk rural roads	No	TBD	Yes	Guidance provided 10/1/2012	Traffic fatality rates on high-risk rural roads as part of Washington state's Target Zero campaign
Highway-railway crossing fatalities	No	TBD	No	Guidance provided 2/22/2013	Fatalities at highway-railway crossings
National Highway Performance Program					**Federal Register Vol. 80, No. 2**
National Highway System (Interstate and Non-Interstate) **pavement** in good and poor conditions	% of interstate pavement in poor condition not to exceed 5%	TBD	Yes	1/5/15	See *Gray Notebook* 56, p. 7 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 pavement and bridge performance measures.
National Highway System **bridges** classified in good and poor conditions	% of SD[7] bridges measured by deck area not to exceed 10%	TBD	Yes	1/5/15	Several measures of bridge condition including good/ fair/poor condition rating and structural deficiency (SD) rating, see *Gray Notebook* 58, p. 15
Combined Draft Rule - anticipated in near future (measures to be determined through federal rule making)					
- System Performance (Congestion)					
Measures TBD	No	TBD	No		The *2015 Corridor Capacity Report* details highway travel times and reliability trends in Washington state
- National Freight Movement Program					
Measures TBD	No	TBD	No		WSDOT's freight mobility plan addresses trucking, rail and marine freight. See *Gray Notebook* 58, p. 44 for review of MAP-21 freight implications.
- Congestion Mitigation and Air Quality Program					
Measures TBD	No	TBD	No		The *2015 Corridor Capacity Report* details highway travel times and congestion trends in Washington state
Measures for on-road mobile source emissions TBD	No	TBD	No		No existing performance measure

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 TBD = To be determined. 5 NHTSA = National Highway Traffic Safety Administration. 6 State strategic highway safety plan. 7 SD = structurally deficient.

59 Results Washington

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 baseline data)	N/A	87%	N/A	N/A	↑
Based on current funding levels, control the percent of state and local bridges[3] in poor condition from increasing over 10% by 2017 (Fiscal years 2014 & 2015)	9.3%	8.8%	Yes	↓	↓
Based on current funding levels, control the percent of state and local pavements[3] in poor condition from increasing over 10% by 2017 (2012 & 2013)	6.0%	6.0%	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 2014 & 2015)	6.0%	3.7%	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 2014 & 2015)	6.8%	8.3%	Yes	↑	↓
Maintain percentage of transit fleet that exceeds the Federal Transit Administration's minimum useful life at 25% or below through 2020 (2013 & 2014)	25.4%	27.8%	No	↑	↓
Increase the percentage of Washingtonians using alternative transportation commute methods to 29% by 2020 (2013 & 2014)	27.3%	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 (2013 & 2014)	1.7%	6.6%	No	↑	↓
Operate strategic corridors at 90% efficiency or higher through 2017 (2013 & 2014)	95.2%	94.6%	Yes	↓	↑
Reduce the number of pedestrian and bicyclist fatalities on public roadways from 84 in 2012 to zero in 2030 (2013 & 2014)	61	84[4]	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 2015*				
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	40.6	No	↓	↓
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[5]	1.11	No[5]	↔	↓
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 (2011 & 2012)	19.3	19.5	No	↑	↑
Increase the number of plug-in electric vehicles registered in Washington from approximately 8,000 in 2013 to 50,000 by 2020 (2013 & 2014)	7,896	12,351	No	↑	↑
Increase miles of stream habitat opened from 350 to 450 (per year) by 2016 (2013 & 2014)	572	529	Yes	↓	↑
Increase number of fish passage barriers corrected per year from 375 to 500 by 2016 (2013 & 2014)	431	423	No	↓	↑
Goal 4: Healthy and Safe Communities					
Decrease number of traffic-related fatalities on all roads from 454 in 2011 to zero in 2030 (2013 & 2014)	436	462[6]	Yes	↑	↓

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 will be 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 to meet the target. 3 This measure only includes assets on the National Highway System. 4 Data is preliminary and has been updated from what was reported in *Gray Notebook* 56. 5 Data has been corrected from *Gray Notebook* 57. 6 Data is preliminary until January 2016. This number has been revised from 436 in *Gray Notebook* 57 to 462.

Results WSDOT – Setting WSDOT's Direction

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In January 2015, WSDOT released its initial progress report for Results WSDOT, the agency's strategic plan. The plan directs WSDOT's work with partners and communities; emphasizes multimodal integration, strategic investments and technology; and 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 or to see the Strategic Plan Progress Report Executive Summary, go to http://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 the six goals listed in the table below, which are supported by strategies and tasks. Select *Gray Notebook* (GNB) articles, indicated by a box with a goal logo, show how the plan's goals are being implemented.

WSDOT continues to improve performance and accountability by implementing its 10 reforms. The reforms will put into action common-sense changes that foster efficient, effective and accountable government. See GNB 58, pp. 10-11 for information on WSDOT's reforms.

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 59, pp. 12-15 -Bridges: GNB 58, pp. 15-22 -Capital facilities: GNB 59, pp. 8-11 -Ferries preservation: GNB 58, pp. 23-28 -Highway maintenance: GNB 56, pp. 14-15 -Pavement conditions: GNB 56, pp. 5-13
Goal 2: MODAL INTEGRATION Optimize existing system capacity through better interconnectivity of all transportation modes	-Ferries: GNB 59, pp. 20-21 -Highway system safety: GNB 58, pp. 12-14 -Rail: Amtrak Cascades: GNB 59, pp. 22-23 -Trip reduction: GNB 51, pp. 16-18 -Trucks, goods and freight: GNB 58, pp. 41-44
Goal 3: ENVIRONMENTAL STEWARDSHIP Promote sustainable practices to reduce greenhouse gas emissions and protect natural habitat and water quality	-Air quality: GNB 53, pp. 15-16 -Endangered Species Act documentation: GNB 55, pp. 20-21 -Environmental compliance: GNB 56, pp. 24-25 -Fish passage barriers: GNB 58, pp. 37-38 -General permitting: GNB 58, p. 40 -Water quality: GNB 59, pp. 24-26 -Wetlands preservation: GNB 57, pp. 21-23
Goal 4: ORGANIZATIONAL STRENGTH Support a culture of multi-disciplinary teams, innovation and people development through training, continuous improvement and Lean efforts	-Lean: GNB 59, pp. 29-30 -Worker safety and health: GNB 57, p. 8 -Workforce levels and training: GNB 57, p. 30
Goal 5: COMMUNITY ENGAGEMENT Strengthen partnerships to increase credibility, drive priorities and inform decision making	-Bicyclist and pedestrian safety: GNB 56, pp. 1-4 -Local programs: GNB 58, p. 39
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 57, p. 25 -Tolling: GNB 56, pp. 30-31 -Travel information: GNB 57, p. 15

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

59 Asset Management: Capital Facilities Annual Report

Notable results

- *WSDOT completed 88% of the tasks recommended in its Preventive Maintenance Plan for its facilities, 17% above the goal*
- *Of WSDOT's 283 primary buildings, 39% are between 26 and 50 years old, and about one-third are 51 years or older*
- *WSDOT spent $3.5 million on emergency repairs in the 2013-2015 biennium, a 6% increase since the 2009-2011 biennium*
- *WSDOT's greenhouse gas emissions from building use and highway utilities decreased 3% between 2013 and 2014*

WSDOT making progress on facilities maintenance

WSDOT completed 88 percent of the preventive maintenance work recommended for the 2013-2015 biennium in its Preventive Maintenance Plan for facilities. This effort exceeded the target goal of 71 percent by 17 percent. The target is an average of the goals for funded work categories (see chart below).

Facing a growing facilities backlog, WSDOT incorporated the use of a new reference tool to help identify and prioritize maintenance funding for the 2015-2017 biennium. *The Whitestone Facility Operations Cost Reference 2014-2015,* a nationwide reference publication, identified a $13 million biennial funding gap between national average maintenance costs for comparable facilities and available funding for WSDOT facilities.

WSDOT completes 88 percent of recommended work in biennial Preventive Maintenance Plan
July 2013 through June 2015; Work units completed compared to goal[1]

Funded work categories[2]	Goal for units[3] completed	Actual completed	Goal met?	Work units completed
Life safety	95-100%	99%	Yes	3,090
Code compliance	95-100%	99%	Yes	1,654
Critical systems	75%	79%	Yes	5,117
Environmental compliance	75%	91%	Yes	1,334
Primary systems	51%	90%	Yes	3,076
Total/Average	**71%**	**88%**	**Yes**	**14,271**
Unfunded work categories				
Secondary systems			Unfunded	
Long-term cost effective measures			Unfunded	
Non-structural maintenance			Unfunded	
Appearance			Unfunded	

Data source: WSDOT Capital Facilities Office.
Notes: See *Gray Notebook* 47, p. 10, for activities included within each work category. 1 Goals are defined in the Preventive Maintenance Plan. 2 Categories are listed with the highest priority on top and the lowest on the bottom. 3 A work unit is an individual service request planned and/or generated (completed or not completed) by the Computerized Maintenance Management System.

WSDOT's preventive maintenance budget is $4.6 million for the 2015-2017 biennium. In addition, $3.9 million is budgeted for corrective (emergency) maintenance, for a total of $8.5 million for maintenance activities at nearly 1,000 buildings on approximately 300 sites.

Under the current maintenance model, only the most critical preventive maintenance activities are planned. The agency prioritizes preventive maintenance activities to ensure critical systems are operational, meet code compliance requirements and avoid emergency repairs as much as possible. WSDOT groups maintenance needs into nine priority categories. The table at the bottom left describes these categories and how work is prioritized for each of them.

Most WSDOT primary buildings are in fair or good condition

Because WSDOT assesses facility conditions biennially, conditions have not changed since they were last reported in *Gray Notebook* 55 for the quarter ending September 2014, when 58.5 percent of WSDOT's primary buildings were in fair or better condition and 41.5 percent were in poor condition. WSDOT will report on updated biennial facilities condition assessments in *Gray Notebook* 67.

WSDOT strives to keep buildings and systems operating smoothly to support its workforce as it delivers a wide range of services to the public. When a facility is in poor condition, systems have deficiencies

Most primary buildings are more than 25 years old

and may be beyond their useful life, which can lead to unexpected repairs and resulting costs.

Capital facilities biennial budget increases slightly to $51.5 million

WSDOT's current 2015-2017 biennial budget for capital facilities is $51.5 million, up from $50 million last biennium. This includes $27.1 million for operations (heating/cooling, lights and maintenance) and $24.4 million for capital investments. Of this amount, $20 million has been allocated from the Connecting Washington account to address two of the agency's highest priority facility replacement needs in the Olympic and North Central regions (see table below).

Repair and preservation for capital facilities, which is currently funded at $4.2 million for the 2015-2017 biennium, has historically been funded at $3 million to $5 million per biennium. To meet the highest priority replacement and preservation needs in the next 10 years, WSDOT needs an additional investment of $150 million to $200 million.

WSDOT budgets $51.5 million for capital facilities needs in the 2015-2017 biennium
As of September 2015; Dollars in millions

Category of expenditures	Funding
Operations (subcategories below)	**$27.1**
Utilities, rent and other operational activities	*$18.6*
Preventive (routine) maintenance	*$4.6*
Corrective (emergency) maintenance	*$3.9*
Capital investments (subcategories below)	**$24.4**
Olympic Region Maintenance and Administration Facility (Connecting Washington)	*$10.0*
North Central Region Euclid Ave. Administration Facility Consolidation Project (Connecting Washington)	*$10.0*
Construct new Traffic Management Center near Seattle	*$0.2*
Statewide repair and preservation	*$4.2*
Total	**$51.5**

Data source: WSDOT Capital Facilities Office.

WSDOT will spend a total of $40 million to replace the Olympic Region headquarters building (shown above), $10 million of which is funded from the Connecting Washington account for the 2015-2017 biennium.

WSDOT's Capital Facilities strategic plan identified a $475.5 million total backlog of unmet needs for the next 10 years for its facilities statewide. This includes $197.5 million for repairs and $278 million to replace aging facilities. Of this, $211 million would address the highest priority needs, including the Olympic Region Headquarters Replacement project. This project would replace buildings that do not adequately support the region's operations and have a repair backlog of $12.3 million.

Renovation backlog increases as primary facilities continue to age

More than two-thirds of WSDOT's 283 primary buildings (see definition on p. 11) are more than 25 years old. About 32 percent are more than 51 years old. In 2015, seven more primary buildings moved into the 26-50 year old category and six were added to the more than 51 years old category.

WSDOT needs to invest an estimated $165.5 million (which is included in the $475.5 million 10-year backlog and shows an increase of 1.3 percent from 2012) in its primary buildings to replace and upgrade systems that do not meet current operational needs. Issues range from roofs and heating, ventilation and air conditioning (HVAC) systems needing replacement, to insufficient crew facilities and material storage. Ongoing maintenance helps prolong the life of these systems but, just like the roof of a house,

About one-third of WSDOT's primary buildings are more than 51 years old
WSDOT primary buildings by age as of September 2015 compared to June 2010 and July 2014

	Number of buildings (%)		
Building age	**June 2010**	**July 2014**	**Sept 2015**
25 years or less	100 (35%)	90 (32%)	86 (30%)
26 - 50 years	108 (38%)	109 (38%)	109 (39%)
51 years or more	79 (27%)	85 (30%)	91 (32%)
Total	287	284	283

Data source: WSDOT Capital Facilities Office.
Note: The primary building backlog remains at $165.5 million until updates can be completed (January 2016). The Spokane Project Engineering Office was demolished in July 2015, reducing the overall primary building count to 283 from 284. In addition, seven facilities were re-allocated to 26-50 year old status from 25 or less, and six facilities were re-allocated to 51 years or older from 26-50 year old status.

Spending on emergency repairs increases 6 percent

at some point they will need to be repaired or replaced. Minor projects use up the repair and preservation budget quickly. Current funding typically allows for minor repair and preservation projects that cost less than $1 million; a list of the projects scheduled for the 2015-2017 biennium is given below. The total cost of minor repair and preservation projects planned in the biennium is $3.3 million. The minor repair and preservation projects listed in the table below account for almost $2.1 million, or 64 percent, of the total budget. The remaining $1.2 million is unobligated and will be allocated to emergent repairs.

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

Project description	Estimate
Projects addressing occupant safety and code compliance	**$372.0**
SW Region HQ building chiller replacement	$265.0
Ephrata wash pad	$75.0
Ephrata drywell and drainage improvements	$17.0
Colfax oil/water separator installation	$15.0
Projects addressing preservation	**$1,700.4**
Vancouver Main Street office roof replacement	$294.4
Spokane Street shop building roof replacement	$242.8
Eastern Region signals shop roof replacement	$175.0
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	$94.0
Spokane Real Estate Services modular roof replacement	$85.0
Everett Area Headquarters HVAC repairs	$80.0
Keller Ferry shop and restroom siding replacement	$78.0
Port Angeles Area HQ HVAC replacement	$65.0
Shuksan chimney repairs	$46.0
Walla Walla office/conference room HVAC replacement	$34.0
Ephrata office shop exterior window replacement	$33.0
Pasco overhead door replacement	$31.0
Chelan Shed roof replacement	$30.0
Bingen overhead door and opener replacement	$30.0
Kelso shop overhead door and opener replacement	$30.0
Ephrata equipment storage sliding door replacement	$27.0
SW Region HQ building elevator mechanical room HVAC	$24.0
Raymond Area 3 overhead door and opener replacement	$22.0
Euclid Avenue site connect to domestic water	$21.0
Total	**$2,072.4**

Data source: WSDOT Capital Facilities Office.
Note: Projects can also fall into categories for environmental compliance or 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. SW = Southwest; HQ = headquarters; HVAC = heating, ventilation and air conditioning.

WSDOT using new software to better capture facility condition and maintenance backlog
WSDOT is now assessing existing statewide building conditions using the Facility Inventory and Assessment Program software developed by Washington State University. The undertaking is a departure from previous assessment processes and incorporates more detailed building profiles and infrastructure analysis. The system uses the latest Web-based technology and allows for the evaluation of facilities in real time, on site and with a higher degree of accuracy. WSDOT is partnering with other state entities in incorporating this tool for maintenance backlog and facility replacement programming and project delivery. WSDOT anticipates changes to future reportable totals as a result.

WSDOT spends $3.5 million on emergency repairs

With aging facilities and constrained resources for preventive maintenance and replacement, the cost of emergency repairs (also referred to as corrective maintenance) grew 6 percent from $3.3 million in the 2009-2011 biennium to more than $3.5 million through the end of the 2013-2015 biennium. When an emergency repair is needed, like fixing leaking water lines or broken HVAC equipment, the agency uses funds from its corrective maintenance budget. WSDOT spent $3.5 million on emergency repairs in the 2013-2015 biennium, using 88 percent of the $4 million that was budgeted for emergency repairs.

WSDOT staff responded to 3,217 corrective (emergency) maintenance requests in the 2013-2015 biennium. This brings the total to more than 10,200 corrective maintenance requests since 2009. The corrective maintenance budget is typically exhausted before the end of the biennium.

When costs for corrective maintenance exceed the budget, it impacts the resources available to perform planned preventive maintenance. Due to limited funds, WSDOT must at times apply "quick fixes" to a failing system, instead of replacing major components or the entire system. For example, if a leaking water line needs to be replaced but work cannot be done due to funding constraints, WSDOT will patch the line until funding can be procured to replace the system.

WSDOT strives to become more energy efficient

Energy use for WSDOT buildings and street utilities decreases

WSDOT's greenhouse gas emissions from building use and highway utilities decreased 3 percent from 2013 levels, to 51,913 metric tons of carbon dioxide equivalents in 2014. It is difficult to pinpoint the source of a decrease this small, but the data indicates that WSDOT had reductions in natural gas, propane and electricity use.

WSDOT continues to implement small energy efficiency projects as part of an agency-wide effort to reduce emissions. Building emissions account for about 21 percent of all WSDOT emissions. WSDOT's efforts to improve the energy efficiency of buildings supports the Governor's Results Washington initiative in two goal areas. First, Goal 3 – Sustainable Energy and a Clean Environment includes a performance measure to improve the energy efficiency of commercial buildings in order to reduce greenhouse gas emissions to 1990 levels by 2020. In addition, Goal 5 – Efficient, Effective and Accountable Government includes measures to reduce the statewide energy use index of state facilities and reduce energy consumption in state-owned buildings.

WSDOT maintains 3.6 million square feet of space

As of September 2015, WSDOT managed 1,363 owned and leased buildings and structures, totaling about 3.6 million square feet of space. These facilities are strategically located to serve operational needs and to support WSDOT's workforce of about 6,500 permanent employees as well as seasonal employees. They contain unique building systems and components to serve WSDOT's diverse functional needs. WSDOT buildings are critical to the delivery of programs and services such as construction, maintenance and operation of highways and ferries, and are grouped into two categories:

- Facilities that house employees: 1.1 million square feet of office buildings for staff in regions, headquarters, project engineering and operations.
- Facilities essential to operate systems, ferries and highways: 2.5 million square feet of maintenance highways operations, tunnel and bridge operations, traffic facilities management centers, ferry terminals, materials and equipment storage and wireless communications.

WSDOT is required to report on 3.3 million square feet of the space it manages in its Facilities and Property Oversight Plan. In addition to the condition of capital facilities reported here, WSDOT reported the condition of safety rest areas in *Gray Notebook* 57, pp. 9-11 and ferry terminals in *Gray Notebook* 58, pp. 23-28.

WSDOT's 1,363 buildings cover 3.6 million square feet
As of September 2015; Owned and leased facilities by area and number

Type of facility	Square feet	%	Number	%
Maintenance and office facilities	3,112,559	87%	1,081	79%
Ferries Division	314,872	9%	121	9%
Tunnels, bridge operations	77,082	2%	18	1%
Safety rest areas	67,365	2%	133	10%
Other	21,937	1%	10	1%
Total	**3,593,815**		**1,363**	

Data source: WSDOT Computer Aided Facility Management System.
Note: Primary buildings are a subset of maintenance facilities, owned office space, pits, quarries and stockpiles. See below for more information on primary buildings. Percents may not add to 100 due to rounding.

Primary buildings house the majority of WSDOT employees

Primary buildings are a subset of all WSDOT-owned and leased buildings. They are typically larger than 2,000 square feet and consist of office or crew space supporting the majority of the agency's staff. They may also provide shop and storage space for vehicles, equipment and supplies. The capital facilities program primary buildings account for 28 percent of WSDOT-owned capital facilities by number (283 buildings) and 76 percent by square footage (2.3 million square feet).

Contributors include Steve Holloway, Zak Swannack and Alison Wallingford

59 Asset Management: Aviation Annual Report

Notable results

- *WSDOT received an additional $637,000 in aviation funding for the 2015-2017 biennium due to a reallocation in aircraft excise tax fees*
- *WSDOT leveraged nearly $1.3 million in state funds to secure $35.3 million in federal dollars to fund airport projects*
- *WSDOT conducted 32 (76%) of the 42 Airport Master Record inspections scheduled for 2015, with a goal of 100% in 2016*
- *WSDOT exceeded its 95% goal for aircraft registration compliance with 6,487 Washington-based aircraft for 2015*

Tax reallocation supports WSDOT aviation program

In 2015, Gov. Jay Inslee signed the Transportation Appropriations Bill, including language to reallocate 100 percent of the existing annual state aircraft excise tax fees to fund airport projects. Previously, 90 percent of aircraft tax funds were deposited into the State General Fund, with the remaining 10 percent funding aviation. An additional $637,000 in aviation funding will be available during the 2015-2017 biennium due to the reallocation.

Fees from the aircraft excise tax will now exclusively fund 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 will help keep airport facilities up-to-date and support safety measures.

Aviation tax reallocation has positive impact on jobs, future funding

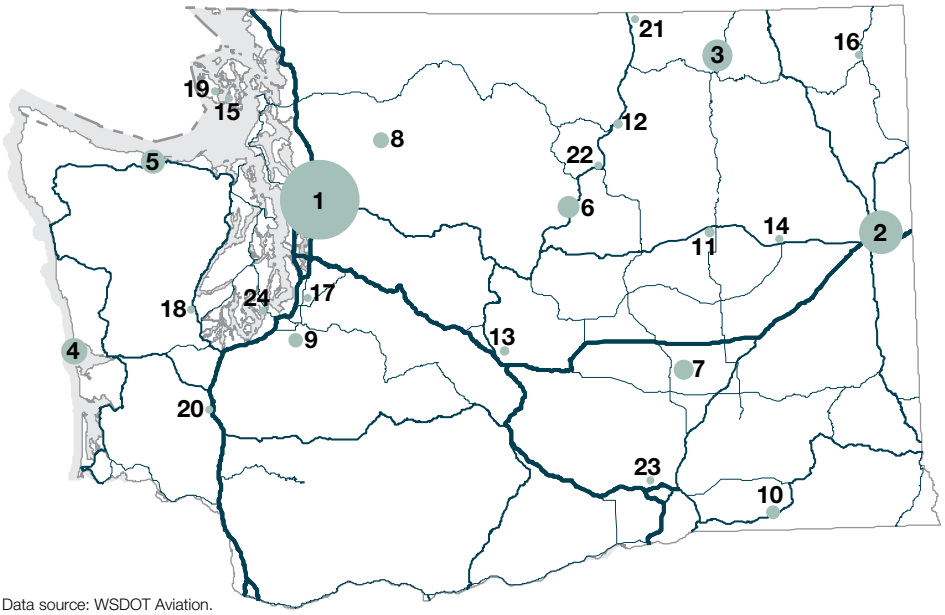
The reallocation of excise tax fees is anticipated to create about 64 jobs in the 2015-2017 biennium, as well as leverage $10.6 million or more in Federal Aviation Administration (FAA) funding. It will ultimately result in more than $13 million for airport preservation, safety and improvement projects when combined with local matching and federal grant funds.

WSDOT leverages state funds to secure federal airport aid

WSDOT leveraged nearly $1.3 million in state money to secure $35.3 million from federal sources, which will benefit

Aircraft excise tax reallocation provides additional $637,000 in funds during the 2015-2017 biennium for airports, with projects ranging from runway rehabilitation to wildlife hazard assessment

		State funds (in thousands)
1	Harvey Field	$131.6
2	Felts Field	$72.2
3	Merritt Field	$49.9
4	Ocean Shores Municipal Airport	$43.6
5	William R. Fairchild International	$40.1
6	Lake Chelan Airport	$36.3
7	Warden Airport	$33.3
8	Darrington Municipal Airport	$26.7
9	Thun Field	$24.0
10	Walla Walla Regional Airport	$23.0
11	Wilbur Municipal Airport	$16.7
12	Okanogan Legion Airport	$15.8
13	Bowers Field	$15.8
14	Davenport Municipal Airport	$13.6
15	Lopez Island Airport	$13.3
16	Ione Municipal Airport	$12.9
17	Auburn Municipal Airport	$12.2
18	Sanderson Field	$11.4
19	Friday Harbor Airport	$10.8
20	Chehalis-Centralia Airport	$10.7
21	Dorothy Scott Airport	$8.1
22	Anderson Field	$6.4
23	Richland Airport	$6.4
24	Tacoma Narrows Airport	$2.5
Total		**$637.0[1]**



Data source: WSDOT Aviation.

Notes: 1 Numbers may not add due to rounding. Symbols showing distribution of state funds are not directly proportional and are meant to be illustrative of relative amounts of funding.

WSDOT analyzes strategies for filling funding gap

42 projects at 31 airports in fiscal year (FY) 2016 (July 2015 through June 2016). WSDOT's leveraged dollars are part of $2.1 million in total state funds for the Airport Aid Grant Program. The state and federal funds, combined with $3.3 million in local matching contributions, amount to $40.7 million in total dollars for FY2016.

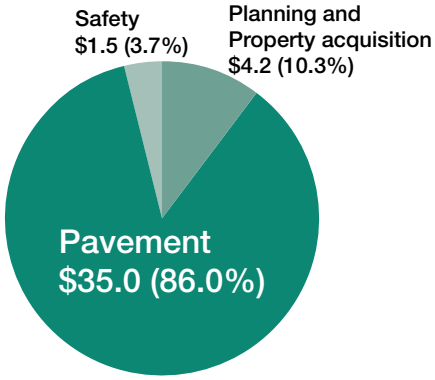
Combined aid dollars total $40.7 million for airports
Fiscal year 2016 Airport Aid Grant funding; Dollars in millions

Funding Source	Amount
Federal funds	$35.3
WSDOT funds	$2.1
Local (matching) funds[1]	$3.3
Total awarded	**$40.7**

Data source: WSDOT Aviation.
Note: 1 A minimum 5 percent local match is required by WSDOT.

In FY2016, 86 percent ($35.0 million) of the $40.7 million in federal, state and local aid investment dollars is slated for projects that preserve and improve airport pavement. Planning and property acquisition projects account for 10.3 percent ($4.2 million) of the combined grant dollars, with safety improvements accounting for the remaining 3.7 percent ($1.5 million). For more information about WSDOT's Airport Aid Grant Program, visit http://www.wsdot.wa.gov/aviation/Grants.

WSDOT slates majority of grant funds for airport pavement preservation projects
Fiscal year 2016 Airport Aid Grant funding; Dollars in millions



Data source: WSDOT Aviation.

WSDOT continues to exceed aircraft registration goals

WSDOT registered 6,487 aircraft as of September 30, 2015, surpassing its 2015 goal to register at least 95 percent, or 6,232, of the active aircraft from 2014. While WSDOT met its goal, this is 33 fewer aircraft than the same time last year.

Washington state law requires that all non-exempt airworthy general aviation aircraft be registered annually with WSDOT in January. Aircraft registration fees directly support WSDOT's airport preservation, maintenance and improvement programs.

Washington pilots can "fly in" to register their general aviation aircraft with WSDOT Aviation, located at the Olympia Regional Airport. Registration fees support WSDOT's airport preservation and improvement projects.

WSDOT releases handbook on airport investment needs

In July 2015, WSDOT released the Airport Investment Solutions Handbook to provide guidance for tackling an estimated $3.6 billion airport funding need in projects during the next 20 years. Washington state airports rely on state, local and federal grants for preservation and capital improvement projects. WSDOT would need to award $240 million in airport grants during the next 20 years to cover the state's share of the $3.6 billion.

The handbook identifies and analyzes strategies, both funded and non-funded, to address investment needs. The 10 primary possible solutions identified include:

- Grow public private partnerships
- Establish alternative taxing of airport operationally-oriented uses (for example, airport parking)
- Establish alternative economic development-based consumption tax
- Establish a state-sponsored revolving aviation infrastructure loan fund
- Realign current transportation revenue allocations
- Reallocate airport leasehold tax to the aeronautics account
- Increase select aviation tax rates
- Revise fuel excise tax exemptions
- Modify the state aircraft excise tax program (see p. 12)
- Develop a state airport Best Management Practices toolkit

WSDOT developing airport Best Management Practices toolkit

In response to one of the solutions proposed in the Airport Investment Solutions Handbook, WSDOT is

WSDOT prioritizes $454 million in airport projects

developing a Best Management Practices toolkit to assist state airports in managing land use, general safety and business planning. This toolkit, planned for publication in summer 2017, builds on input from a wide range of aviation organizations and will help standardize airport management strategies statewide.

Washington Aviation System Plan undergoes system-wide updates

WSDOT began updating the Washington Aviation System Plan (WASP) in April 2015. The airport system plan studies the performance and interaction of individual airports to determine how they contribute to the aviation system as a whole. WSDOT analyzes the aviation system to develop strategies that address aviation user requirements, current airport usage levels and capacity to meet current and future demand.

The WASP update, scheduled for completion in December 2016, will examine topics such as multimodal integration, and air cargo and its impact on Washington's aviation system and the economy. The update will also explore emerging issues such as unmanned aircraft, aviation fuels and the decline in general aviation.

New funding under aviation plan update supports WSDOT mapping efforts

WSDOT received approximately $550,000 in FAA funding for geospatial and aeronautical data collection at select airports. The funding will support a field survey, imagery acquisition and analyses of potential airspace obstructions in preparation for implementation of NextGen technology. NextGen technology refers to satellite-based air traffic management, which allows for more direct routes, reducing fuel consumption and delays.

Washington will be the first state in the nation to add a NextGen component to its aviation system plan. WSDOT anticipates field work to begin in fall 2015, with project completion in December 2016.

WSDOT partnerships promote aviation

WSDOT continues to partner with organizations around the state to support aviation investments, legislation and overall system planning. In 2015, WSDOT provided technical assistance to organizations such as the Washington Airport Management Association and the Washington Pilots Association to create the Washington State Aviation Alliance, which successfully advocated for the aircraft excise tax reallocation (see p. 12).

WSDOT is also working with partners in an effort to update airport system planning. These partners range from commercial and regional airports to aviation planning organizations and will provide WSDOT with a broad perspective. See section above for more information on the Washington Aviation System Plan update.

Capital improvement program prioritizes projects efficiently

In its fifth year, the Statewide Capital Improvement Program (SCIP) continues to increase predictability, consistency and efficiency among airport authorities, the FAA and WSDOT when prioritizing projects at the state's 134 public-use airports. WSDOT uses the improvement program to prioritize a five-year list of projects, which helps the state and FAA better target limited resources. The program also assists with the awarding of FAA and state grants.

WSDOT hosts joint planning conferences with the FAA, airport sponsors and airport consultants after projects are submitted. These conferences allow for open discussions about projects that help refine each airport's project list into a comprehensive, approved plan for each airport.

As a result of the improvement program efforts, WSDOT partnered with the FAA to change the project submission time frame to increase internal efficiencies by decreasing review time. From September 1 to October 31, 2015, WSDOT analyzed more than 500 airport projects totaling approximately $454 million.

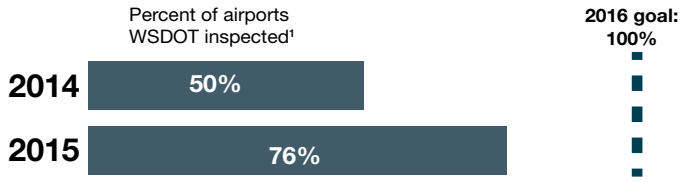
WSDOT more involved in Airport Master Record inspections

WSDOT conducted 32 (76 percent) of the 42 airport inspections scheduled in 2015. Consultant contractors performed the remaining 10 inspections. WSDOT continues to move toward its goal of conducting 100 percent of airport inspections in 2016. Physical and operational characteristics at 123 of the 134 public-use airports (excluding primary commercial airports like Seattle-Tacoma International) are inspected approximately every three years in order to update the Airport Master Record for the FAA.

WSDOT takes active role in emergency response efforts

The benefits of WSDOT's direct involvement in airport inspections include an enhanced understanding of Washington's overall aviation system condition and increased collaboration with airport managers.

WSDOT conducts more than three-quarters of airport inspections in 2015, nearing 2016 goal
2014 and 2015; Airport inspections for Airport Master Record



Data source: WSDOT Aviation.
Note: 1 Airports are inspected for the Airport Master Record review approximately every three years. The number of airports due for inspection fluctuates from year to year.

Five WSDOT-managed airports receive new layout plans

The Sullivan Lake, Bandera, Easton, Lake Wenatchee and Woodland airports are scheduled to receive draft Airport Layout Plans in 2015, followed with stakeholder outreach through 2016. These plans identify capital improvement projects that reflect WSDOT's goals for improving safety, sustainability, modal access, environmental protection and innovation. During the next year, four more WSDOT-managed airports – Skykomish, Tieton, Ranger Creek and Copalis Beach – are scheduled to receive layout plans from WSDOT.

WSDOT-managed airports active in fighting summer wildfires

In summer 2015, WSDOT-managed airports continued to serve as critical staging areas for statewide wildfire management efforts. In particular, Woodland State, Methow Valley, Lake Wenatchee, Skykomish and Sullivan Lake State airports dedicated resources and facilities in the effort to fight the seasonal fires. WSDOT-managed airports are expected to play a significant role in emergency staging operations in 2016 due to continuing warm winter forecasts.

Contributors include Tristan Atkins, Conrad Harvey, Robert Hodgman, Eric Johnson, John MacArthur, Nisha Marvel, Tracy Paul, Carter Timmerman, Paul Wolf, Tricia Hasan and Zoe Zadworny

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 FY2015, 41 percent of Airport Aid Grant funding went to safety projects. While WSDOT does not track passenger safety, WSDOT assists the National Transportation Safety Board (NTSB) after aviation accidents, providing information to help NTSB investigations.

General aviation¹ fatalities in Washington state show little change during five-year period
2010 through 2014; General aviation passenger boardings and fatalities only

	2010	2011	2012	2013	2014
Total boardings	53,766	60,952	37,380	10,062	46,944
Total fatalities (percent)	*10 (0.02%)*	*8 (0.01%)*	*8 (0.02%)*	*1 (0.01%)*	*10 (0.02%)*

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

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 http://www.wsdot.wa.gov/aviation/SAR/.

WSDOT prepares for Federal Emergency Management Agency disaster response exercise

In June 2015, WSDOT participated in the Evergreen Tremor exercise, which tested catastrophic disaster response procedures and policies with a focus on emergency communications systems. WSDOT used the exercise to identify additional communications needs, such as emergency generators, increased bandwidth and dedicated land line phones, which are critical in coordinating statewide aviation efforts during an emergency.

In 2016, WSDOT will be participating in Cascadia Rising, a Federal Emergency Management Agency disaster response exercise. WSDOT will be coordinating with the Washington State Military Department and Office of Emergency Management, as well as Idaho, Oregon and British Columbia. Cascadia Rising also involves national agencies such as the Department of Defense's US Northern Command, USDOT and the FAA. This exercise will emphasize aviation emergency preparedness and collaboration at a state, national and international level.

59 2015 *Corridor Capacity Report* Executive Summary

Notable results

- ***Statewide congestion increased 4.6% between 2012 and 2014, mirroring the growth in the state's economy***
- ***Transit ridership on urban commute corridors during daily peak periods increased 7.8%, from 104,970 in 2012 to 113,200 in 2014***
- ***WSDOT Ferries annual ridership increased 4%, up from 22.2 million in 2012 to 23.2 million in 2014***
- ***Amtrak Cascades annual passenger miles traveled increased by 8.3%, from 103.1 million miles in 2012 to 111.7 million miles in 2014***

Congestion on the rise in Washington since 2009

Although statewide traffic congestion (vehicle hours of delay) has been on an upward trajectory for the past five years, 2014 annual congestion (32.3 million hours) remained 8 percent below the 2007 pre-recession levels (35.1 million hours). The central Puget Sound region did not follow this 2014 trend and congestion there was 19 percent higher than pre-recession levels.

- Of the five monitored freeway corridors in the central Puget Sound region, three — Interstate (I-5), I-405, I-90 — saw congestion increases. Tolling and carpooling reduced congestion on State Route (SR) 520 and SR 167 by 71 percent and 24 percent, respectively, in 2014 compared to 2007. (For more information, see table and charts on p. 4 of the *Corridor Capacity Report* appendix).

Vehicle hours of delay increased 4.6 percent between 2012 and 2014, mirroring the growth in the state's economy. This delay on state highways cost drivers and businesses $808 million in 2014 compared to $773 million in 2012, about $116 per Washingtonian in 2014 compared to $113 in 2012.

- This amount of delay was influenced by Washington having more drivers on the road. Passenger vehicle registrations increased 6.9 percent while licensed drivers increased 7.6 percent between 2012 and 2014.
- More drivers in 2014 contributed to a 2.6 percent increase in the number of vehicle miles traveled on all public roadways, up from 56.607 billion in 2012 to a new high of 58.060 billion miles.

Travel times are lower and person throughput is higher in High Occupancy Vehicle (HOV) lanes as opposed to general purpose lanes (refer to pp. 27-29 of appendix). For example, the HOV lane on I-5 at Northgate had travel times up to 11 minutes more reliable and moved three times as many people as the adjacent general purpose lane in 2014.

New this year: Interactive maps help visualize data

New to this year's report, readers can explore each corridor's performance data within interactive online maps. For an overview of Washington state's transportation capacity, visit bit.ly/CCR15statewidemap. From there, readers can navigate to specific corridors to delve into areas of interest.

WSDOT Incident Response teams responded to 8.1 percent more incidents (48,691 total) in 2014 than in 2012.

- Proactive work by Incident Response teams resulted in $74.1 million in economic benefit in 2014, a 4.9 percent increase from 2012.

Urban transit

Transit ridership on urban commute corridors during daily peak periods increased 7.8 percent, from 104,970 in 2012 to 113,200 in 2014.

- The number of miles passengers traveled using transit during daily peak periods increased 10.4 percent statewide, from 1.3 million miles in 2012 to 1.5 million miles in 2014. Transit on I-5 between Federal Way and Everett moved 56,331 people during peak periods on average weekdays. Without transit it would require five additional general purpose lanes to meet the capacity demand on this stretch of I-5.

Ferries and Amtrak Cascades

- WSDOT Ferries capacity utilization increased by two percentage points, from 59 percent in 2012 to 61 percent in 2014.
- Amtrak Cascades annual on-time performance fell by 2.1 percentage points, from 72.1 percent in 2012 to 70 percent in 2014.

2015 Corridor Capacity Report Summary excerpt

Dashboard of Indicators

2015 *Corridor Capacity Report* Dashboard of Indicators	2010	2011	2012	2013	2014	Difference '12 vs. '14[12]
Demographic and economic indicators						
State population (in thousands)	6,725	6,768	6,818	6,882	6,968	2.2%
Gasoline price per gallon (annual average)[1]	$3.27	$3.92	$3.95	$3.70	$3.56	-10.0%
Washington total employment (in thousands of workers)[2]	2,839	2,876	2,924	2,993	3,076	5.2%
Taxable retail sales (in billions of dollars)[1]	$109.4	$109.2	$112.4	$119.1	$124.8	11.0%
Multimodal performance measures						
Drive alone commuting rate[3]	73.0%	73.3%	72.2%	72.7%	72.4%	0.2%
Carpool commuting rate[3]	10.5%	10.2%	10.7%	10.1%	10.1%	-0.6%
Bicycling and walking commuting rate[3]	4.4%	4.2%	4.5%	4.3%	4.5%	0.0%
Public transit commuting rate[3]	5.5%	5.6%	5.8%	6.3%	6.3%	0.5%
Transit ridership[4] (in millions)	189.8	195.1	218.1	221.2	N/A	N/A
WSDOT Ferries ridership[4] (in millions)	22.6	22.3	22.2	22.5	23.2	4.5%
Amtrak Cascades ridership[5] (in thousands)	737	742	725	694	700	-3.4%
Statewide congestion indicators						
Greenhouse gas emissions						
Million metric tons of carbon dioxide equivalents (CO_2e)[6]	96.4	92.1	92.0	N/A	N/A	N/A
Transportation as percent of emissions from all sources statewide[6]	43.8%	45.5%	46.2%	N/A	N/A	N/A
Per person, total vehicle miles traveled on all public roads, state highways only						
All public roads vehicle miles traveled (VMT) (in billions)	57.191	56.965	56.607	57.211	58.060	2.6%
All public roads per person VMT (miles)	8,505	8,417	8,303	8,313	8,332	0.4%
State highways VMT (in billions)	31.764	31.455	31.214	31.649	32.177	3.1%
State highways per person VMT (miles)	4,724	4,648	4,578	4,599	4,618	0.9%
Congestion on state highway system						
Total state highway lane miles	18,630	18,642	18,659	18,662	18,680	0.1%
Percent of state highway system congested[7]	5.5%	5.4%	5.5%	5.5%	5.8%	0.3%
Per person, total, and cost of delay on state highways						
Annual hours of per person delay on state highways[8]	4.71	4.80	4.68	4.70	4.70	0.5%
Total vehicle hours of delay (in millions of hours)[8]	31.6	32.0	30.9	32.5	32.3	4.6%
Cost of delay on state highways (in millions)[8]	$791	$799	$773	$811	$808	4.6%
Results Washington system performance measures						
Throughput productivity[9]	96.1%	96.0%	95.7%	95.2%	94.6%	-1.1%
Reliability index[9]	1.15	1.15	1.17	1.19	1.24	6.6%
Corridor-specific congestion indicators (84 commutes statewide)						
Annual Maximum Throughput Travel Time Index (MT^3I)[10]	1.39	1.38	1.29	1.43	1.37	6.4%
Number of commute routes with $MT^3I > 1$[11]	47	60	59	56	62	5.1%
WSDOT congestion relief projects (cumulative)						
Number of completed Nickel and Transportation Partnership Account Program mobility projects as of December 31 each year	73	82	91	94	98	7
Project value (in millions of dollars)	$2,596	$2,802	$3,851	$3,985	$4,287	$436

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: 1 These dollar values are inflation-adjusted using the Consumer Price Index, and are reported in 2014 dollars. 2 Employment only includes non-agricultural workers. 3 Based on 1-year estimates from the American Community Survey, commuting rates are of workers age 16 and older. 4 Ridership is the number of boardings, also called unlinked passenger trips. 5 These figures include riders on Washington segments only. 6 Values for 2013 and 2014 will be published by the Washington Department of Ecology in December 2016. See pp. 9, 13, 17, 21, 25, 31, 35, 37 and 39 of the 2015 CCR for corridor-specific greenhouse gas emissions data. 7 Based on below 70 percent of posted speed. 8 Based on maximum throughput speed threshold (85 percent of posted speed). 9 See pp. 45-46 of the 2015 CCR for descriptions of these measures. 10 Averaged for the 52 commute routes in the central Puget Sound region. 11 MT^3I greater than one means the commute route experiences congestion. 12 Due to rounding, some percentages are not computable based on numbers in the table.

59 Incident Response Quarterly Update

Notable results

- *WSDOT teams helped clear 13,706 incidents during this quarter, providing an estimated $22.0 million in economic benefits*
- *Teams cleared incident scenes in an average of 12 minutes and 50 seconds, reducing traffic delays and risk of secondary crashes*

Incident Response teams help at 13,706 incidents

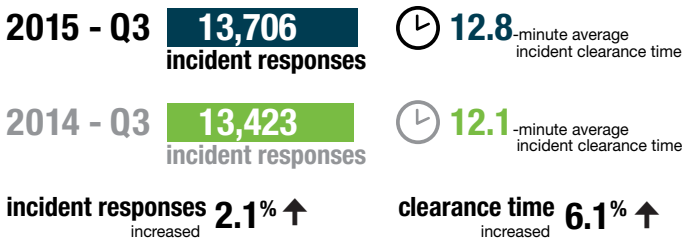
WSDOT's Incident Response (IR) teams assisted at 13,706 incidents during the third quarter (July through September) of 2015. This averages to a WSDOT team responding to an incident scene roughly every nine minutes during the quarter. There were 283 more incidents — about a 2 percent increase — during the third quarter of 2015 than during the same period in 2014.

WSDOT teams cleared incidents in an average of 12 minutes and 50 seconds. This is 44 seconds slower than the average incident clearance time for the same quarter last year. The proportion of incidents which blocked at least one lane is 22 percent this quarter compared to 24 percent last year, and there was a 38 percent increase in incidents lasting more than 90 minutes.

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 are incidents that happen in congestion resulting from another 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. 19.

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 percent 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 sees more incident responses compared to last year; clearance times increase
Third quarter (July through September) 2014 and 2015



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 2015) are considered preliminary. In the previous quarter (Q2 2015), WSDOT responded to 12,552 incidents, clearing them in an average of 12.3 minutes. These numbers have been confirmed and are now finalized.

WSDOT's assistance at incident scenes provided an estimated $22 million in economic benefits during the third quarter of 2015 by reducing the impacts of incidents on drivers. These benefits are provided in two ways. First, by clearing incidents quickly, WSDOT reduces the time and fuel motorists waste in incident-induced traffic delay. About $12.4 million of IR's economic benefits for the quarter is from reduced traffic delay. Second, by proactively managing traffic at incident scenes, WSDOT helps prevent secondary incidents.

About $9.6 million of IR's economic benefit results from preventing an estimated 2,615 secondary incidents and resulting delay. This figure is based on Federal Highway Administration data that there are 20 percent more secondary incidents on the system due to primary incidents. Based on WSDOT's budget for IR (see box at left), every $1 spent on the program this quarter provided drivers roughly $20 in economic benefit.

Number of six-plus-hour incidents decreases

WSDOT's Incident Response prevents $22 million in traffic delays and secondary incidents
July through September 2015; 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.	10,538	15.4%	4.3	3.9	4.9	$13.2	$6.1
Between 15 and 90 min.	2,985	43.2%	26.3	24.6	30.6	$25.9	$11.4
Over 90 min.	183	74.3%	151.9	148.8	171.8	$10.6	$4.4
Total	**13,706**	**22.3%**	**20.9**	**19.5**	**12.8**	**$49.7**	**$22.0**
Percent change from third quarter 2014	↑ 2%	↓ 2%	↑ 11%	↑ 1%	↑ 7%	↓ 19%	↓ 20%

Data source: Washington Incident Tracking System.
Notes: Some numbers do not add up due to rounding. 1 Teams were unable to locate 631 of the 13,706 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*, pp. 40-42, for WSDOT's methods to calculate IR benefits.

WSDOT teams' proactive work reduces incident-related delay

Incident-induced traffic delay on state highways cost motorists an estimated $49.7 million in wasted time and fuel during the third quarter of 2015. This is about $4.4 million more than in the same quarter of 2014. Without WSDOT's assistance, this economic impact would have been roughly $71.7 million ($22 million in prevented delay and secondary incidents plus $49.7 million in actual delay).

For more information on how WSDOT calculates these figures and all IR performance metrics see *WSDOT's Handbook for Corridor Capacity Evaluation*, pp. 40-42.

WSDOT teams respond to 183 over-90-minute incidents

WSDOT Incident Response units provided assistance at the scene of 183 incidents that lasted more than 90 minutes during the third quarter of 2015. This is 50 more incidents — roughly 38 percent — than the same quarter in 2014. While these over-90-minute incidents accounted for 1.3 percent of all incidents, they resulted in 21.3 percent of all incident-related delay costs.

Nine of the 183 over-90-minute incidents took six hours or more to clear (referred to as extraordinary incidents). This is two fewer extraordinary incidents than the same quarter in 2014. The nine extraordinary incidents took an average of seven hours and 51 minutes to clear, accounting for about 3 percent of all incident-induced delay costs for the quarter.

The average clearance time for all over-90-minute incidents was about two hours and 51 minutes. This is about 23 minutes faster than the same quarter in 2014. Excluding the nine extraordinary incidents, WSDOT's average clearance time for over-90-minute incidents would have been two hours and 36 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 and Sreenath Gangula

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 2015:

- Leonard was a huge help, not only did he guide us to safety off the highway but was extremely knowledgable and helped fixed our overheating engine and supplied water as some emergency coolant!
- Heather did an outstanding job of helping me move to a safe location to replace a blown tire.
- Glen was so nice and helpful. I worried for his safety as he put gas in my car. Learned gas gauge is not accurate.

59 WSDOT Ferries Quarterly Update

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

Notable results

- ***Ferries ridership was about 7.3 million in the first quarter of fiscal year (FY) 2016, 1.6% more than the first quarter of FY2015***
- ***Ferries farebox revenues were $58 million, an all time high for the first fiscal quarter (July through September)***

Ferries has its highest ridership quarter in years

WSDOT Ferries (Ferries) ridership was approximately 7.3 million during the first quarter of fiscal year (FY) 2016 (July through September 2015). This was 12,800 (0.2 percent) fewer people than Ferries had projected for the quarter but 113,400 (1.5 percent) more than the first quarter in FY2015.

Compared to the same quarter in previous fiscal years (July 1 through June 30), the quarter's ridership was the highest since 2006. This is the eleventh quarter in a row that ridership has increased when compared to similar quarters in the prior year. The addition of the Motor/Vessel (M/V) *Tokitae* and M/V *Samish* have provided a small increase in overall capacity.

Ferries farebox revenues hit all time high for summer quarter

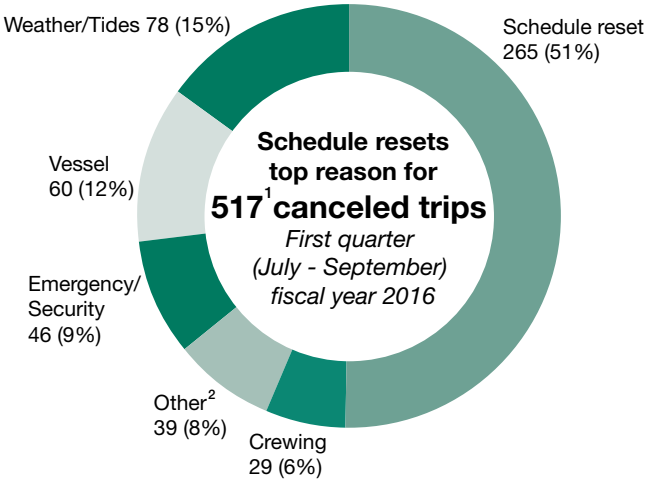
Ferries farebox revenues followed ridership numbers and continued their upward trend, coming in at about $58 million for the first quarter of FY2016, the highest yet for the summer quarter (July through September).

Farebox revenues were $890,000 (1.6 percent) more than the first quarter of FY2015, and $506,000 (0.9 percent) more than revenue projections based on the state's June 2015 economic and population growth forecasts.

Ferries makes 99.4 percent of trips, exceeds annual reliability goal

There were 42,819 regularly scheduled trips during the first quarter of FY2016. Ferries made 99.4 percent (42,571) of them, exceeding its annual reliability performance goal of 99 percent (see table on p. 21).

In the first quarter of FY2016, Ferries canceled 517 trips and was able to replace 269 of them, resulting in 248 net missed trips. This was 64 fewer net trips missed compared to the first quarter of FY2015.



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 269 of the 517 canceled trips, for a total of 248 net missed trips. 2 "Other" includes events like disabled vehicles, issues at terminals, environmental reasons or non-ferries related incidents that can impact operations.

Schedule resets were the primary reason for cancellations during the quarter, totaling 265 (51.3 percent). These all occurred over a three-day period in July when the M/V *Puyallup* was removed from service due to mechanical problems, requiring multiple boat moves to meet service needs. During those three days, the Fauntleroy/Vashon/Southworth route was on a two-boat schedule, which canceled all scheduled trips and replaced them with a two-boat schedule. This typically creates a large number of cancellations and replacement trips, but a small number of net missed trips on the route. Weather and tides were the next highest reason, with 78 (15.1 percent) of the total cancellations. Cancellations due to vessel mechanical systems were third with 60 (11.6 percent), and were spread across 10 vessels with the M/V *Elwha* (drive motor problems) and the M/V *Kennewick* (propeller issues and power loss) each having 15 cancellations.

First quarter on-time performance improves slightly

Ferries on-time performance increases during the quarter

On-time performance for WSDOT Ferries was 0.6 percentage points higher than the same quarter in FY2015, increasing from 90.5 percent to 91.1 percent for the first quarter of FY2016. The quarterly rate is below Ferries' annual on-time performance goal of 95 percent. This is typical for the busy summer season, with heavy traffic causing late departures.

At the same time, Ferries carried approximately 47,400 (1.6 percent) more vehicles in the first quarter of FY2016 compared to the same quarter one year prior. This was aided by Ferries bringing the M/V *Samish* into service last quarter and adding capacity to the San Juan Domestic route. On average, 41 out of 463 daily trips did not leave the terminal within 10 minutes of the scheduled departure time in the first quarter of FY2016, a decrease from the average of 44 daily trips that were late during this period last year.

Ferries experienced increases in on-time performance on six of the nine routes. The international route's on-time performance of 93.6 percent (up from 85.2 percent in FY2015) was its highest for a summer quarter in at least 15 years and was the result of fewer delays due to heavy traffic, customs and weather. The Seattle – Bremerton route at 95.4 percent saw the largest decrease in on-time performance and was 1.3 percent below the same quarter last year. Reduced vessel capacity on the route for most of the quarter impacted vehicle staging. Seawall and viaduct construction in Seattle also impacted the route.

Overall rider complaints decrease due to improved general service

Ferries received a total of 450 complaints and 41 compliments from the 7.3 million riders it served during the first quarter of FY2016. This was a decrease from the 580 complaints and a decrease from the 62 compliments from the same quarter in FY2015. The largest decrease in complaints was in the general service category, which decreased from 81 to 39 compared to the same quarter in FY2015.

Reservations system complaints were the largest increase with 80 this quarter compared to only 26 in the same quarter of FY2015. A new reservation system introduced in the San Juans in January 2015 caused the increase, but increased customer familiarity with the new system is lowering these complaints compared to recent quarters.

Contributors include Matt Hanbey, Kynan Patterson and Joe Irwin

Ferries' on-time performance and trip reliability increase slightly for the first quarter of fiscal year 2016
July through September FY2015 and FY2016; Annual on time goal = 95 percent; Annual reliability goal = 99 percent

	On-time performance (first quarter)				Trip reliability (first quarter)			
Route	**FY2015**	**FY2016**	**Status**	**Trend**	**FY2015[1]**	**FY2016**	**Status[1]**	**Trend[1]**
San Juan Domestic	86.2%	86.7%	+0.5%	↑	99.7%	99.8%	+0.1%	↑
Anacortes/Friday Harbor – Sidney, B.C.	85.2%	93.6%	+8.4%	↑	96.6%	100.0%	+3.4%	↑
Edmonds – Kingston	96.5%	97.4%	+0.9%	↑	99.1%	99.8%	+0.7%	↑
Fauntleroy – Vashon – Southworth	85.3%	87.3%	+2.0%	↑	99.0%	99.1%	+0.1%	↑
Port Townsend – Coupeville	93.9%	94.3%	+0.4%	↑	97.4%	96.2%	-1.2%	↓
Mukilteo – Clinton	92.7%	92.8%	+0.1%	↑	99.4%	99.9%	+0.5%	↑
Point Defiance – Tahlequah	99.3%	99.3%	0.0%	↔	100.0%	99.8%	-0.2%	↓
Seattle – Bainbridge Island	88.1%	87.1%	-1.0%	↓	99.5%	99.9%	+0.4%	↑
Seattle – Bremerton	96.7%	95.4%	-1.3%	↓	99.9%	100.0%	+0.1%	↑
Total system	**90.5%**	**91.1%**	**+0.6%**	↑	**99.3%**	**99.4%**	**+0.1%**	↑

Data source: WSDOT Ferries.
Notes: FY = fiscal year (July 1 through June 30). 1 Trip reliability data from FY2015 above does not match some of what was reported in *Gray Notebook* 55 due to changes in data. As a result, the status and trend between FY2015 and FY2016 may be affected in this edition. 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.

59 Rail: Amtrak Cascades Quarterly Update

The online version of this article has an interactive map with more route information; visit bit.ly/GNBrailmap.

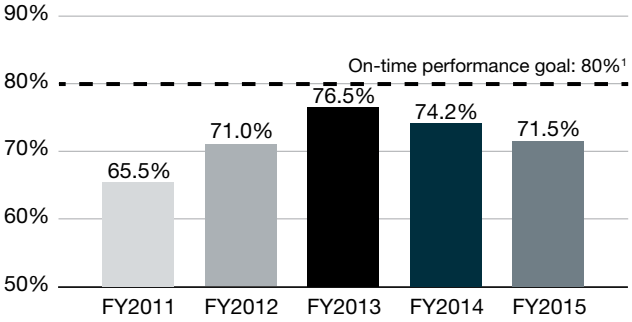
Notable results

- *Average on-time performance for fiscal year 2015 was 71.5%, a 2.7% decrease from fiscal year 2014*
- *WSDOT finishes tenth federally funded high-speed rail project, reaching the halfway point of the capital improvement program*

On-time train performance declines in fiscal year 2015

An average of 71.5 percent of Amtrak Cascades trains were on time in fiscal year (FY) 2015 (July 2014 through June 2015), a 2.7 percent reduction from FY2014. Factors that affected FY2015 on-time performance included construction on the rail system, landslides in the northern corridor during the rainy months of November through February and congestion caused by seasonal freight train volume fluctuations, such as grain movements.

Construction, weather affect train performance
Percent of trains on time; Fiscal years 2011 through 2015



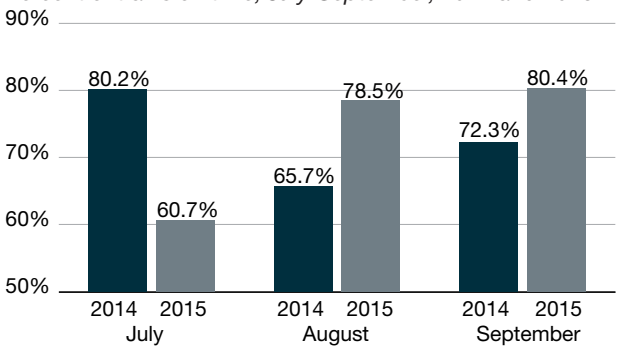
Data source: WSDOT Rail Division.
Notes: See definition of "on time" in *Gray Notebook* 55, p. 13. Data is for Washington-sponsored trains only. 1 The goal for on-time performance will become 88 percent in 2017 once the 20 capital projects are complete (see p. 23).

Weather-related delays affect summer on-time performance

Summer 2015 was an anomaly for Amtrak Cascades on-time performance. Washington's record-setting temperatures resulted in more weather-related delays than normal on the rails.

The cumulative effect of the delays for Washington-sponsored trains was a 19.5 percent decrease, from 80.2 percent on-time performance in July 2014 to 60.7 percent in July 2015. However, the percent of trains on time improved year-over-year in August and September — with a 12.8 percent increase in

Summer trains delayed by heat, flash floods, high winds
Percent of trains on time; July-September, 2014 and 2015



Data source: WSDOT Rail Division.
Note: Data is for Washington-sponsored trains only.

August (from 65.7 percent in 2014 to 78.5 percent on time in 2015) and an 8.1 percent increase in September (from 72.3 percent in 2014 to 80.4 percent on time in 2015). Over the entire July-September quarter, average on-time performance was 73.2 percent in 2015, compared to 72.7 percent in 2014.

Heat restrictions accounted for significant delays as temperatures soared and tracks warmed up. When conditions reached a point that the temperature (90 degrees and above) combined with train friction might have led to bent or kinked tracks, the host railroad issued slow down orders for both passenger and freight trains. In July alone there were 133 Amtrak Cascades heat-related delays in the corridor between Seattle and Portland, with 16 on the same segment in August.

In addition to heat-related delays, summer 2015 saw seven flash flood-related delays and 21 delays related to high winds and landslides. In the same quarter last year, there were nine weather-related delays. Weather-related delays create a domino effect within the corridor, as resulting train congestion disrupts subsequent train schedules after restrictions are lifted.

Passenger, freight trains share tracks

Scheduling freight and passenger trains on the same tracks is a complex undertaking that attempts

Rail capital projects achieve major completion milestone

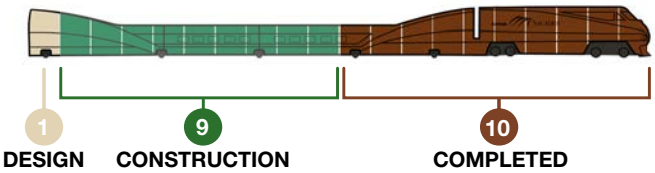
to optimize throughput, maintain safety and meet capacity demands. All tracks currently used by Amtrak Cascades in Washington are owned and operated by BNSF, which controls all train traffic from its network operations center in Fort Worth, Texas.

Amtrak Cascades trains are therefore subject to potential delays that might be completely out of their control, particularly when congestion builds up and too many trains are competing for the same rail space. Freight train interference accounts for the highest number of delays — 4,131 occurrences in FY2015 alone — for the Amtrak Cascades system.

Many of the capital improvement projects WSDOT is currently delivering (see lower right gray box) are focused on reducing congestion in the Amtrak Cascades corridor, with the goal of reaching 88 percent on-time performance when projects are completed in 2017.

WSDOT completes three more capital improvement projects

In September 2015, WSDOT reached the halfway point in its capital campaign with the completion of its tenth high-speed rail project. The nearly $800 million in high-speed rail work is spread over 20 projects throughout the 300-mile Washington Amtrak Cascades corridor. This requires planning and coordination with several partners such as BNSF Railway, Amtrak, Sound Transit and numerous local jurisdictions. Track project progress with the interactive map (updated quarterly at bit.ly/GNBrailmap) or with the graphic below (updated regularly online at bit.ly/railprojectprogress).



Three projects — Advanced Wayside Signal, Mount Vernon Siding Extension, and Blaine-Swift Customs Facility — were declared operationally complete during the quarter (July through September 2015), bringing the total to 10 and marking the program's halfway point. All projects are scheduled to be complete in 2017.

The ***Advanced Wayside Signal*** project improved signal system components at all control points, sidings and turnouts between the Canadian border and Vancouver, Washington. In addition to enhancing safety, trains can now travel the corridor with fewer delays caused by signal failures. The work was operationally complete in August, with close-out work to continue through December 2015.

The ***Mount Vernon Siding Extension*** project, completed in September, created a new turnout that allows slower freight trains to pull off the main line track, allowing faster passenger trains to pass. The extension provides capacity for longer freight trains that now commonly operate on the main line.

The ***Blaine-Swift Customs Facility*** project, completed in September, also reduces freight train interference and improves reliability of the Amtrak Cascades passenger service. To allow freight trains to clear customs inspections without blocking passenger trains on the main line, WSDOT constructed a new 9,000-foot main track and converted the previous main track into a second siding track.

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

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

As of September 30, 2015, WSDOT had 10 projects completed, nine passenger rail projects in construction and one in the design phase. The final project in the design phase, King Street Station Track Upgrades, will start construction in early 2016. Work includes purchasing new locomotives, adding tracks to handle increased train traffic and upgrading tracks, signals and stations. More than 96 percent ($767 million) of federal funding for these projects is from the American Recovery and Reinvestment Act of 2009.

The program is scheduled to be complete in 2017, when passengers are expected to benefit from two additional daily round trips between Seattle and Portland, Oregon with an anticipated travel time reduction of 10 minutes. In addition, WSDOT, Amtrak and BNSF are committed to having an average of 88 percent of trains traveling from Portland to Seattle and Seattle to Vancouver, B.C., on time.

59 Water Quality Annual Report

Notable results

- *WSDOT built 130 stormwater treatment and flow control facilities in fiscal year (FY) 2015 to help prevent adverse water quality effects from stormwater runoff*
- *WSDOT inspected 97% of its 1,579 stormwater management facilities in FY2015*
- *After inspection, less than 1% of WSDOT's stormwater management facilities required repairs costing more than $25,000 in FY2015*
- *95% of WSDOT's construction site stormwater samples met water clarity benchmark criteria in FY2015*

WSDOT built 130 facilities to manage stormwater

WSDOT built 130 stormwater treatment and flow control facilities during fiscal year (FY) 2015 (July 2014 through June 2015) to help prevent adverse effects to rivers, lakes and other water bodies. Of the 130 facilities, WSDOT built 109 in urban areas of the state which are covered by the agency's municipal stormwater permit. WSDOT constructed these stormwater management facilities as a part of transportation projects.

For example, when WSDOT adds new lanes to a highway it might also be required to add a stormwater facility like a biofiltration swale, which is a vegetated ditch engineered to help remove pollutants from stormwater before it flows into a river, lake or other water body. The number of new stormwater management facilities WSDOT builds in a year is directly related to the number of transportation projects being completed.

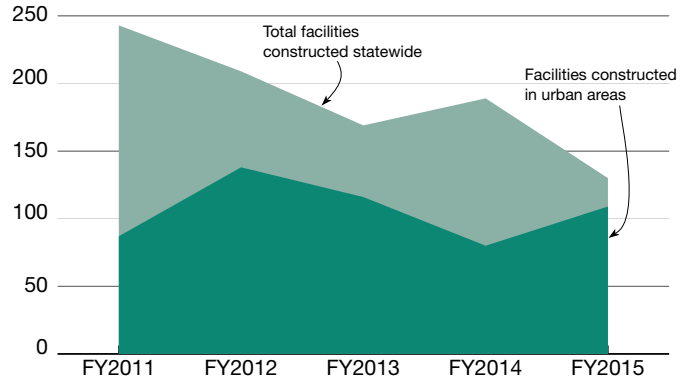
WSDOT exceeds annual goal for stormwater facilities inspection

WSDOT completed inspections on 97 percent of its existing 1,579 stormwater management facilities in FY2015. The 1,804 stormwater management facilities

A WSDOT crew member works on mapping stormwater conveyance systems along State Route 3 near Shelton.

Number of new stormwater treatment facilities constructed continues five-year decline statewide

Fiscal years (July through June) 2011-2015; Number of facilities constructed statewide and in urban areas covered by the municipal stormwater permit



Data source: WSDOT Environmental Services Office.

reported in *Gray Notebook* (GNB) 55 included some facilities that have been removed from WSDOT's inventory for various reasons including city ownership, duplication in the inventory or the determination that the facility was not designed for stormwater management.

The municipal stormwater permit requires WSDOT to inspect 95 percent of stormwater management facilities annually to identify deficiencies that might limit their effectiveness. The permit also requires WSDOT to correct typical deficiencies that may include weed control and debris removal within one year. WSDOT must correct non-typical deficiencies costing less than $25,000 within two years. Correcting non-typical deficiencies may include major vegetation removal or structural repairs.

In FY2015, WSDOT performed all typical maintenance on stormwater management facilities within the one-year time frame and all non-typical maintenance costing less than $25,000 within the two-year time frame. Non-typical

WSDOT on track to complete maintenance on time

These photos show the result of maintenance work involving vegetation removal near Vancouver. Substantial vegetation growth, sediment deposited from runoff or debris like trash can clog or otherwise reduce the effectiveness of stormwater facilities. Regular maintenance helps sustain facility performance.

repairs costing more than $25,000 must be prioritized and corrected as funding becomes available. Less than 1 percent (18) of WSDOT's stormwater management facilities required repairs costing more than $25,000 in FY2015.

In GNB 55, WSDOT reported 367 stormwater management facilities (also called Best Management Practices) that were missing design documentation which made it difficult to determine maintenance needs. WSDOT must complete maintenance work on these facilities by December 31, 2016, to remain in compliance with the permit. Of the 367 facilities, 226 were removed from WSDOT's inventory (for similar reasons described previously). WSDOT located or completed documentation for the remaining 141 facilities. The agency has completed maintenance on 30 of the facilities and identified four which need non-typical maintenance exceeding $25,000. WSDOT is on track to complete maintenance on the remaining 107 facilities by December 31, 2016.

WSDOT mapping its entire stormwater conveyance system

In spring 2014, WSDOT began mapping the entire stormwater system along state highways within areas covered by the agency's municipal stormwater permit. The permit requires WSDOT to set a pace by April 2016 in terms of miles per year for stormwater conveyance system mapping, based on existing resources. Once approved by the Washington State Department of Ecology (Ecology), this pace will become a performance indicator for the remaining three years of WSDOT's permit.

WSDOT collected data during pilot mapping efforts which will be analyzed and used as supporting documentation for setting a final mapping pace. WSDOT categorized the highways based on common characteristics to help the agency determine how much time it will take to map stormwater systems along highways.

Stormwater systems collect water off the roadways and include components like catch basins, ditches and pipes leading to the outfalls — places where stormwater flows off the right of way and eventually into lakes, streams or other bodies of water. Mapping complete stormwater systems will aid in maintaining facilities, helping ensure WSDOT meets the requirements of the permit and is a steward of the environment. For more information on WSDOT's municipal stormwater permit refer to bit.ly/WSDOTmunicipalstormwaterpermit.

WSDOT continues to improve construction site compliance

In FY2015, 95 percent of WSDOT's construction site stormwater discharge samples met the benchmark for turbidity (a measure of water clarity) as defined in the Construction Stormwater General Permit (CSWGP). This is an improvement from 90 percent during FY2014.

Providing some clarity around turbidity

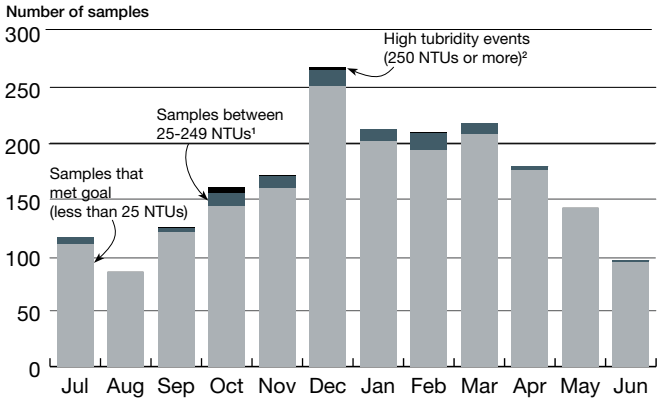
Turbidity is the cloudiness of a liquid caused by suspended particles that are generally invisible to the naked eye, similar to smoke in air. Turbidity is typically measured in Nephelometric Turbidity Units (NTUs) which identifies the degree to which light is scattered by these suspended particles. See GNB 55, p. 19, for a photo illustrating turbidity as NTU levels increase.

Proactive work leads to stormwater quality improvement

The benchmark for turbidity in the CSWGP is 25 Nephelometric Turbidity Units (NTUs). If stormwater discharges are less than 25 NTUs, the Best Management Practices (BMPs) being used at a construction site are considered to be functioning well. If stormwater discharge samples have a turbidity value of 25 NTUs or higher, the on-site BMPs must be adapted, enhanced or replaced to lower the turbidity level. Stormwater discharges 250 NTUs or higher are considered high turbidity discharge events and have the potential to violate water quality standards. When a discharge of 250 NTUs or higher occurs, Ecology must be notified within 24 hours. These high turbidity discharge events require immediate corrective action to lower turbidity or stop the discharge.

Based on construction site stormwater discharge data collected in FY2015, less than 1 percent (12) of the 1,982 discharge samples exceeded the 250 NTUs. That is a slight improvement over previous years. About 4 percent (84) of discharge samples were between 25.1 and 249.9 NTUs. The majority of the samples, 95 percent (1,886), were below the 25 NTU turbidity benchmark value. These turbidity values show a steady improvement relative to past years, with 90 percent meeting the benchmark values during FY2014 and 86 percent in FY2013.

Most WSDOT construction site stormwater samples meet turbidity benchmark in fiscal year 2015
Fiscal year 2015 (July 2014 through June 2015); 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 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 Deparment of Ecology within 24 hours.

This temporary filtration swale on Interstate 90 on Snoqualmie Pass helped to remove pollutants from stormwater runoff at a construction site. WSDOT regularly collects samples from construction sites to ensure stormwater facilities are working properly.

There are numerous factors that may have contributed to the improved numbers this year, including different precipitation patterns throughout the year, fewer construction projects underway, site-specific factors, and WSDOT staff managing erosion and sediment control proactively.

In an effort to reduce costs and improve contractor planning and BMP performance, WSDOT began transferring the CSWGP to contractors as a standard practice in February 2015. WSDOT expects transferring the permit will incentivize the contractors to use better performing and more cost effective erosion and sediment control strategies, including focusing on effective source control, preserving existing vegetation and phasing work to minimize open soil areas.

Most contracts awarded after February 2015 include the permit transfer, which means the total number of discharge samples collected by WSDOT and reported in the *Gray Notebook* will decrease over time. Instead, the contractors will test the construction site stormwater discharges to ensure they adequately protect rivers, lakes and other water bodies.

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

Notable results

- *WSDOT completed 147 contracts valued at $1.15 billion in FY2015, 6.1% above the WSDOT engineer's estimate*
- *WSDOT awarded 63 of 107 construction contracts (58.9%) below the engineer's estimate in FY2015*

WSDOT completes 147 construction contracts

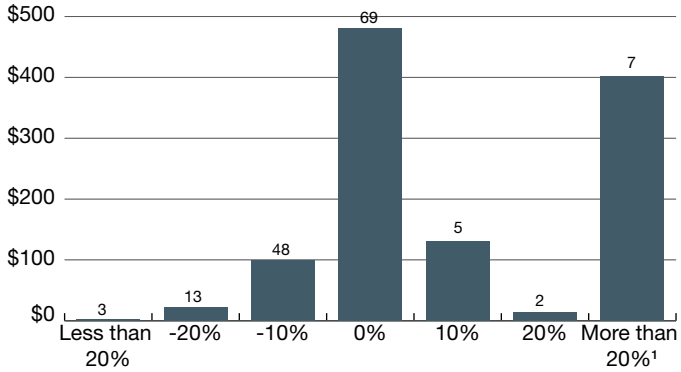
WSDOT completed 147 construction contracts valued at $1.15 billion during fiscal year (FY) 2015 (July 2014 through June 2015). Final costs for these contracts were 6.1 percent ($66 million) more than the WSDOT engineer's estimate of $1.09 billion. These competitively-bid projects, which do not include design-build (refer to p. 28 for definition), were completed for 24.4 percent ($226 million) more than the total award amount of $926 million for FY2015.

WSDOT completes $1.15 billion in contracts
Fiscal years 2014 and 2015; Dollars in millions

	FY2014	FY2015
Number of contracts completed	149	147
Total award amount	$515.5	$926.0
Total final contract cost	$542.4	$1,152
Percent final contract cost exceeded award amount	5.2%	24.4%
Total engineer's estimate	$595.2	$1,086
Percent final cost above/below engineer's estimate	-8.9%	6.1%

Data source: WSDOT Construction Office.

WSDOT completes construction contracts for 24.4 percent more than award amount
Fiscal year 2015; Dollars in millions; Total final cost of contract by percent above or below award amount; Number of contracts in each category



Data source: WSDOT Construction Office.
Notes: 0% indicates that the final cost was within 10% of the award.
1 The State Route 104/Hood Canal Bridge East-Half Replacement project had an unusally large difference (93 percent) between the award amount and cost at completion due to delays and cost overruns. See p. 28 for more details.

How WSDOT tracks cost estimation accuracy

Engineer's estimate

WSDOT engineers calculate contract cost estimates 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. WSDOT compares the engineer's estimate to the award amount as an indicator of the agency's estimating accuracy as well as market conditions. For each contract awarded, WSDOT tracks the difference between the original cost estimate made by the engineers and the amount of the contractor bid. WSDOT's goal is to have the lowest bid received on each contract be no greater than the engineer's estimate.

Final contract cost

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

Although WSDOT prepares detailed plans by which to estimate 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 $24.4 million less than estimates

This was primarily due to the State Route (SR) 104/ Hood Canal Bridge East-Half Replacement project, with a cost at completion 93 percent more than the award amount. The discovery of tribal remains at the original project site required work to be sequenced differently and construction of a new pontoon casting facility to be relocated, causing delays and cost overruns.

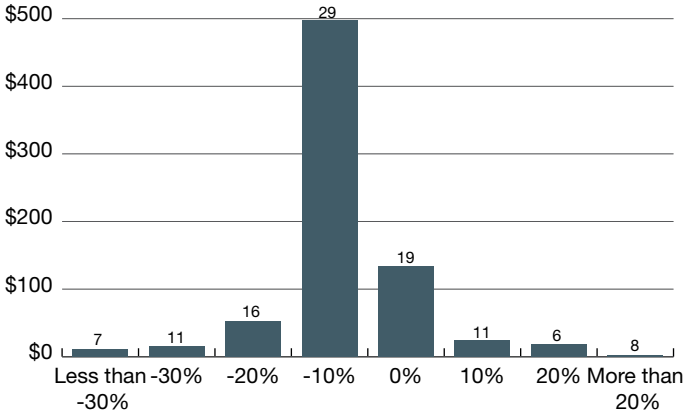
Of the 147 contracts completed, 133 (90.5 percent) met WSDOT's contract goal of being less than 10 percent above the award amount. The remaining 14 contracts came in higher than the goal due to factors such as change orders, construction materials needs and the bid amount. For more information on why contracts may come in higher than the goal, see *Gray Notebook* 50, p. 29.

More than half of FY2015 WSDOT contracts awarded below estimates

Of the 107 WSDOT-awarded highway construction contracts in FY2015, bids for 63 (58.9 percent) of them were less than the WSDOT engineer's estimate. Overall, these construction contracts were awarded for $755.1 million, approximately $24.4 million (or 3.1 percent) less than the original engineer's estimate of $779.5 million. This reduction in contract costs indicates that the construction market is remaining competitive.

WSDOT's engineer's estimates were closer to the actual contract awards in FY2015 than in FY2014.

Majority of contract bids less than WSDOT's estimates
Fiscal year 2015; 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: 0% indicates that the final cost was within 10% of the estimate.

WSDOT awards $755.1 million in contracts
Fiscal years 2014 and 2015; Dollars in millions

	FY2014	FY2015
Number of contracts awarded	112	107
Total engineer's estimate amount	$488.0	$779.5
Total award amount	$455.1	$755.1
Amount award total is below estimate	-$32.9	-$24.4
Percent award total is below estimate	-6.8%	-3.1%
Number of contracts awarded below estimate	70	63
Percent of contracts awarded below estimate	62.5%	58.9%

Data source: WSDOT Construction Office.

FY2015 awards were 3.7 percentage points closer to the engineer's estimate (3.1 percent less), down from FY2014 when 6.8 percent of WSDOT's awards were below the estimate (see table above). The total value of contracts awarded in FY2015 increased 65.9 percent from $455.1 million in FY2014 to $755.1 million in FY2015, due to more expensive projects such as the SR 520 Montlake to Evergreen Point Bridge west approach.

WSDOT completes two, awards one design-build project in FY2015

WSDOT completed two design-build contracts in FY2015 for about 8 percent more than the engineer's estimate of $13.7 million. One design-build contract, completed for $7.7 million, rehabilitated concrete along Interstate 405. The other, completed for $7.1 million constructed a permanent bridge on Interstate 5 across the Skagit River. A portion of the bridge collapsed after being struck by an oversized load in May 2013.

WSDOT also awarded one design-build project for $54.0 million, about 2 percent more than the engineer's estimate of $53.2 million. This project will extend existing High Occupancy Toll lanes on SR 167.

Design-build is a project delivery method in which WSDOT contracts for both design and construction services in a single contract. The contract is awarded through a competitive process based on WSDOT's evaluation of the design-builder's proposed price and specific technical criteria. 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 Dacia Dunbar and Zoe Zadworny

Lean Process Improvements Quarterly Update

59

Notable results

- *WSDOT launched six new Lean process improvement projects during the third quarter of 2015, totaling 70 projects agency-wide*
- *Using Lean, WSDOT is completing 100% of Transportation Improvement Program amendment approvals on time*

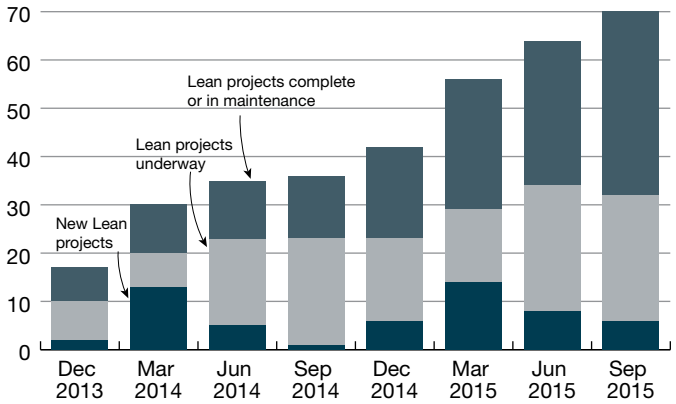
WSDOT's Lean trainings, projects expanding

WSDOT continues to train its employees in-house on Lean tools and practices. During the third quarter of 2015 (July through September), WSDOT's Lean practitioners provided training to 327 WSDOT employees. More than 1,100 employees have received introductory Lean training since January 2015.

WSDOT's Lean practitioners continue to support agency improvement projects, serving as points of contact within their division or region. Since WSDOT first began tracking agency Lean projects in 2012, the total number of Lean projects has increased to 70, including six new projects launched during the third quarter of 2015.

WSDOT meets strategic goal of 70 Lean improvement projects by September 2015

October 2013 through September 2015[1]; Project phase by calendar quarter[2]



Data source: WSDOT Lean Process Improvement Office.

Notes: 1 Lean projects were first tracked in quarter ending September 2012. 2 Calendar quarters are January - March (Mar), April - June (Jun), July - September (Sep) and October - December (Dec).

WSDOT approves more program amendments on time with Lean

WSDOT's Multimodal Planning team worked with Metropolitan Planning Organizations (MPOs) statewide to improve on time approval of amendments to Transportation Improvement Programs (TIPs). The partners completed 100 percent of approvals on time between April and September 2015, an improvement from 65 percent on time in 2013 and 2014. Approvals are considered "on time" if they occur within 11 days after each monthly amendment submission deadline.

TIPs are developed annually and consist of regional surface transportation projects that require federal approval or funding. TIPs are approved by the state's Transportation Secretary and amendments by the WSDOT Multimodal Planning Division Director. Approved TIPs are incorporated into the Statewide Transportation Improvement Program (STIP). WSDOT cannot allocate federal funds to STIP projects until it has received federal approval.

WSDOT's Multimodal Planning team streamlined the activities associated with approving TIP amendments. The team eliminated 75 percent of the required approval signatures (from four signatures to one), and reduced the number of approval steps by 58 percent (from 12 steps to five).

In the past, MPOs submitted extensive documentation to WSDOT to support requested TIP amendments that WSDOT then reviewed for compliance with laws and regulations. Because MPOs are familiar with the details contained in their TIP amendments, WSDOT and the MPOs redefined responsibilities to make the most efficient use of existing knowledge. MPOs now complete a compliance checklist themselves and WSDOT reviews final documentation for approval. Streamlining the TIP

Strategic Plan Goal 4: ORGANIZATIONAL STRENGTH
Strategy 4.1 (Workforce): Implement various strategies that foster a safe, capable, engaged and valued workforce.

To date, WSDOT has 56 trained Lean practitioners and 70 agency Lean projects, meeting the goals of 50 practitioners and 70 projects by September 2015.

Lean work boosts number of on time program approvals

approval process has resulted in on time approval for all TIP amendments processed in the past six months.

Lean improvement efforts have wide ranging effects, ultimately providing more value to WSDOT's employees and customers. The changes to the TIP approval process ensure deadlines are met and WSDOT can allocate project funds in a timely manner. The table below shows examples of other Lean project results recently achieved.

Contributors include Sue Briggs, Teri Chang, Francis Daane, Jean Denslow, Dan Dollar, Cliff Hall, Jennifer Heay, Jennifer Martin, Laura Peterson, Tami Petree, Anna St. Martin and Zoe Zadworny

Lean projects help WSDOT meet internal and external customer needs
July through September 2015; Progress reported on select projects

Project, program	Changes to process	Measuring success	Results
COMPLETE: Shared use vehicles *Southwest Region*	■ Initiated an electronic checkout process for shared use vehicles ■ Established a vehicle program supervisor ■ Increased awareness of procedures and policies for maintaining vehicles and reporting vehicle needs with staff trainings on vehicle checkout and the use of alternative-fueled vehicles	In the past three months: ■ Instances of vehicles being unavailable or needing maintenance dropped from at least one instance per user every three months to an equivalent of less than one instance per user every two years	Shared vehicle usage increased approximately 27 percent from an average of 1,100 miles per month to 1,400 miles per month WSDOT staff are able to limit miles driven in personal vehicles for work-related trips
COMPLETE: Notifications for Ferries Information Technology (IT) outages *Ferries and IT Division*	■ Documented criteria for using different notification processes ■ Established an official IT notification policy and policy repository	In the past three months: ■ Notifications for 100 percent of planned major IT outages reached affected staff at least two days prior to the outage, improving from 88 percent in the prior six months	WSDOT staff are better able to schedule their work to avoid effects of IT system outages
COMPLETE: Assessment of missing sales and use taxes *Accounting and Financial Services*	■ Changed payment voucher process so staff code sales and use tax at the time vouchers are created ■ Eliminated secondary review to identify missing information on an average of 3,600 payment vouchers per month	In the past six months: ■ Approximately 120 hours of staff time per month was saved by coding information earlier	WSDOT staff can provide an additional 120 hours per month in internal and external customer service support
COMPLETE: Classification and compensation process *Office of Human Resources (HR) and Safety*	■ Transferred position classification analysis to region HR offices instead of headquarters ■ Streamlined the review process by replacing continuous reviews with a weekly classification determination committee ■ Eliminated hard copy document routing	In the past six months: ■ The timeliness of classification decisions improved 74 percent, from an average of 19 days in 2014 to five days between April and September 2015	The classification committee can provide an accurate timeline for decisions, helping WSDOT managers fill positions more quickly WSDOT employees whose positions have been reclassified are more likely to receive the requisite pay increase in a timely fashion
COMPLETE: Transportation Improvement Program (TIP) approval process *Multimodal Planning Division*	■ Eliminated duplicative signatures and process steps ■ Streamlined the review process by having Metropolitan Planning Organizations (MPOs) complete their compliance checklists ■ Eliminated hard copy document routing	In the past six months: ■ The number of executive-level signatures was reduced 75 percent, from four signatures to one ■ The number of process steps was reduced 58 percent, from 12 steps to five ■ All TIP amendments were approved on time, an improvement from 65 percent on time in 2013 and 2014	Increased collaboration between WSDOT and MPOs ensures that approval deadlines are met WSDOT is able to allocate funds in a more timely manner

Data sources: WSDOT Accounting and Financial Services, Information Technology and Multimodal Planning divisions, Ferries, Office of Human Resources and Safety, and Lean Process Improvement Office.

Capital Project Delivery Programs Quarterly Update

59

Notable results

- *WSDOT completed one TPA project during the quarter, bringing the total completed to 367 of 421 projects*
- *WSDOT removed five projects from the Watch List this quarter, reducing the number of projects remaining on the list to seven*

WSDOT completes fish passage project on SR 522

WSDOT completed one Transportation Partnership Account (TPA) project during the first quarter (July through September 2015) of the 2015-2017 biennium. The project, led by the City of Lake Forest Park in King County, replaced a fish passage barrier with a larger culvert that improves migratory fish passage and enhances the stream environment by creating a more natural habitat.

The $1.6 million project was completed on time and on budget. Projects are considered on time if they are completed within the quarter planned in the last legislatively approved schedule and on budget if the costs are within 5 percent of the last legislatively approved budget. WSDOT spent approximately $158.9 million during the first quarter of the 2015-2017 biennium on 17 ongoing projects. The total budget for the biennium is about $1.84 billion.

A total of 367 of 421 Nickel and TPA projects have been completed since July 2003, with 87 percent on time and 91 percent on budget. The baseline cost for the 367 projects is $6.17 billion and the cost at completion is $6.05 billion, 1.9 percent less.

WSDOT completes 367 Nickel and TPA projects
July 2003 through September 2015; Dollars in millions

Project status	Number of projects	Baseline cost at completion
Projects completed in earlier biennia that are *not* included in the current transportation budget	171	$1,477.2
Projects completed that *are* included in the current transportation budget	196	$4,691.4
Completed projects subtotal:	**367**	**$6,168.6**
Projects included in the current transportation budget that are not yet complete	54	$10,087.9
Total:	**421**	**$16,256.4**

Data source: WSDOT Capital Program Development and Management.
Note: Numbers have been rounded.

—Goal for Nickel and TPA is 90%—

367 of 421 projects complete

87 % on time

91 % on budget

Data source: WSDOT Capital Program Development and Management.
Notes: 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 percent of the last approved budget. The goal for both measures is 90 percent or higher. The cumulative percentages of projects on time and on budget does not fluctuate often due to the increasing total number of completed projects.

Nickel, TPA funding falling short of original 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.

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 short of the original March 2003 projections. Four Nickel projects have been deferred indefinitely while other projects have continued past the original 10-year period. Fuel tax funding from the 2005 TPA package is also coming up short of 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 $1 billion less (19.2 percent) than the original 2005 projection. This revenue shortfall has caused nine TPA projects to be deferred indefinitely. 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, Theresa Scott, Dean Walker, Joe Irwin and Zoe Zadworny

WSDOT completes 367 Nickel, TPA projects

Highway construction performance summary shows about $10.1 billion in projects remain to be completed

Current Legislative Evaluation and Accountability Program (LEAP) as of September 30, 2015; Dollars in millions

Combined Nickel and TPA programs	Number of projects	Value of program
Subtotal of completed projects	**367**	**$6,168.6[1]**
Projects completed in earlier biennia that are not included in the current transportation budget	*171*	*$1,477.2*
Projects completed that are included in the current transportation budget	*196*	*$4,691.4*
Projects included in the current transportation budget but not yet complete	54	$10,087.9
Total number of projects[2] in improvement and preservation budget	**421**	**$16,256.4**

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	Total in current legislative budget	Cumulative program
Number of projects completed	1	196	367
Percent completed early or on time	100%	86%	87%
Percent completed under or on budget	100%	92%	91%
Baseline cost at completion	$1.6	$4,691.4	$6,168.6
Current cost at completion	$1.3	$4,583.6	$6,050.1
Percent of total program over or under budget	21.9% under	2.3% under	1.9% under

Advertisement record: Results of projects entering into the construction phase or under construction, detailed on pp. 36-37.	Combined Nickel & TPA
Total current number of projects in construction phase as of September 30, 2015	17
Percent advertised early or on time	17%
Total number of projects advertised for construction in the 2015-2017 biennium to date (July 1, 2015 through June 30, 2017)	0
Percent advertised early or on time	0%

Projects to be advertised: Results of projects now being advertised for construction or planned to be advertised.	Combined Nickel & TPA
Total projects being advertised for construction bids (October 1, 2015 through March 31, 2016)	2
Percent on target for advertisement on schedule or early	100%

Budget status for the 2015-2017 biennium:	WSDOT biennial budget
Budget amount for 2015-2017 biennium	$1,836.1
Actual expenditures in 2015-2017 biennium to date (July 1, 2015 through September 30, 2017)	$158.9
Total 2003 Transportation Funding Package (Nickel) expenditures	*$3.8*
Total 2005 Transportation Partnership Account (TPA) expenditures	*$132.3*
Total Pre-existing Funds (PEF) expenditures[3]	*$22.8*

Data source: WSDOT Capital Program Development and Management.

Notes: Numbers have been rounded. 1 Cumulative projects completed from July 1, 2003 to September 30, 2015. 2 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. 3 For full details of the Pre-existing Funds program, see pp. 40-41.

WSDOT completes one new Transportation Partnership Account project

July through September 2015; Dollars in millions

Project description	Fund type	On time advertised	On time completed[1]	Baseline estimated cost	Current estimated cost at completion	On budget[1]
SR 522/Lyon Creek – Fish Passage	TPA	√	√	$1.6	$1.3	√

Data source: WSDOT Capital Program Development and Management.

Notes: 1 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 percent of the last approved budget. Numbers may not match those on p. 34 due to different reporting periods and baselines being used.

WSDOT finishes one new rail project with Nickel funds

WSDOT completed one new Legislative Evaluation and Accountability Program (LEAP) rail project this quarter. WSDOT has used the 2003 and 2005 funding packages to complete 19 rail projects and 22 ferries projects since 2003. Approximately $524.2 million in ferries projects were funded by the Nickel, TPA and multimodal accounts. The multimodal account 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 19 rail construction projects since 2003

Current Legislative Evaluation and Accountability Program (LEAP) as of September 30, 2015; Dollars in millions

	2003 Nickel Package	2005 TPA Package	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed projects			
Cumulative to date (July 1, 2003 through September 30, 2015)	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	$103.3
Current cost at completion	$72.6	$41.0	$103.3
Percent of total program on or under budget[1]	100%	100%	100%
Advertisement record: Projects under construction or entering construction phase			
Cumulative to date (July 1, 2003 through September 30, 2015)	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 percent 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 22 ferries construction projects since 2003

Current Legislative Evaluation and Accountability Program (LEAP) as of September 30, 2015; Dollars in millions

	2003 Nickel Package	2005 TPA Package	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed projects[1]			
Cumulative to date (July 1, 2003 through September 30, 2015)	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: Projects under construction or entering construction phase			
Cumulative to date (July 1, 2003 through September 30, 2015)	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 percent due to rounding. 1 Ferries completed projects record includes two 144-car vessels: the Motor/Vessel (M/V) *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 one TPA project

WSDOT completed one Transportation Partnership Account (TPA) project in the first quarter of the 2015-2017 biennium (July through September 2015).

SR 522/Lyon Creek Fish Passage (TPA) *King County*

This TPA project removed a fish barrier under State Route (SR) 522 along Lyon Creek and replaced it with a wider fish passable culvert.

Project benefits: Removing the existing culvert and replacing it with a wider culvert improves migratory fish passage and enhances the stream environment, creating a more natural habitat.

Budget performance: The project was completed for $1.6 million, on target with both the last legislatively approved budget and the original 2014 budget of $1.6 million.

Schedule performance: The project was completed in July 2015, 15 months earlier than the last legislatively approved schedule and the original schedule of October 2016.

Highlights/challenges: This project was a partnership with the City of Lake Forest Park. WSDOT provided a set contribution to Lake Forest Park to design and construct the new SR 522 culvert. The project schedule was advanced to better match the city's work schedule, and WSDOT's portion of the contract was completed earlier than anticipated due in large part to favorable weather.

Contributors include Mike Ellis, Mitzi Frick, Penny Haeger, Theresa Scott, Joe Irwin and Zoe Zadworny

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 2015 transportation 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 percent 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 http://www.wsdot.wa.gov/projects/completed.

WSDOT removes five projects from Watch List

WSDOT added seven projects to its Watch List and removed five this quarter (July through September 2015). As of September 30, there were seven projects remaining on the Watch List. See table on p. 35 for this quarter's Watch List projects.

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

WSDOT's Watch List projects that have been reprioritized, deferred or delayed due to funding constraints are listed separately. This quarter there were no Watch List projects with funding constraint issues. See *Gray Notebook* 51, p. 40, for a list of common issues that might move a project to the Watch List. To read more about the Watch List items, visit http://www.wsdot.wa.gov/Projects/Reports/ProjectDeliveryReports_Archive.htm.

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 new revenue package, see *Gray Notebook* 58, p. 9.

Seven projects remain on WSDOT's Watch List

WSDOT's Watch List projects with schedule or budget concerns

Quarter ending September 30, 2015

Project (County)	Date added	Date removed	Watch List issue
I-5/Northeast 117th St. to SR 104 – Pavement Repair (King)[1]	Sep-2015	Sep-2015	The project cost has increased due to multiple change orders for overruns to address pavement repair and grinding, traffic control and additional engineering needs. WSDOT is continuing with the construction contract and the project has been removed from the Watch List.
I-82/Valley Mall Blvd. to Yakima River Bridge – Paving (Yakima)[1]	Sep-2015		Pavement conditions show less deterioration than expected. Project advertisement has been deferred and construction moved back one year to fall 2017.
I-5/Northbound South Spokane Vicinity – Concrete Pavement Replacement (King)[1]	Aug-2015	Aug-2015	This project was combined with a larger contract to potentially reduce the overall project cost and traffic impacts during construction, delaying the advertisement by one year. The project has been removed from the Watch List.
I-5/Northbound I-90 Vicinity to James St. Vicinity – Concrete Pavement Rehabilitation (King)[1]	Aug-2015	Aug-2015	This project was combined with a larger contract to potentially reduce the overall project cost and traffic impacts during construction, delaying the advertisement by one year. The project has been removed from the Watch List.
I-5/Southbound South 320th St. to Duwamish River Bridge – Concrete Pavement Rehabilitation (King)[1]	Aug-2015	Aug-2015	The project cost has increased due to design changes, as well as additional concrete rehabilitation needs. The project is scheduled for advertisement in October 2015 and has been removed from the Watch List.
SR 548/Kickerville Rd. – Intersection Improvements (Whatcom)[1]	Aug-2015	Aug-2015	The project cost has increased due to design changes that resulted in the need for additional right of way, delaying project advertisement by eight months. The project is scheduled for advertisement in fall 2016 and has been removed from the Watch List.
SR 410/White River Bridge – Bridge Elements Repair (King, Pierce)[1,2]	Aug-2015		Permanent work to repair the damaged overhead bridge support structure was advanced by five months to August 2015. The estimated project cost has increased due to an accepted bid that was above WSDOT's estimate.
SR 92/Pilchuck River – Chronic Environmental Deficiency (Snohomish)	Jun-2015		Project advertisement was delayed to spring 2016 to allow additional time to obtain environmental permits and address right of way issues. The advertisement may be further delayed if there are environmental design changes.
SR 524/Yew Way – Railroad Crossing Improvements (Snohomish)	Jun-2015		Right of way issues have delayed the project schedule. Project advertisement was delayed to fall 2015.
SR 302/North of East Victor Rd. – Culvert Replacement (Mason)	Apr-2015		The schedule has been delayed by one year to allow WSDOT time to acquire environmental permits and a permanent construction easement.
SR 161/24th St. East to Jovita – Add Lanes (Pierce)	Sep-2014		This project was completed in August 2014 and is facing a potential cost increase pending a claim from the contractor.
SR 99/South King St. Vicinity to Roy St. – Viaduct Replacement (King)	Dec-2013		A revised schedule was submitted by Seattle Tunnel Partners. The tunnel is now scheduled to open to drivers in spring 2018. Machine repairs are scheduled to finish in fall 2015, with tunneling resuming in late November.

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

Notes: 1 Projects have been added to the Watch List during the current quarter. 2 This project was previously removed from the Watch List but has been added again due to emerging issues.

WSDOT preparing to advertise two new Transportation Partnership Account projects

October 2015 through March 2016; Dollars in millions

Project description	Fund type	Original planned ad date	Current planned ad date	On schedule	Baseline estimated cost	Current estimated cost at completion
SR 532/Pilchuck Creek Tributary – Fish Barrier	TPA	12/14/2015	12/14/2015	√	$3.2	$3.2
SR 16/Anderson Creek Tributary to Sinclair Inlet – Fish Barriers	TPA	12/14/2015	2/1/2016	√	$7.1	$7.4

Data source: WSDOT Capital Program Development and Management.

WSDOT shows progress on Nickel and TPA projects

Seventeen WSDOT projects in construction phase as of September 30, 2015

Nickel and Transportation Partnership Account (TPA) 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 tunnel boring machine is undergoing repairs. 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					
The US 395/North Spokane Corridor project is ongoing and several phases still require funding.						
I-5/Mellen Street Interchange to Grand Mound Interchange – Add Lanes (Thurston, Lewis)	TPA					
• I-5/Mellen Street to Blakeslee Junction – Add Lanes, Interchange Improvements	TPA	√	Mar-2012	Cascade Bridge	Dec-2015	$21.6
The operationally complete date was delayed due to schedule adjustments needed for complex traffic revisions, demolitions, repairs and painting of nearby bridges.						
• I-5/Mellen Street Interchange – Interchange Improvements	TPA	√	Combined with project above for construction efficiencies.			
SR 502/I-5 to Battle Ground – Add Lanes – Stage 2 (Clark)	TPA	√	Jan-2014	Rotschy	Oct-2016	$27.5
SR 162/Puyallup River Bridge – Replace Bridge (Pierce)	TPA	Late	Nov-2014	Selby Bridge Company	Nov-2015	$5.5
Advertisement was delayed to address environmental permitting issues and complete a National Historic Preservation Act compliance process for the existing bridge.						
SR 6/Rock Creek Bridge East – Replace Bridge (Lewis)	TPA	Late	Dec-2013	Scarsella Bros.	Oct-2015	$6.9
Advertisement was delayed to address permitting issues with several agencies.						
SR 6/Rock Creek Bridge West – Replace Bridge (Lewis)	TPA	Late	Dec-2013	Scarsella Bros.	Oct-2015	$4.7
Advertisement was delayed to address permitting issues with several agencies and right of way design changes.						
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
I-405/Kirkland Vicinity, Stage 2 – Widening (Snohomish, King)	Nickel/ TPA					
• I-405/SR 520 to SR 522 – Widening Stage 2	Nickel	Early	Nov-2010	Gary Merlino Construction	Dec-2015	$10.7
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	Apr-2016	$586.6
I-205/Mill Plain Interchange to Northeast 18th Street – Build Interchange – Stage 2 (Clark)	TPA	Late	Aug-2014	Cascade Bridge	Dec-2016	$24.3
Advertisement was delayed to address practical design changes to the project.						
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.						

Table continued on p. 37

WSDOT shows progress on Nickel and TPA projects, *continued*

Project description Cumulative to date (County)	Fund type	On time advertised	Ad date	Contractor	Operationally complete date	Award amount
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.

Data source: WSDOT Capital Program Development and Management.

WSDOT finishes one new TPA project on time, on budget

Biennial summary: One project completed in 2015-2017 biennium

Nickel and Transportation Partnership Account (TPA) 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 1 TPA	1 on time 0 late	1 on time 0 late	1	$1.6	$1.3	1 on budget 0 over budget
Earlier biennia reporting on capital project delivery							
2013-2015 biennium summary[1] 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[2] 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: 1 The number of projects has been updated since *Gray Notebook* 51 to reflect the addition of a completed project that was reported after the biennium. 2 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. Dollar amounts are rounded up. Prior *Gray Notebooks* may be accessed at http://www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm.

WSDOT delivers 14 Nickel rail projects since 2003

The performance summaries below and those on p. 39 provide status reports on WSDOT's delivery of the Nickel and Transportation Partnership Account (TPA) programs compared to the original legislative funding packages presented in the 2003 and 2005 Legislative Evaluation and Accountability Program (LEAP) 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. 32-33.

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 plan or actual expenditure, breaking out programs by category: highways, ferries and rail.

WSDOT project delivery and budget update: Original 2003 Transportation Funding Package (Nickel)
As of September 30, 2015; 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	129	83%	113	89%	2	40%	14	58%
Total projects underway	14	9%	11	9%	2	40%	1	4%
In pre-construction phase	*4*		*3*		*1*		*0*	
In construction phase	*10*		*8*		*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	$4,325.9	111%[1]	$3,652.2	108%[1]	$540.0	181%[1]	$133.7	64%
Actual expenditures, 2003 through September 30, 2015	$4,111.9	106%[1]	$3,541.6	105%[1]	$437.5	147%[1]	$132.8	63%

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) of the 2013-2015 biennium. These funds put Ferries above its original funding level and will result in continued over-performance by this program.

WSDOT completes eight TPA rail projects since 2005

WSDOT project delivery and budget update: Original 2005 Transportation Partnership Account (TPA)
As of September 30, 2015; Dollars in millions

Project delivery update	Total program		Highways		Ferries		Rail	
	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	193	78%	184	80%	1	25%	8	53%
Total projects underway	35	14%	32	14%	0		3	20%
In pre-construction phase	*11*		*10*		*0*		*1*	
In construction phase	*24*		*22*		*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 (TPA) program was passed in 2005, the Legislature has approved changes to WSDOT Ferries Division's construction program so that the current budget does not match the original budget. Among the changes, TPA funding was provided for the 64-car ferries. For definitions about terminology used in Original LEAP, see *Gray Notebook* 53, p. 40.

Project budget update	Total program		Highways		Ferries		Rail	
	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	$5,730.1	82%	$5,567.0	83%	$77.1	42%	$86.0	73%
Actual expenditures, 2005 through September 30, 2015	$4,725.8	68%	$4,574.6	68%	$77.1	42%	$74.2	63%

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.

WSDOT reporting change orders costing $500,000 or more online

During the quarter ending September 30, 2015, WSDOT approved three change orders of $500,000 or more. Two change orders addressed earthwork on the Interstate 5 Tacoma High-Occupancy Vehicle project. One change order eliminated $11.3 million in individual bid items; the other replaced it with the same amount as a lump sum (net cost of $0). The remaining change order reduced the State Route 520 West Approach Bridge contract amount by $1.6 million. WSDOT eliminated the contract's Incentive Program funds due to contractor unresponsiveness. 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 http://bit.ly/WSDOTchangeorders.

WSDOT advertises 31 Pre-existing Funds projects

WSDOT advertised 31 of 40 Pre-existing Funds (PEF) projects in the first quarter (July through September 2015) of the 2015-2017 biennium.

Of the 31 advertised projects, 20 were on time, nine were advanced from future quarters, and two were due to unexpected, emergent events, like repairs to the Interstate 5 Birch Bay Lynden Road Bridge. One project was advertised in an earlier quarter, and eight projects were delayed to a future quarter within the biennium. See p. 41 for this quarter's PEF advertisements, and *Gray Notebook* 51, p. 38, for full definitions of PEF terms.

Even though there were two projects advertised over what was originally planned for the quarter, resulting in a $7.7 million increase from the original $54.8 million to $62.5 million, WSDOT's current cost to complete the 31 PEF projects actually advertised during the quarter was $62.5 million, about $100,000 (0.2 percent) less than the original value of $62.6 million.

The current estimated cost to complete the 389 advertisements planned for the 2015-2017 biennium is $627.2 million, about $46.5 million (6.9 percent) less than the original value of $673.7 million. The majority of this reduction is due to two projects being taken out of the PEF program and receiving funds through the Nickel package.

Cost to complete WSDOT's project advertisements indicates expenses lower than engineer's estimates
2015-2017 biennium (July 2015 through June 2017); Quarter ending September 30, 2015; Dollars in millions

	Number of projects	Original value	Current cost to complete
Total PEF advertisements planned 2015-2017 biennium	389	$673.7	$627.2
Planned advertisements through September 30, 2015	29	$61.7	$54.8
Actual advertisements through September 30, 2015	31	$62.6	$62.5

Data source: WSDOT Capital Program Development and Management.

WSDOT completes 64.5 percent of Pre-existing Funds project advertisements on time for biennium
2015-2017 biennium (July 2015 through June 2017)

Project status	Quarter[1]	Cumulative[2]
Projects advanced[3]	9	9
Projects advertised on time	20	20
Emergent projects advertised	2	2
Late projects advertised	0	0
Total projects advertised	**31**	**31**
Projects advertised early[4]	1	1
Projects delayed within the biennium	8	8
Projects deferred out of the biennium	0	0
Projects deleted	0	0

Data source: WSDOT Capital Program Development and Management.
Notes: 1 Quarter refers to July through September 2015. 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.

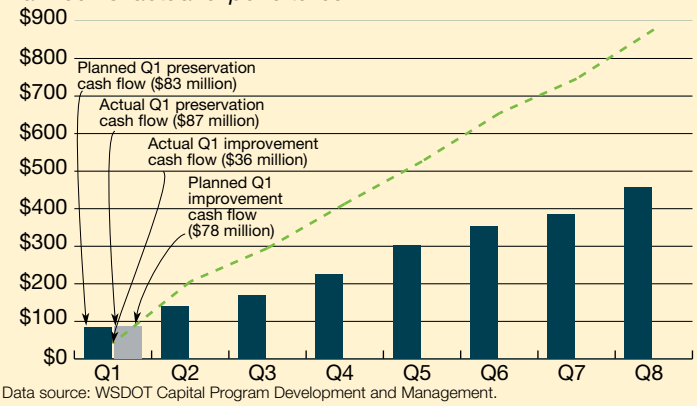
Improvement and preservation cash flows off projected marks

WSDOT planned to have $78 million in improvement program cash flow during the first quarter of the 2015-2017 biennium, but had $36 million instead (approximately 54 percent less). The improvement program funds projects that optimize highway capacity, enhance safety and reduce the environmental impact of construction projects.

WSDOT planned to have $83 million in the preservation program cash flow during the first quarter of the 2015-2017 biennium, but had $87 million (approximately 5 percent more). The preservation program includes pavement, bridges and other projects that maintain the structural integrity of the existing highway system.

Contributors include Dean Walker and Joe Irwin

Pre-existing Funds preservation cash flow higher, improvement cash flow lower than planned levels
2015-2017 biennium; Quarter ending September 30, 2015; Planned vs. actual expenditures



Data source: WSDOT Capital Program Development and Management.
Note: Q1 refers to the first quarter (July through September 2015) of the 2015-2017 biennium (July 2015 through June 2017).

WSDOT advertises 31 Pre-existing Funds projects, *continued*

20 Pre-existing Funds projects advertised on time during quarter

July through September 2015

On Time (20)	
SR 125/Spring Valley Creek Bridge Vicinity — Railroad Crossing Improvements	South Central Region 2015-2017 Regionwide — Strategic Pavement Preservation
SR 397/Piert Rd. Vicinity — Railroad Crossing Improvements	SR 241/Yakima Valley Highway — Railroad Crossing Improvements
SR 397/Game Farm Rd. Vicinity — Railroad Crossing Improvements	Northwest Region — Regionwide Strategic Pavement Preservation (2015-2017)
2015-2017 Olympic Region — Regionwide Curb Ramps — Americans with Disabilities Act Compliance	Eastern Region Strategic Pavement Preservation 2015-2017
SR 224/SR 240 Intersection — Railroad Crossing Improvements	I-90/Winchester Eastbound Safety Rest Area — Minor Rehabilitation
SR 240/Cemetery Rd. — Railroad Crossing Improvements	North Central Region Strategic Pavement Preservation 2015-2017
SR 240/Duportail Rd. — Railroad Crossing Improvements	US 97/Old Highway 10 — Railroad Crossing Improvements
I-5/Northbound Collector-Distributor Over 41st Division Dr. — Special Repair	SR 92/Portage Ave. to Granite Ave. — Paving (City of Granite Falls Lead) Project was advertised on time, but will be re-advertised due to high bids
SR 410/White River Bridge 410/101 — Bridge Elements Repair	SR 397/0.2 Miles South of East A St. — Railroad Crossing Improvements
SR 125/Plaza Way Vicinity — Railroad Crossing Improvements	Southwest Regionwide Strategic Pavement Preservation (2015-2017)
Emergent (2)	
I-5/Northbound Lakeway Dr. Vicinity — Guardrail Installation	I-5/Birch Bay Lynden Rd. Bridge 5/834 — Bridge Repair
Advanced (9)	
SR 20/SR 525 to Morris Rd. — Chip Seal	SR 542/Coal Creek to Fossil Creek — Chip Seal
SR 9/256th St. Northeast Vicinity to Lake Cavanaugh Rd. Vicinity — Chip Seal	SR 548/I-5 to North Star Rd. — Chip Seal
SR 530/Sauk Prairie Vicinity to SR 20 — Chip Seal	SR 548/Grandview Rd. to 4th St. — Chip Seal
Whatcom County — Chip Seal	SR 240/Airport Way — Railroad Crossing Improvements
SR 20/Westbound Diablo Dam Rd. Vicinity — Guardrail Installation	
Early (1)	
Olympic Region Strategic Pavement Preservation 2015-2017	
Delayed (8)	
SR 224/SR 225 — Benton City — Construct Intersection Improvements Project delayed to add Connecting Washington funding and Practical Design review	SR 9/Van Zandt — Railroad Crossing Improvements Project delayed to acquire railroad permit
SR 20/Race Road to Jacobs Road — Safety Improvements (Phase 1) Project delayed for completion of right of way acquisition pending bankruptcy proceedings	SR 524/Yew Way — Railroad Crossing Improvements Project delayed to complete funding agreement with Port of Seattle
I-90/Front Street Bridge 90/66S — Girder Replacement Advertisement was accelerated by two weeks then returned to original ad date	SR 548/Unnamed Creek to Drayton Harbor — Fish Passage Project delayed to add it to the WSDOT's Statewide Transportation Improvement Program
Northwest Region Preservation Signing 2015-2017 Project delayed to complete National Environmental Policy Act (NEPA) and Biologic Assessment processes	SR 305/Suquamish Way Intersection Improvements Project delayed to complete NEPA processes and allow time to provide ad-ready plans to Kitsap Transit

Data source: WSDOT Capital Program Development and Management.

59 *Gray Notebook* Information Guide

Gray Notebook subject index, archives and acronym list online

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

Quick Response (QR) codes accompany some *Gray Notebook* articles. Mobile devices can scan QR codes and link readers to Web pages, providing access to other information related to articles found in this issue. A sampling of codes is presented below:

GNB Subject Index **GNB Archives** **WSDOT Acronyms**

Americans with Disabilities Act (ADA) information for the public

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

Civil Rights Act of 1964, Title VI Statement to the Public

It is the Washington State Department of Transportation's policy to assure that no person shall, on the grounds of race, color, national origin, or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any of its federally funded programs and activities.

Any person who believes his/her Title VI protection has been violated, may file a complaint with WSDOT's Office of Equal Opportunity (OEO). For additional information regarding Title VI complaint procedures and/or information regarding our non-discrimination obligations, contact OEO's Title VI Coordinator Oscar Cerda at (360) 705-7082.

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* 59. July through September 2015 is the third quarter of the calendar year (Q3 2015); the first quarter of the state's fiscal year (Q1 FY2016); and the fourth quarter of the federal fiscal year (Q4 FFY2015). It is also the first 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 57			GNB 58			**GNB 59**			GNB 60		
Q1 2015			Q2 2015			**Q3 2015**			Q4 2015		
Q3 FY2015			Q4 FY2015			**Q1 FY2016**			Q2 FY2016		
Q2 FFY2015			Q3 FFY2015			**Q4 FFY2015**			Q1 FFY2016		

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 (FY) begins July 1 and ends June 30. The federal fiscal year (FFY) begins October 1 and ends September 30. Biennia begin July 1 and end two years later on June 30.

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