Washington State Department of Transportation

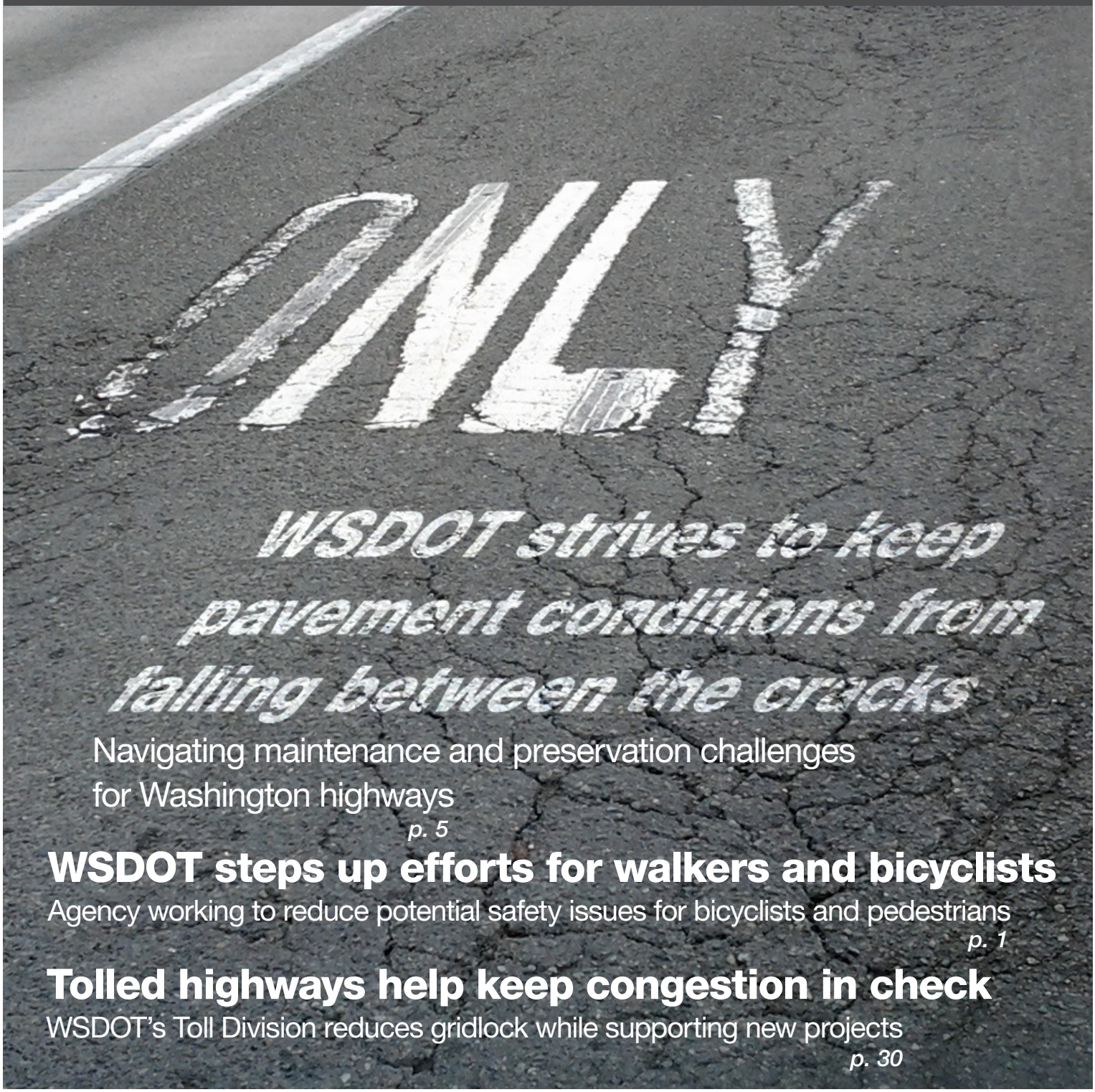
56

The Gray Notebook

WSDOT's quarterly performance report on transportation systems, programs, and department management

Quarter ending December 31, 2014 • Published February 2015

Lynn Peterson, Secretary of Transportation



WSDOT strives to keep pavement conditions from falling between the cracks

Navigating maintenance and preservation challenges for Washington highways

p. 5

WSDOT steps up efforts for walkers and bicyclists

Agency working to reduce potential safety issues for bicyclists and pedestrians

p. 1

Tolled highways help keep congestion in check

WSDOT's Toll Division reduces gridlock while supporting new projects

p. 30

56 Table of Contents

Article	page
Navigating the *Gray Notebook*	iii
WSDOT's Goals, Performance and Trends	iv
Moving Ahead for Progress in the 21st Century (MAP-21)	v
Results Washington	vii
Results WSDOT – Setting WSDOT's Direction	viii
Safety	
Pedestrian and Bicyclist Safety Annual Report	1
Preservation	
Asset Management: Pavement Annual Report	5
Asset Management: Highway Maintenance Annual Report	14
Mobility	
Travel Time Trends Semi-Annual Report	16
WSDOT Ferries Division Quarterly Update	18
Incident Response Quarterly Update	20
Rail: Amtrak Cascades Quarterly Update	22
Environment	
Environmental Compliance Annual Report	24
Economic Vitality	
Freight Rail Semi-Annual Report	26
Stewardship	
Construction Cost Trends Annual Report	29
WSDOT Tolling Annual Report	30
Lean Process Improvements Quarterly Update	32
Capital Project Delivery Programs	34
Agency Workforce and Current Legislative Evaluation and Accountability Program (LEAP)	35
Completed Projects	37
Watch List	39
Advertisement Record	41
Schedule and Budget Summaries	43
Original LEAP	44
Pre-existing Funds	46
Quick Response Codes and A Guide to Understanding Reporting Periods	48
Gray Notebook Edition Index	49

PERFORMANCE HIGHLIGHTS reported for the quarter ending December 31, 2014

$391 million needed to address WSDOT's **pavement backlog** in 2013, a $48 million increase from 2012

10.8% increase of shipments made on Washington's **Grain Train** between 2013 and 2014

35.4% increase in WSDOT's **Construction Cost Index** due to higher prices of common construction activities and materials

$126.6 million in toll revenues collected in fiscal year 2014, **up 9.9%** from $115.2 million in fiscal year 2013

66% of **fatal crashes** involving pedestrians and bicyclists occurred in urban areas between 2009 and 2013

18 environmental violations occurred in 2014 — a year when WSDOT had **160,000** ferry sailings, **690** active construction projects and **2.5 million** maintenance work hours

15 of 18 Puget Sound region routes saw vehicle **travel times** increase during the first half of 2014 compared to the same period in 2013

79% of targets set for WSDOT's highway **maintenance conditions** were met in 2014, a 1% decline from 2013

On the cover: A right-turn only lane on State Route 900 near Tukwila shows its age in 2014.

Gray Notebook links to Results WSDOT

The 56th edition of the *Gray Notebook* takes a slightly new direction. This *Gray Notebook* incorporates strategies from Results WSDOT (the agency's strategic plan) into specific articles to show how WSDOT is working to support the six goals set forth in the plan.

Results WSDOT aligns with Gov. Jay Inslee's Results Washington while supporting agency-wide reforms being implemented by Transportation Secretary Lynn Peterson (see *Gray Notebook* 53, p. ix-x).

WSDOT's commitment to transparency, accountability

Gray Notebook 56 features annual articles on bicycle and pedestrian safety, pavement conditions, highway maintenance, environmental compliance, tolling and construction cost trends. Other features in this issue include semi-annual articles on travel time trends and freight rail, and quarterly reports ranging from incident response and Lean to ferries and passenger rail.

The "beige pages" address the delivery of projects funded in the 2003 Nickel Transportation Funding Package, the 2005 Transportation Partnership Account, and Pre-existing Funds. The beige pages (pp. 34-47) have been reorganized in this edition to provide a better flow of information.

The *Gray Notebook* is available electronically at http://wsdot.wa.gov/publications/fulltext/graynotebook/Dec14.pdf; the publication, with hyperlinks, can be downloaded and printed as needed. The *Gray Notebook* is published quarterly in February, May, August and November. WSDOT also publishes a quarterly highlights folio of selected performance topics from the *Gray Notebook*, called *Gray Notebook Lite*.

Gray Notebook interactive map tours aid in performance visualization

Also new in this edition are two interactive online maps (map tours). Readers can delve deeper into the Ferries Division and Passenger Rail quarterly reports (p. 18 and p. 22) by touring through performance data organized by route or project respectively. The maps feature images of WSDOT's work around the state, graphs and data as well as links to additional online resources from the agency. To explore the ferry route performance tour go to http://bit.ly/GNB56ferries. For the rail project performance tour, please visit http://bit.ly/GNB56rail.

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;
- **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.

Reporting on state, federal measures

WSDOT is an active participant in Results Washington (p. vii), Gov. Inslee's plan to build a working Washington. At the same time, WSDOT is working on future federal transportation reporting requirements. See Moving Ahead for Progress in the 21st Century (MAP-21) in *Gray Notebook* 49, p. vii, and in this issue on p. v. Results WSDOT, Results Washington and MAP-21 play a critical role in guiding WSDOT's future performance reporting.

Gray Notebook credits

The work of many people goes into the production of the *Gray Notebook*. Produced by WSDOT's Office of Strategic Assessment and Performance Analysis (OSAPA), articles feature bylines indicating contributors. WSDOT's graphics team of Jinger Hendricks, Diana Lessard, Fauziya Mohamedali, Erica Mulherin and Steve Riddle assist with graphics, while WSDOT communicators typically take the photographs. The *Gray Notebook* is printed in-house by a team including Deb Webb, Trudi Phillips and Larry Shibler. OSAPA's Linda Pasta coordinates distribution.

56 WSDOT Goals, Performance and Trends

Policy goal/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 2012 & 2013, data for 2013 considered preliminary)	0.77	0.77	1.00	✓		↓
Rate of **recordable incidents** for every 100 full time WSDOT workers (Annual measure: calendar years 2013 & 2014)	5.7	5.4	5.3	—		↓
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%	90.0%	✓		↑
Percentage of **state bridges** in fair or better condition by bridge deck area (Annual measure: fiscal years 2013 & 2014)	91.7%	91.8%	90.0%	✓		↑
Mobility (Congestion Relief)						
Highways: Annual (weekday) vehicle **hours of delay** statewide at **maximum throughput speeds**[1] (Annual measure: calendar years 2012 & 2013)	30.9 million	32.4 million	N/A	N/A		↓
Highways: Average **incident clearance times** for all Incident Response program responses (Calendar quarterly measure: Q3 2014 & Q4 2014)	12.2 minutes	13.2 minutes	N/A	N/A	(Five-quarter trend)	↓
Ferries: Percentage of trips departing on time[2] (Fiscal quarterly measure: year to year Q2 FY2014 & Q2 FY2015)	96.6%	96.4%	95%	✓		↑
Rail: Amtrak Cascades on time performance[3] (Annual measure: calendar years 2012 & 2013)	72.6%	76.9%	80%	—	(Three-year trend)	↑
Environment						
Number of WSDOT **stormwater management facilities** constructed (Annual measure: fiscal years 2013 & 2014)	169	189	N/A	N/A		Not applicable
Cumulative number of WSDOT **fish passage barrier improvements** constructed (Annual measure: calendar years 2012 & 2013)	270	285	N/A	N/A		↑
Stewardship						
Cumulative number of Nickel and TPA **projects completed,** and **percentage on time**[4] (Calendar quarterly measure: Q3 2014 & Q4 2014)	361/ 87%	364/ 87%	90% on time	—	(Five-quarter trend)	↑
Cumulative number of Nickel and TPA **projects completed** and **percentage on budget**[4] (Calendar quarterly measure: Q3 2014 & Q4 2014)	361/ 91%	364/ 91%	90% on budget	✓	(Five-quarter trend)	↑
Variance of total project costs compared to **budget expectations**[4] (Calendar quarterly measure: Q3 2014 & Q4 2014)	under budget by 1.7%	under budget by 1.9%	on budget	✓	(Five-quarter trend)	Not applicable

Notes: N/A = not available: new reporting cycle data not available or goal has not been set. Dash (—) = goal was not met in the reporting period. 1 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. 2 WSDOT Ferries Division's "on time" departures include any trip recorded by automated tracking as leaving the terminal within 10 minutes of scheduled time. 3 On time performance is only available for the past three years. 4 Budget and schedule expectations are defined in the last approved State Transportation Budget. See p. 34 for more information.

USDOT transforms federal transportation aid program

In July 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) became law, which is specific to transportation. The cornerstone of this law is the transition to a performance and outcome-based federal aid program.

MAP-21 establishes new requirements for performance management to ensure the most efficient investment of federal transportation funds occurs. Performance management increases the accountability and transparency of the federal aid highway program and provides a framework to support improved investment decision-making focusing on performance outcomes for key national transportation goals.

Prior to MAP-21, there were no explicit requirements for state departments of transportation (DOTs) to demonstrate how their transportation programs supported national performance outcomes.

USDOT releases draft bridge and pavement performance rules

In January 2015, the U.S. Department of Transportation Federal Highway Administration (FHWA) published a notice of proposed rule-making in the federal register.

This draft rule proposes to establish measures for state departments of transportation to use to implement the National Highway Performance Program by assessing pavement conditions on the interstate system, pavement condition on the non-interstate National Highway System (NHS) and bridge conditions on the NHS. For information on pavement metrics see p. 5, for bridges see *Gray Notebook* 54, p. 4. The NHS is a network of strategic highways within the U.S., which includes the NHS and other roads serving major airports, ports, rail or truck terminals, railway stations, pipeline terminals and other strategic transportation facilities.

WSDOT evaluates and reports on pavement conditions statewide

WSDOT evaluates the condition of its pavement statewide using three criteria: surface cracking (an indicator of structural deterioration), rutting (which is monitored for safety and structural reasons), and smoothness of ride (measured by the International Roughness Index). USDOT will use four condition metrics to measure performance, including: IRI, rutting, faulting and cracking. For more information about WSDOT's pavement program see p. 5.

WSDOT measures bridge conditions to determine current, future needs

WSDOT reports annually on bridges assessing the structural conditions on a scale of very good/good, fair and poor. The new rule requires that states have no more than 10 percent of bridge deck area classified as structurally deficient (poor condition). As of June 2014, Washington is at 8 percent. Bridges rated as structurally deficient are in need of future repair or replacement. For information on WSDOT's bridge program see *Gray Notebook* 54, p. 4.

Comment process for rules set

As each set of draft rules is released, the public and stakeholders have 60 to 90 days to comment. After FHWA reviews all comments on each set of draft rules, it will release one final set of rules. These rules, for all topics in MAP-21, are projected to have one effective date.

Following the release of the final rules, state DOTs, in partnership with their metropolitan planning organizations (MPOs) will have 12 months to develop performance targets for each of the new nationally-established performance measures. MPOs will have an additional six months to establish performance targets. MPOs operate in urban areas with populations of 50,000 or more.

WSDOT is partnering with Washington state MPOs to establish a collaborative process well before the final rules are released. The partnerships will help foster consistency in setting performance targets. Visit http://www.fhwa.dot.gov/tpm/rule.cfm to review and comment on these proposed rules.

MAP-21 federal performance reporting requirements

MAP-21 goals by program area	Federal threshold/ benchmark[1]	MAP-21 target[2]	Penalty[3] Yes/No	Date draft rule was released	Existing WSDOT performance measures for this program area
Highway Safety Improvement Program					
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* 54, p. 1
Rate of **serious traffic injuries** per 100 million vehicle miles traveled (VMT) on all public roads	No	TBD	Yes	3/11/14	Serious injury rates using the NHTSA[5] methodology, see *Gray Notebook* 54, p. 1
Number of **traffic fatalities** on all public roads	No	TBD	Yes	3/11/14	Traffic fatalities using the NHTSA[5] methodology, see *Gray Notebook* 54, p. 1
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* 54, p. 1
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 review of MAP-21 implications. The rate of traffic fatalities for older pedestrians is part of Washington state'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					
National Highway System and Interstate **pavement** in good and poor conditions	% of Interstate pavement in poor condition not to exceed 5%	TBD	Yes	1/5/15	Pavement structural and functional condition. See *Gray Notebook* 56, p. 7, for an update on MAP-21 implications for pavement
National Highway System **bridges** classified in good and poor conditions	<10% of deck area on SD[7] bridges	TBD	Yes	1/5/15	Several measures of bridge condition including good/fair/ poor condition rating and structural deficiency (SD) rating, see *Gray Notebook* 54, p. 4
National Freight Movement Program					
Measures to be determined through federal rule-making	No	TBD	No		WSDOT's freight mobility plan will address trucking, rail and marine freight. See *Gray Notebook* 49, p. 41, for review of MAP-21 freight implications
Congestion Mitigation and Air Quality Program					
Measures to be determined through federal rule-making	No	TBD	No		The 2014 *Corridor Capacity Report* details the highway travel time and congestion trends in Washington state
Measures for on-road mobile source emissions to be determined through federal rule-making	No	TBD	No		No existing performance measure
Project Delivery					
Duration of NEPA[8] documentation preparation	No	TBD	No		Percent of projects completed early or on time, percent completed on or under budget, and duration of NEPA[7] document preparation

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 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. 8 NEPA= National Environmental Policy Act.

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, see http://www.results.wa.gov/.

Results Washington measures by goal area		Previous period	Current period	On target[1]	Current trend	Desired trend
Measures for which WSDOT is the lead agency						
Goal 2: Prosperous Economy						
Based on current funding levels, control the percent of state and local bridges[2] in poor condition from increasing over 10% by 2017 (Annual measure: fiscal years 2013 & 2014)		9.6%	9.3%	Yes	↓	↓
Based on current funding levels, control the percent of state and local pavements[2] in poor condition from increasing over 10% by 2017 (Annual measure: calendar years 2010 & 2012)		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; control the percent of ferry vessel systems that are past due for replacement from increasing over 10% by 2020 (Annual measure: fiscal years 2013 & 2014)	Terminals	5.4%	6.0%	Yes	↑	↓
	Vessels	5.3%	6.8%	Yes	↑	↓
Maintain percentage of transit fleet that exceeds the Federal Transit Administration's minimum useful life at 25% or below[3] (Annual measure: baseline data is for calendar year 2013)		N/A	25.4%	N/A	N/A	↓
Increase the percentage of Washingtonians using alternative transportation commute methods to 33% by 2015 (Annual measure: calendar years 2012 & 2013)		27.7%	27.3%	No	↓	↑
Improve travel and freight reliability on strategic corridors resulting from economic growth to within 5% of 2012 baseline		*Measure is under revision. Expected to report in March 2015*				
Maximize existing capacity of strategic corridors by increasing people and/or goods moved per corridor mile from X%[4] in 2012 to X%[4] in 2015		*Measure is under revision. Expected to report in March 2015*				
Reduce the number of pedestrian and bicyclist fatalities on public roadways from 84 in 2012 to zero in 2030 (Annual measure: calendar year 2013 & 2014)		61	69[5]	No	↑	↓
Measures for which WSDOT is not the lead agency, but has an interest[6]						
The following measures are led by other state agencies and will include accomplishments from WSDOT and other entities:						
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 March 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 (Annual measure: calendar years 2011 & 2012)		41.9	42.6	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 (Annual measure: calendar year 2011 & 2012)		1.13	1.12	No	↓	↓
Increase the average miles traveled per gallon of fuel for Washington's overall passenger and light duty truck fleet (private and public) from 19.2 mpg in 2010 to 23 mpg in 2020 (Annual measure: calendar years 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 (Annual measure: calendar years 2013 & 2014)		7,896	9,749	No	↑	↑
Increase miles of stream habitat opened from 350 to 450 by 2016 (Annual measure: calendar years 2012 & 2013)		350	572	Yes	↑	↑
Increase number of fish passage barriers corrected per year from 375 to 500 by 2016 (Annual measure: calendar years 2012 & 2013)		375	431	No	↑	↑
Goal 4: Healthy and Safe Communities						
Decrease number of traffic-related fatalities on all roads from 454 in 2011 to zero in 2030 (Annual measure: calendar years 2012 & 2013)		438	436[7]	Yes	↓	↓

Data source: WSDOT Office of Strategic Assessment and Performance Analysis, Results Washington's GovStat Program.

Notes: 1 "On target" is defined as currently meeting the target or on track to meet the target. 2 This measure only includes assets on the National Highway System. 3 This measure has been revised since the last report 4 These target and baseline levels are to be determined. 5 2014 data is considered preliminary. 6 In addition to the measures listed in the table above, WSDOT contributes performance information that will be combined and reported with data from all state agencies in Goal 5: Efficient, Effective and Accountable Government. 7 Data is preliminary.

56 Results WSDOT — Setting WSDOT's Direction

The strategic plan Results WSDOT directs the agency to 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. For a copy of Results WSDOT go to http://www.wsdot.wa.gov/Secretary/ResultsWSDOT.htm.

WSDOT has developed implementation plans that define the actions and deliverables needed to achieve Results WSDOT goals in the next three years. Results WSDOT is based on the six goals listed in the table below, which are supported by strategies and tasks. To date, all strategies are on track to achieve their desired results. Select *Gray Notebook* (GNB) articles, indicated by a box with a goal logo, incorporate strategies from Results WSDOT to 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 53, p. ix-x 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 strategic corridors to enhance economic vitality	-Highway maintenance: GNB 56, pp. 14-15 -Pavement conditions: GNB 56, pp. 5-13 -Capital facilities: GNB 55, pp. 2-5 -Bridges: GNB 54, pp. 4-11 -Ferries preservation: GNB 54, pp. 12-17
Goal 2: MODAL INTEGRATION Optimize existing system capacity through better interconnectivity of all transportation modes	-Rail: Amtrak Cascades: GNB 56, pp. 22-23 -Ferries: GNB 56, pp. 18-19 -Aviation: GNB 55, pp. 6-8 -Trucks, goods and freight: GNB 54, pp. 28-32 -Trip reduction: GNB 51, pp. 16-18
Goal 3: ENVIRONMENTAL STEWARDSHIP Promote sustainable practices to reduce greenhouse gas emissions and protect natural habitat and water quality	-Environmental compliance: GNB 56, pp. 24-25 -Water quality: GNB 55, pp. 17-19 -Endangered Species Act documentation: GNB 55, pp. 20-21 -General permitting: GNB 54, pp. 26-27 -Air quality: GNB 53, pp. 15-16 -Wetlands preservation: GNB 53, pp. 19-21 -Fish passage barriers: GNB 52, pp. 23-24
Goal 4: ORGANIZATIONAL STRENGTH Support a culture of multi-disciplinary teams, innovation and people development through training, continuous improvement and Lean efforts	-Lean: GNB 56, pp. 32-33 -Worker safety and health: GNB 55, p. 1 -Worker training: GNB 53, pp. 28-29
Goal 5: COMMUNITY ENGAGEMENT Strengthen partnerships to increase credibility, drive priorities and inform decision making	-Bicyclist & pedestrian safety: GNB 56, pp. 1-4 -Highway system safety: GNB 54, pp. 1-3
Goal 6: SMART TECHNOLOGY Improve information system efficiency to users and enhance service delivery by expanding the use of technology	-Tolling: GNB 56, pp. 30-31 -Commercial Vehicle Information Systems & Networks: GNB 53, pp. 22-23 -Travel information: GNB 53, p. 14

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

Pedestrian and Bicyclist Safety Annual Report

56

Notable results

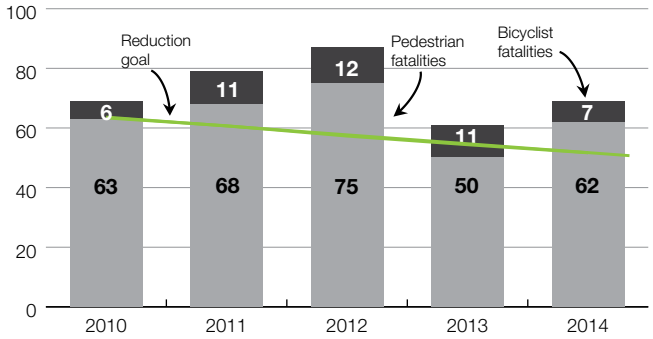
- *Pedestrian and bicyclist fatalities remain steady from 2010 to 2014 with an average of 73 fatalities per year*
- *From 2009 to 2013, 66% of fatal crashes involving bicyclists and pedestrians occurred in urban areas of the state*
- *WSDOT helps organize efforts to count pedestrians and bicyclists at nearly 300 locations in more than 40 cities*
- *Pedestrian and bicyclist fatalities accounted for an average of 16% of all traffic fatalities statewide from 2008 through 2013*

Pedestrian and bicyclist fatalities remain steady

Pedestrians and bicyclists, who are considered vulnerable road users, accounted for an average of 73 fatalities per year from 2010 through 2014 (crash data for 2014 is considered preliminary). While there is an increase in 2014 (69) compared to 2013 (61), the overall number of pedestrian and bicyclist fatalities for 2010 through 2014 remains relatively unchanged. In fact, both 2010 and 2014 experienced 69 fatalities. Although the number of fatalities remained steady from 2010 through 2014, each year was above the projected reduction goal trendline (see chart below).

Pedestrian and bicyclist fatalities accounted for an average of 16 percent of all traffic fatalities statewide from 2008 through 2013 compared to 15 percent in 2014 (see table above right). The number of all traffic fatalities continually decreased from 2008 through 2013 with an increase in 2014 (465).

Pedestrian and bicyclist fatalities remain steady
2010 through 2014[1]; Washington public roads; Reduction trendline goal is 5 percent annually



Data source: WA State Fatality Analysis Reporting System (FARS).
Notes: 1 2014 data is preliminary. 2 See *Gray Notebook* 48, p. 5 for more details on the goal to reduce fatalities. 3 Some of the number of fatalities have changed compared to reported fatalities in *Gray Notebook* 48, p. 2 due to using the Washington State FARS data source.

Percent of pedestrian-bicyclist fatalities steady compared to all statewide fatalities
2008 through 2014; Number of fatalities (percent of total fatalities)

	2008	2009	2010	2011	2012	2013	2014[2]
Total[1] statewide fatalities = 100%	521	492	460	454	438	436	465
Pedestrian and bicyclist fatalities	73 (14%)	71 (14%)	69 (15%)	79 (17%)	87 (20%)	61 (14%)	69 (15%)

Data source: Washington State Fatality Analysis Reporting System (FARS).
Notes: 1 Total fatalities includes all modes of travel. 2 2014 data is considered preliminary.

Pedestrians and bicyclists exposed to various traffic conditions, risks

From 2009 through 2013, 66 percent (243) of fatal crashes involving pedestrians or bicyclists occurred in urban areas. About half of all fatal traffic crashes involving pedestrians and bicyclists occur on state highways and the majority of these are concentrated in community commercial centers. State highways that pass through commercial centers are commonly referred to as "Main Street Highways," and also include roadways approaching community commercial centers.

During the past 10 years, there have been about 400 traffic crashes annually that have resulted in pedestrian or bicyclist injuries or fatalities. School-aged children and adults older than 65 represent a disproportionately high share of these crashes.

When involved in traffic crashes, pedestrians and bicyclists are seriously injured or killed more than 93 percent of the time, while drivers involved in these same collisions are seriously injured or killed 39 percent of the time.

Motor vehicle speeds are a contributing factor to the severity of pedestrian and bicyclist traffic crashes.

Roadway reconfigurations support safety initiatives

National research shows that a pedestrian who is hit by a vehicle traveling at 40 mph has an 85 percent chance of being killed; at 20 mph, the fatality rate is 5 percent. The majority of Washington pedestrian and bicyclist fatalities in the past 10 years occurred in areas where the posted speed was 35 mph or greater.

For more information on the national study, see http://www.trb.org/Main/Blurbs/154863.aspx.

WSDOT working toward goal of Safer People - Safer Streets

WSDOT is working with the United States Department of Transpsortation (USDOT) to reduce the growing number of pedestrian and bicyclist injuries and fatalities through a comprehensive approach called Safer People - Safer Streets that addresses infrastructure safety, education, vehicle safety and data collection. Together, WSDOT and USDOT are conducting road safety assessments in Washington, and producing a number of resources to help communities adapt streets to be safer for people walking, bicycling, and taking public transportation. To kick off this initiative in Washington, WSDOT held a statewide meeting in November 2014 and formalized an action plan. For more information on the Safer People - Safer Streets action plan, visit www.wsdot.wa.gov/bike.

WSDOT working to determine separated bicycle lanes guidelines

WSDOT is working with the Federal Highway Administration (FHWA) to produce a new guide for planning and designing separated bicycle lanes. These lanes provide exclusive facilities for bicyclists that are located within the roadway, but are separated from motor vehicle lanes by a curb, raised pavement, a painted buffer or other methods.

Bicyclists can use the protected lanes that separate themselves from motorized vehicle traffic.

Results Washington Leading Indicator

Reduce the number of pedestrian and bicyclist fatalities on public roadways from 69 in 2014 to zero by 2030

Status: Needs improvement (red)

Strategies:

1. **WSDOT is currently in the process of reviewing strategies and will report on them in the a future edition of the *Gray Notebook*.**

Number of pedestrian and bicyclist fatalities in 2014

Pedestrian fatalities	62
Bicyclist fatalities	7
Combined total	69

Note: 2014 is considered as preliminary data.

The National Institute for Transportation and Community finds separated bicycle lanes increase bicycling from 20 percent to more than 170 percent. The city of Seattle has installed separated bicycle lanes in eight locations and has reported increased cycling and safety, confirming national research.

Roadway reconfigurations improve safety for pedestrians, bicyclists

Road reconfigurations, commonly referred to as “road diets,” reduce traffic crashes between 19 and 47 percent. All roadway users may benefit, including pedestrians and bicyclists. Road diets involve strategies such as changing a four-lane roadway to two lanes, adding a center two-way, left-turn lane, and creating bicyclist-specific lanes. They are often low-cost safety solutions typically involving restriping with paint. Roadways with average daily traffic of 20,000 or fewer vehicles are typically good candidates for road reconfigurations based on FHWA research.

Strategic Plan Goal 2:
MODAL INTEGRATION
Strategy 2.1 (Multimodal Safety) - Align multimodal safety policy-making across the agency.

In support of this strategy, WSDOT has been working toward expanding the pedestrian and bicyclist count program to more accurately estimate user demand, measure investment benefits and help design and target safety projects. See p. viii for more information.

WSDOT invests in multimodal transportation

Road reconfigurations have demonstrated safety and operational benefits for vehicles, pedestrians, and bicyclists including reduced vehicle speeds, improved mobility and access and reduced traffic crashes and injuries. For the FHWA report, "The Road Diet Information Guide," see www.safety.fhwa.dot.gov/road_diets/info_guide/rdig.pdf.

WSDOT assists Department of Health with statewide student travel survey

In 2014, WSDOT partnered with the Washington State Department of Health to conduct a survey focusing on how students travel to and from school. About 10,000 adults with children in kindergarten through eighth grade participated in the survey.

The survey results indicated that 45 percent of children rode school buses, 39 percent were transported in privately-owned vehicles, 15 percent walked, and 1 percent biked. Children who lived within one mile of their school were more likely to walk or bike. Nearly 60 percent of parents indicated unsafe road crossings were a factor in selecting their child's mode of transportation. WSDOT intends to use this survey to monitor the impact of projects that improve conditions for walking and biking to school.

WSDOT works with partners to deliver safety education in 41 schools

WSDOT began partnering with Washington's Office of the Superintendent of Public Instruction, Washington Bikes, and Feet First in 2010 to provide a Bicycle and Pedestrian Safety Education Program. The program provides hands-on safety instruction to middle school students statewide. More than 50,000 students in 41 school districts have attended the program since 2010.

WSDOT expands statewide bicycle and pedestrian count program

WSDOT's Bicycle and Pedestrian Count Program is part of the National Documentation Project, an annual bicycle and pedestrian count and survey effort sponsored by the Institute of Transportation Engineers Pedestrian and Bicycle Council. Over the past seven years, WSDOT, working with the Cascade Bicycle Club, Washington Bikes and Feet First, have organized volunteers to count bicyclists and pedestrians at nearly 300 locations in more than 40 cities across the state. This information helps to more accurately estimate bicyclist and pedestrian needs and measure the benefits of investments and design projects.

WSDOT will be installing the first electronic counters to automatically count bicyclists and pedestrians in locations across the state during 2015, reducing the need for people to perform manual counts. WSDOT will pilot an open data website that will provide both the manual and electronic count information publicly in order to share data used in the decision-making process.

$ WSDOT invests in bicyclist and pedestrian safety improvements

WSDOT supports bicycling and walking as part of an integrated multimodal transportation system. Investments in bicyclist and pedestrian facilities and Americans with Disabilities Act (ADA) improvements ensure the Washington state transportation system provides travel options for everyone. Between 2009 and 2015, WSDOT will spend more than $60 million on bicyclist and pedestrian accessibility investments as part of other projects. For the list of projects, see http://www.wsdot.wa.gov/projects/bike/map/

During the past five years, $43.5 million (more than 30 percent) of the WSDOT local Highway Safety Improvement Program has been awarded to 84 stand-alone projects or elements of larger projects that improve conditions for biking and walking. Of this, $11 million has gone to stand-alone pedestrian and bicyclist safety projects. These investments have addressed 91 fatal or serious injury crash locations across the state with improvements ranging from illumination and crossing improvements to roadway reconfigurations.

In the past 10 years, WSDOT's Pedestrian and Bicyclist Safety Program has administered $44 million for 106 projects improving 80 known pedestrian and bicyclist safety risk locations and mobility improvements like Puget Sound Bike Share. Through Washington's Safe Routes to Schools Program, WSDOT has also administered $49 million for 136 projects, improving conditions for children walking and biking to school and providing safety education at 230 locations across Washington.

WSDOT, partners create safer travel opportunities

WSDOT partners on Eastside Trail in Puget Sound to enhance facility

The Eastside Rail Corridor Council, a body of locally elected leaders from the Puget Sound area, has agreed to cooperate on future uses of 42-mile multimodal corridor to accommodate pedestrians and bicyclists while opening the door for passenger rail in the future.

This trail provides connections of statewide significance to increase safety and mobility for biking and walking throughout the Puget Sound. WSDOT is working with the Eastside Rail Corridor Council to continue identifying partnership opportunities. Several new sections of the trail have been constructed or have received funding and are being developed currently. To learn more, visit King County's website: http://www.kingcounty.gov/operations/erc-advisory-council.aspx

Washington experiencing expansion for bike share

WSDOT recently partnered with private and public organizations to support the Puget Sound Bike Share with goal of making bicycle-commuting more accessible. The Seattle-area bike share program, named PRONTO, is made up of 50 bicycle stations and 500 public access bicycles. One month after opening in October 2014, PRONTO logged 11,000 rides totaling more than 22,000 miles. Each of the rides averaged about 15 minutes.

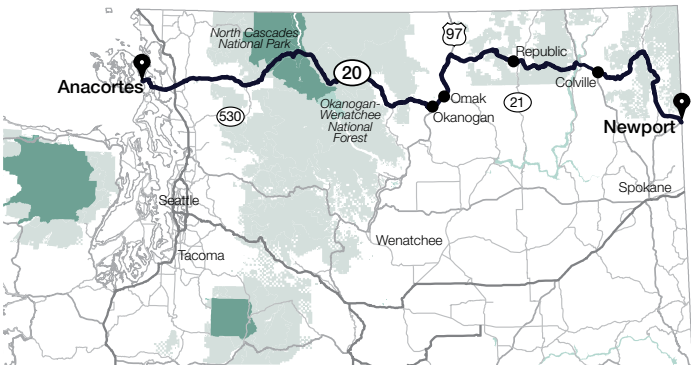
One of 50 PRONTO bicycle stations in the Seattle area designed to make bicycle-commuting more accessible.

U.S. bicycle routes and state scenic bikeways progressing

A national bicycle route system is becoming a reality. When fully developed, the U.S. Bicycle Route System will contain more than 50,000 miles of interstate bicycle routes crisscrossing the country, providing route guidance to touring cyclists, commuters and recreational riders.

In Washington, several nationally significant bike routes form a network of interstate bicycle routes linking Washington cities and regions with the rest of the nation. The American Association of State Highway Traffic Officials approved U.S. Bicycle Route (BR) 10, creating Washington state's first interstate bike route, an addition to the state's scenic bikeways.

Contributors include Charlotte Claybrooke, Mike Dornfeld, Matthew Enders, Mark Finch, Kyle McKeon, Paula Reeves and Dan Davis



The new U.S. Bicycle Route 10 crosses the northern part of Washington state, following State Route 20 from Anacortes to Newport at the border of Idaho. The route also passes through the Okanogan-Wenatchee National Forest and the North Cascades National Park.

Notable results

- *WSDOT pavement in fair or better condition improved from 91.8% in 2012 to 93.3% in 2013*
- *Remaining Service Life of WSDOT pavement has declined 2.4% since 2012, indicating the need for more pavement preservation work*
- *WSDOT estimates a $1.5 billion pavement preservation gap in the next 10 years, current funding will meet 40% of actual needs*
- *The deferred pavement preservation backlog was $391 million in 2013, an increase from $343 million in the previous year*

Short-term pavement conditions improve slightly

Pavement conditions can be assessed in the short term by measuring the percent in good, fair and poor condition in a given year. While this provides a snapshot of pavement conditions, it does not account for long-term trends.

In 2013, 93.3 percent of WSDOT-managed pavement lane-miles were in fair or better condition, an increase from 91.8 percent in 2012. In terms of vehicle miles traveled (VMT), 92.6 percent of VMT in 2013 were on roads in fair or better condition, compared to 91.9 percent in 2012. Where pavement condition is shown by VMT, roadways with more traffic are given more weight in the calculation than less traveled roads. This improvement in statewide pavement surface condition in 2013 is due to strategic steps taken by WSDOT (see p. 11).

The condition of WSDOT-managed roadways is evaluated annually using three criteria: surface cracking (an indicator of structural deterioration), rutting (which is monitored for safety and structural reasons), and smoothness (measured by the International Roughness Index). These criteria are used to classify pavement into five categories: very good, good, fair, poor and very poor. The categories fair, good and very good indicate a pavement that is performing adequately; pavement in poor condition is deficient and needs repair, and very poor indicates failure and need for substantial restoration or reconstruction. For a more in depth look at different pavement conditions, see chart on p. 9.

Strategic asset management improves short-term pavement condition; long-term outlook is critical
2013 compared to 2012

	Pavement annual performance measures[1]		2012	2013	Goal	Goal met	Progress	Desired Trend
Short term	**Percent of pavement in fair or better condition** measured for asphalt and concrete pavement (chip seal data was not collected in 2012 or 2013 due to budget constraints). Condition is shown by lane miles as well as weighted by the vehicle miles traveled (VMT) to reflect road use.	Lane miles	91.8%	93.3%	90.0%	✓	↑	↑
		VMT	91.9%	92.6%				
Long term	**Asset sustainability ratio** measures the years of pavement service life replenished through rehabilitation, divided by the service life consumed annually.		53%	65%	90%	—	↑	↑
	Remaining service life measures the percent of a pavement segment's remaining useful life before rehabilitation or replacement is needed (also shown as average years remaining).		47.3% (7.47 yrs)	46.1% (7.29 yrs)	45% to 55%	✓	↓	↑
	Deferred preservation liability (backlog) estimates the accumulated cost in current dollars to fund the backlog of past due (deferred) pavement rehabilitation work.		$343 million	$391 million	$0	—	↑	↓

Data source: WSDOT Materials Lab.
Notes: 1 All measures, except for deferred preservation liability, are weighted by vehicle miles traveled to better capture the typical road user's experience. Calculations for all measures, excluding condition, are improved to include all pavement (asphalt, chip seal, and concrete). All measures are calculated for calendar years 2013 and 2012. For these reasons, the previous year's data is not comparable to data published in *Gray Notebook* 48, p. 10.

Long-term pavement metrics highlight critical outlook

Pavement conditions likely to decline over long-term

Long-term performance indicators provide an additional assessment of WSDOT pavement infrastructure, as they account for the impact that the projected funding gap has on pavement service life and the preservation backlog. The projected $150 million annual funding gap during the next 10 years will make it difficult for WSDOT to keep up with the necessary pavement preservation work, as the forecasted funding only covers 40 percent of the estimated need. WSDOT tracks three long-term pavement performance measures (Asset Sustainability Ratio, Remaining Service Life and Deferred Preservation Liability) that were introduced in *Gray Notebook* 48, p. 10. Two of three measures showed a downward trend in 2013.

Asset Sustainability Ratio falls below WSDOT's goal in 2013

In 2013, WSDOT's Asset Sustainability Ratio was 65 percent, up 12 percent from 2012 but still not meeting WSDOT's goal of 90 percent. This ratio measures how well WSDOT is keeping up with long-term pavement investment needs. The Asset Sustainability Ratio measures the years of pavement service life replenished through rehabilitation, divided by the service life consumed annually.

Remaining Service Life declines in 2013, meets minimum threshold

The Remaining Service Life of state-owned pavement dropped from 47.3 percent in 2012 to 46.1 percent in 2013, 1.1 percent above WSDOT's minimum threshold. Remaining Service Life is a measure of how much pavement life remains for a given section of roadway before resurfacing is required. Calculating this measure for the entire statewide road network provides an indicator of the remaining life of the state's pavement network.

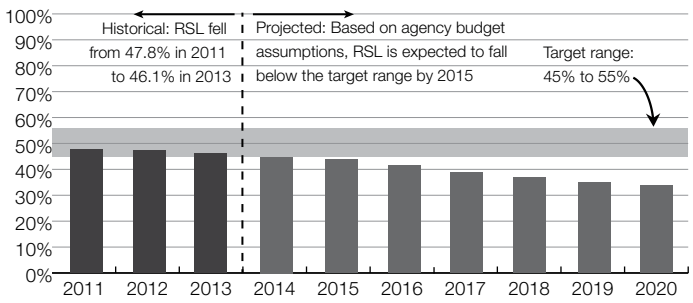
As a result of under-funding for pavement preservation, the Remaining Service Life of WSDOT pavement will reach a critically low level in 2015 when it is expected to fall below the minimum level of 45 percent. As Remaining Service Life falls below this lower limit, much more capital is required to fix the depleted roadways in order to carry traffic at an acceptable (fair or better) condition.

If rehabilitation of pavement in poor condition is deferred for too long, the pavement may deteriorate to a condition in which reconstruction is required (see p. 9). Because the cost of reconstruction is typically three to four times the cost of rehabilitation, this will increase the agency's preservation liability while Remaining Service Life falls.

Deferred Preservation Liability grows 14 percent between 2012 and 2013

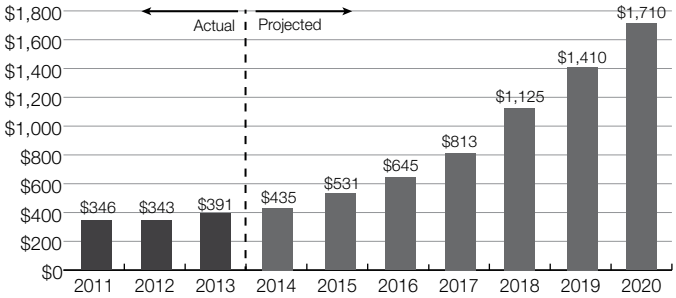
The backlog of deferred pavement preservation jumped $48 million from $343 million in 2012 to $391 million in 2013. When pavement investment is less than necessary to keep the pavement in acceptable condition, the Deferred Preservation Liability measures the funding that will eventually be needed to restore the pavement network to the expected condition. This is an estimate of the accumulated cost to fund the backlog of past due (deferred) pavement rehabilitation work. Not investing in pavement preservation due to lack of funding is like not repairing the roof on your house in order to defer costs. Eventually the roof must be repaired, in addition to any extra damage caused by not repairing the roof sooner.

Remaining Service Life of WSDOT pavements continues downward trend through 2020
Fiscal years 2011 through 2020; Remaining Service Life (RSL) shown as a percent of the original life



Data source: WSDOT Materials Lab.
Notes: For 2013, the Remaining Service Life of 46.1 percent is equivalent to 7.29 years remaining before rehabilitation is needed.

WSDOT's Deferred Preservation Liability expected to more than quadruple between 2013 and 2020
Fiscal years 2011 through 2020; Dollars in millions; Projections based on agency budget assumptions



Data source: WSDOT Materials Lab.
Notes: Deferred Preservation Liability is defined as the funding necessary to address deferred pavement rehabilitation for all pavement types. WSDOT's goal is to have $0 in Deferred Preservation Liability.

Pavement preservation funding expected to decline

The forecasted Deferred Preservation Liability, shown on p. 6, indicates the liability will grow to $1.7 billion by 2020. Once preservation of the pavement system becomes unsustainable, pavement repair and rehabilitation needs grow exponentially while the life left remaining in the system is at critically low levels.

Federal Highway Administration releases draft pavement rules for comment (MAP-21)

The Federal Highway Administration (FHWA) draft rules for the Moving Ahead for Progress in the 21st Century (MAP-21) legislation are requiring all states to report on the following pavement performance measures:

- Percentage of pavements on the interstate system in good condition;
- Percentage of pavements on the interstate system in poor condition;
- Percentage of pavements on the National Highway System (excluding the interstate system) in good condition; and
- Percentage of pavements on the National Highway System (excluding the interstate system) in poor condition.

WSDOT is evaluating and providing comments to the FHWA on the proposed rules and is well positioned to be in compliance with these reporting standards. For additional information on this rule release, see p. v.

Pavement preservation funding expected to continue to decline

The pavement preservation budget has experienced continuous funding reductions since 2000. The current planned budget over the next five biennia averages $100 million per year, resulting in a drop of 57 percent since 2000. Despite this downward trend in pavement preservation funding, WSDOT has adopted various innovative strategies to maintain pavement conditions (see p. 11).

With projected funds estimated at $100 million per year, WSDOT determined the optimal distribution of funds for each pavement type was approximately 60 percent for asphalt pavements, 30 percent for concrete and 10 percent for chip seal. This distribution also reflects the amount of statewide traffic traveling on each pavement type.

Proposed pavement preservation projects are prioritized and evaluated by the following four principles:

- Avoid excessive costs of reconstruction;
- Extend pavement life through cost-effective maintenance;
- Result in lower annual cost; and,
- Mitigate risks on roadways with high freight and commute traffic volumes.

WSDOT estimates a $1.5 billion funding gap during next 10 years

Based on the current pavement system conditions and by leveraging cost-effective, life extending strategies (see p. 11), WSDOT estimates a need of $250 million per year. With planned pavement preservation funding of $100 million per year for the next 10 years, only 40 percent of the actual need is met. This amounts to a total funding gap of $1.5 billion during the next decade. This is similar to expecting the average life of pavements to more than double (see graph below).

What 40% funding means for state roads

On average, chip seal **needs** to be replaced every **seven** years. Funding at 40% **replaces** it every **27** years.

On average, asphalt **needs** to be resurfaced every **15** years. Funding at 40% **resurfaces** it every **42** years.

Data source: WSDOT Materials Lab.

Pavement preservation funding needs vary from year to year, depending on pavement conditions and the rate of deterioration at various locations around the state. However, WSDOT has been tracking pavement performance for more than 40 years and the historical life of a rehabilitation cycle is well known. Using this information, the average renewal life for different types of pavement can be estimated, to help determine the funding necessary for pavement preservation.

WSDOT strives to reduce pavement preservation costs

WSDOT has two main goals to lower its annual pavement preservation needs: reduce pavement preservation project cost and extend pavement life. When a large funding gap exists, the system deteriorates and a reduction in Level of Service is inevitable.

First Goal: Reduce pavement preservation project costs

Project costs related to construction materials, labor, equipment, and traffic control are not expected to decrease in the future. Highway construction costs have been rising faster than the rate of inflation, and are expected to continue to do so (see Construction Cost Trends Annual Report, p. 29). The scope of projects can be reduced in an effort to lower costs, which includes WSDOT's strategic implementation of practical design (see p. 11). Cost reductions resulting from practical design could lead to average savings of 5 to 10 percent of project costs.

Second Goal: Extend pavement life

Annual funding needs are reduced by adding more years to the pavement life. This can be accomplished through better construction methods, improved use of materials, extensive preventive maintenance and/or optimal timing of preservation treatments. WSDOT is continually developing and implementing improved procedures in an effort to accomplish extended pavement life. Extending the average time between asphalt resurfacings by one year, from 15 to 16 years, saves $12 million each year. Extending pavement life for chip seals by an additional year, from seven to eight, yields a savings of $5 million per year.

Pavement Level of Service can decline due to long-term funding shortfalls

Reducing the Level of Service refers to letting the pavement conditions worsen before rehabilitation is planned. This is one way of extending pavement life, where the road user (traveling public and commercial vehicles) will be driving on roads in poor condition longer.

As pavement conditions deteriorate past the optimum time for rehabilitation, risks related to safety and vehicle operations increase. Large scale reductions in the Level of Service, which often result from continued under-funding, can potentially increase the following risks:

- **Safety:** Pavement deterioration, if allowed to continue, can lead to unsafe driving conditions in the form of excessive ruts, potholes, or extremely rough roads that can affect vehicle operation. When the condition deteriorates enough that safety and vehicle operation may potentially be at risk, it may be necessary to reduce speed limits to better reflect road conditions. All roads in Washington are designed, constructed and maintained with one primary goal: safety of the traveling public.
- **Excessive vehicle operating costs:** Poor road conditions can lead to excessive vehicle operating costs, especially on high volume roadways (see p. 12).
- **Disruption to traffic:** When pavement conditions become poor, there is an increased risk of sudden pavement failures that cause unexpected traffic disruption.
- **Excessive reconstruction costs:** Delaying pavement rehabilitation when it is in a poor condition often leads to reconstruction costs, which are several times higher than rehabilitation at the optimal time. Risk increases when reconstruction is required more and more frequently across the state as pavement conditions deteriorate.

Several sections of State Route 100 near Ilwaco were damaged in 2014 by heavy truck traffic. As a result, WSDOT reduced the speed limit from 35 mph to 25 mph to help reduce further deterioration of the roadway.

Under-funding preservation increases long-term costs

Under-funding pavement preservation may save money in the short-term, but it substantially increases long-term costs. This is because under-funding results in increased pavement damage and more expensive future pavement restoration. If WSDOT only invests 40 percent of the preservation dollars needed (due to the $900 million funding gap during the next 10 years), an additional cost of $700 million will be needed to address the increased pavement damage. This approach is equivalent to putting the deferred needs on a credit card at 28 percent interest. It would be far less expensive to pay for the preservation needs as they occur.

The pavement infrastructure managed by WSDOT (excluding bridges, land value, lighting and guardrails) has a replacement (reconstruction) value of $16 billion.

Preserving roads is a priority for most Washingtonians

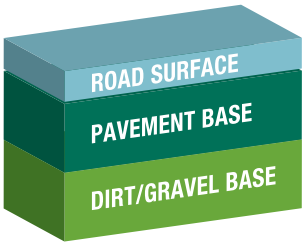
For example, if this value were divided among the 5.4 million adult citizens of Washington, who have a shared interest in these infrastructure assets, it amounts to about $3,000 per person. Preserving this investment at Lowest Life Cycle Cost ($250 million per year) is $46 dollars a year (or 89 cents per week) for each adult Washingtonian, and much less expensive than reconstruction.

In 2013, the Washington State Transportation Commission released the results of a statewide survey reporting that 60 percent of residents are willing to pay more

WSDOT's good condition pavement declines while that in fair and poor condition increases

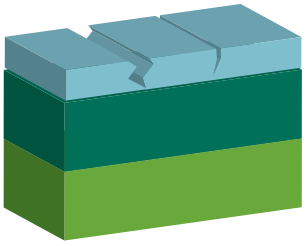
Actual numbers for 2008 and 2013; Projected 2019; Percent of lane miles and vehicle miles traveled[1] (VMT) by condition category; Characteristics of pavement at each condition

WHAT DRIVERS SEE	WHAT IS HAPPENING		2008	2013	Projected 2019	Trend	Desired trend
GOOD/VERY GOOD	GOOD/VERY GOOD	By lane miles	82.7%	76.6%	47%	↓	↑
		By VMT[1]	79.2%	73.5%	55%		
FAIR	FAIR	By lane miles	11.8%	16.7%	31%	↑	↔
		By VMT[1]	15.1%	19.1%	25%		
POOR	POOR	By lane miles	3.9%	5.0%	14%	↑	↓
		By VMT[1]	4.4%	5.9%	14%		
VERY POOR	VERY POOR	By lane miles	1.6%	1.7%	9%	↑	↓
		By VMT[1]	1.2%	1.5%	7%		



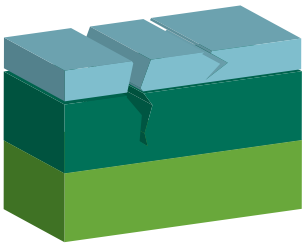
This pavement is in good condition with very minimal deterioration

Motorists experience a smooth road with minimal cracks, ruts or potholes



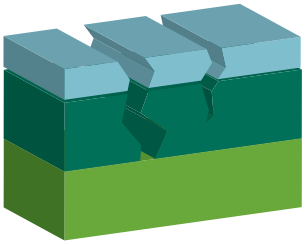
The most cost effective time to resurface or repair a road is when the surface shows wear, yet before the underlying structure is damaged, this means the agency is managing by lowest life cycle cost (LLCC)

Preventive preservation repairs is a good strategy to maximize the road's service life



Waiting until a road is in poor condition costs more, because damage to the underlying structure requires more expensive pavement restoration (1.5 to 2 times the LLCC)

Poor and very poor roads cause more wear on vehicles and higher fuel use



Delaying rehabilitation further can lead to deep pavement failure which requires more expensive reconstruction (3 to 4 times the LLCC)

This road requires reactive repairs to hold it together until reconstruction, not a good long-term cost saving strategy

Data source: WSDOT Materials Lab.

Notes: Percents may not add to 100 due to rounding. These condition figures do not include chip seal pavement, also known as Bituminous Surface Treatments (BST), which was not measured in 2012 or 2013 due to budget reductions. Chip seal pavement accounts for 30 percent of lane miles on the state's highway network, yet because chip seal roads have less traffic than asphalt or concrete, they account for 5.5 percent of the vehicle miles traveled on WSDOT's roadway network. 1 Where pavement condition is shown by VMT, roadways with more traffic are weighted more heavily than less traveled roads. Weighting pavement condition by VMT better accounts for the higher costs to maintain and preserve roads with more traffic.

Pavement condition measurements vary in 2013

in transportation taxes and fees to ensure that future transportation needs are met. Use of the increased funds to preserve infrastructure was considered important for 78 percent of residents, with 84 percent rating maintenance and repair of existing roads, highways, and bridges as important. The report on the survey findings can be accessed online at http://1.usa.gov/1Cbmtwl.

Progress to date on pavement reporting requirements

Results Washington

Results Washington, Gov. Jay Inslee's performance management system for the state, includes a measure for pavement conditions for state and local roads on the National Highway System (NHS). This measure strives to have no more than 10 percent of state and local NHS pavements (as a percentage of annual vehicles miles traveled) in poor condition by 2017. In 2013, 6 percent of NHS pavements were in poor condition, the same as in 2012.

This measure of pavement condition is based on the International Roughness Index (IRI), which has varying condition thresholds depending on roadway speed. For example, a road with a higher speed limit has a lower poor condition IRI threshold, because pavement roughness is more noticeable when driving at higher speeds.

The NHS is a network of strategic highways within the United States, and includes both state and local highways and roads serving major airports, ports, rail and/or truck terminals, pipeline terminals and other transport facilities. About 61 percent of WSDOT-managed pavement are on the NHS. Washington's NHS network includes 14,718 lane miles of pavement. More than three quarters of this roadway is managed by WSDOT, and the remaining 23 percent is managed by local governments.

Governmental Accounting Standards Board

The state is also required to follow Generally Accepted Accounting Principles, which include pronouncements from the Governmental Accounting Standards Board (GASB). This board governs the financial reporting of infrastructure assets, and requires WSDOT to maintain an up-to-date inventory of assets and to document condition assessments.

For the purpose of GASB reporting, WSDOT has a pavement condition goal of 85 percent of state-owned lane miles in fair or better condition, which WSDOT met in the most recent assessment cycle ending in 2013. Pavement conditions for GASB are assessed based on IRI, cracking and rutting.

Strategic Plan Goal 1:
STRATEGIC INVESTMENTS
Strategy 1.1 (Strategic Investments) - Create a process to identify strategic preservation and maintenance investments and strategic operational and multimodal capacity improvement investments in corridors to achieve performance levels.

In support of this strategy, WSDOT developed a policy for planning, programming and managing asphalt and chip seal pavements in order to improve the agency's effective management of these assets in a declining revenue climate. For more detailed information related to these efforts, see the section on WSDOT's strategy of using maintenance to extend pavement life on p. 11.

Results Washington Leading Indicator

Based on current funding levels, control the percent of state and local pavements in poor condition from increasing over 10% by 2017.

Status: On plan (green)

Strategies:

1. **Convert asphalt surfaces to chip seal** - The life-cycle annual cost for a chip seal surfaced pavement is approximately one-third the cost of an asphalt surface. By 2016, it is expected that the cumulative six-year cost reduction due to chip seal conversion will be $100 million.
2. **Implement practical design** - WSDOT uses the practical design approach to make project decisions that focus on the specific problem that the project is intended to address. This is a performance-based approach that looks for lower cost solutions in order to meet specific performance criteria.
3. **Strategic pavement maintenance** - Performing maintenance treatments at the appropriate time (before rehabilitation is needed) extends pavement life and results in lower annual cost. In August 2014, WSDOT implemented a policy that no pavement rehabilitation should take place without first using strategic maintenance to extend pavement life.
4. **Prioritize cost effective projects** - WSDOT prioritizes projects that avoid reconstruction, have a lower annual cost and are on higher volume roads.

Percent of National Highway System (NHS) pavement in poor condition

WSDOT	5%
Local	15%
Total	6%

Immediate mitigation for at risk or off plan status:

WSDOT is seeking asset preservation funding as part of a transportation revenue package.

Innovative strategies improve pavement conditions

WSDOT strategically sustains pavement performance

WSDOT has developed aggressive strategies during the last several years to increase efficiency and counteract the effects of the pavement preservation economic shortfall. Some of the components of this strategy have resulted in long-term benefits, but most have short-term effects that only temporarily bridge the funding gap. Each strategy described here is designed to either accomplish transportation goals at a lower cost, or extend the pavement life for a given set of conditions.

Strategy: Converting asphalt surfaces to chip seal is often cost effective

WSDOT estimates that by 2016 it will have converted 2,270 lane-miles of roadway to chip seal, resulting in a cumulative six-year cost reduction of $100 million.

The average annual cost for a chip seal surfaced pavement during its life cycle is approximately one-third the cost of an asphalt surface. The average service life of chip seal pavement is about 45 percent the lifespan of asphalt (6.7 years for chip seal compared to 15 years for asphalt). Chip seal resurfacing is best performed when placed on asphalt in fair condition (two to four years earlier than asphalt pavement would normally become due for resurfacing). The typical traffic threshold is for roadways with less than 10,000 average daily vehicles, although some routes with higher traffic volumes have been successfully converted to chip seals.

While chip seal conversion is a high priority, it will be difficult for WSDOT to sustain an aggressive chip seal conversion policy with the projected future budget decline.

Resurfacing asphalt roadways with chip seal pavement saves WSDOT approximately $12,000 per year for every lane mile converted.

Practical Design strategies were used on State Route 20 in eastern Washington to focus repairs on the specific sections of pavement that required rehabilitation, rather than resurfacing the entire roadway.

Strategy: Implementing practical design addresses key problems

WSDOT's Transportation Secretary, Lynn Peterson gave direction in August 2014 to implement a practical design program. This is a cost-saving approach to make project decisions that focus on the specific problem the project is intended to address. This performance-based approach looks for lower cost solutions that produce the best return on investment in order to meet specific performance criteria. For pavement preservation, practical design focuses on treatments that address the deterioration in the pavement structure. In the 2013-2015 biennium, practical design (also known as minimal pavement design) accounted for project savings of $19.4 million.

Practical design concepts for asphalt pavements include such strategies as milling and overlaying roadways for only those lanes requiring rehabilitation, eliminating "curb to curb" fixes within city limits, providing "surgical" repairs to only a portion of a given section of pavement that requires rehabilitation, and considering lower cost solutions for ramps. Practical design solutions for chip seal roadways include resurfacing the travel lanes (deferring shoulders to future rehabilitation cycles), chip sealing through towns instead of placing asphalt where practical, providing repairs and focusing chip seal where it is most needed.

Practical design strategies for concrete roadways includes the use of "triage" practices for older concrete pavement that needs limited renewal to improve smoothness and replace selected cracked panels. Driving smoothness is restored by diamond grinding the pavement surface to smooth out any roughness. Triage has the advantage of delaying the eventual need for reconstruction. Many sections of WSDOT roadway, such as the Interstate 5

corridor through Seattle, have been restored this way since 2007. For more detailed information on concrete preservation strategies, see *Gray Notebook* 52, p. 11.

Strategy: Maintenance extends pavement life

Performing maintenance at the appropriate time is one strategy that WSDOT is aggressively implementing to be more cost-effective and extend pavement service life. In August 2014, WSDOT implemented a policy that no pavement rehabilitation should take place without first using maintenance efforts to extend pavement life. Performing maintenance extends pavement life, resulting in lower annual cost, and helps protect the integrity of the pavement structure.

Asphalt roadways in Washington average 15 years of service life per resurfacing cycle, with chip seal roadways averaging about 6.7 years. For every year WSDOT extends the pavement service life, the cost savings for asphalt and chip seal roads averages about 8 percent and 15 percent, respectively, of the resurfacing cost.

In 2009, WSDOT began a process in which funds from the pavement preservation budget were used for maintenance treatments. Based on the success of this effort, funds have increased for this purpose every biennium since, with $12 million planned for maintenance in the 2015-2017 biennium, almost twice the amount that was funded in the 2013-2015 biennium.

Strategy: Prioritizing projects allocates funds strategically

There is not enough funding to complete all the project needs for the pavement preservation program. Prioritization that is based on cost-effectiveness is used to determine which potential projects will be selected for completion. This prioritization process considers the following factors:

- **Risk of reconstruction:** Projects are evaluated according to the current condition of the pavement structure, and whether or not the section of road is at risk of requiring reconstruction. Pavement reconstruction is several times more than the cost of rehabilitation (work performed to extend the service life of an existing pavement).
- **Pavement management annual cost:** With all other factors being equal, projects with a lower cost per lane-mile per year will receive higher priority. Cost per lane-mile per year is the key performance measure for cost-effectiveness for WSDOT pavement management.
- **Traffic volume:** If a higher volume roadway experiences a pavement failure, more traffic is affected and the cost of emergency repair is typically more than it would be on a lower volume roadway. With all other factors being equal, projects with higher traffic volume are a higher priority.

Considering user costs helps WSDOT prioritize projects

The National Cooperative Highway Research Program Report 720 indicates that very rough roads will lead to average vehicle operating costs of 2 cents more per mile. Although this amount seems small, if multiplied by 200,000 vehicles per day (the typical traffic on the 15-mile stretch of Interstate 5 between SeaTac and downtown Seattle), this cost amounts to $21.9 million annually. The full report can be accessed at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_720.pdf.

Road user costs are typically divided into two categories: vehicle operating costs and user delay costs. Vehicle operating costs include the additional cost (additional fuel consumption and “wear and tear” on the vehicle) to vehicle owners for driving on roads in poor condition. User delay cost refers to additional costs to the road user that are due to construction delays.

WSDOT’s investment strategies for pavement preservation are determined by considering the total costs and benefits of road use and managing the roadway efficiently and effectively for the agency and the users.

WSDOT utilizes sustainable practices for managing pavement

A sustainable transportation system is one that preserves the environment, is durable and takes into account the materials used and how it is built. The statement “Reduce, Reuse and Recycle” embodies the concepts of sustainable highways at WSDOT.

The first focus area, reducing, involves working to eliminate the need to replace what is already built. Building higher-quality, longer lasting roadways reduces the need to regularly replace those roadways. A long-standing philosophy at WSDOT is to design and build pavement structures strong enough that rehabilitation will be targeted at the surface layer, and that deeper repairs

Sustainability is key to WSDOT pavement management

Hot-in-place asphalt paving (shown above on State Route 542 near Deming) requires a long train of equipment to heat, loosen, remove, reconstitute and repave the asphalt in one pass.

will not be necessary. About 90 percent of WSDOT pavement preservation projects entail removing only a thin surface of distressed pavement and then replacing the worn out asphalt with new asphalt surfacing.

WSDOT also implements sustainable pavement practices by reusing and recycling materials. WSDOT uses four main methods to reuse and recycle asphalt:

- Recycling up to 40 percent of asphalt pavement results in a cost savings of $14 million to $18 million annually.
- Cold-in-place asphalt recycling reconditions roadway pavements by turning the existing asphalt layers into a stabilized base, which is then overlaid with a new asphalt surface.
- Asphalt shingle recycling allows the asphalt binder contained in the shingles (which make up about 30 percent asphalt) to be incorporated into a new asphalt mix. WSDOT's Standard Specifications were changed in 2014 to allow asphalt shingle recycling.

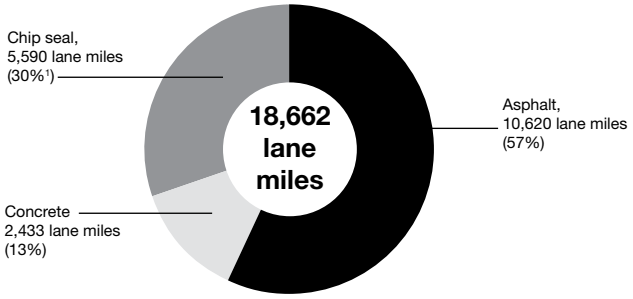
Like asphalt, concrete pavements offer many reuse applications. Crushed concrete from worn out concrete pavements is currently used for many concrete aggregate applications (such as pavement base material), and changes are being considered to allow crushed concrete aggregate in new concrete.

Contributors include Dave Luhr, Pat Morin, Matt Neeley, Tim Rydholm, Jeff Uhlmeyer and Alison Wallingford

WSDOT manages 18,662 lane miles of state-owned pavement

In 2013, WSDOT managed 18,662 lane miles of pavement, which is more than three roundtrips driving between Seattle and New York City. More than half (57 percent) of WSDOT-managed pavement is asphalt, 30 percent is chip seal and 13 percent is concrete. In terms of annual vehicle miles travelled (VMT), 67 percent of travel occurs on asphalt roads and 28 percent of annual VMT is on concrete roads. Even though chip seal roads comprise nearly one-third of Washington's state-owned roads, they only account for 5 percent of annual VMT.

More than half of WSDOT pavement is asphalt
Calendar year 2013; Lane miles of WSDOT pavements by type



Data source: WSDOT 2013 State Highway Log.
Notes: 1 If WSDOT converts all of the 1,410 lane miles programmed or identified for chip seal conversion in 2013 through 2016, chip seal will account for about 37 percent (6,900 lane miles) of WSDOT's pavement by the end of calendar year 2016.

WSDOT's *Pavement Notebook:* Detailed performance information

WSDOT's *Pavement Notebook* presents detailed performance reports of pavement, such as conditions by county and legislative district, average pavement life, international roughness statistics, and lane miles paved by year. Two new papers that will be presented at the International Conference on Managing Pavement Assets in May are also available: Visualizing Pavement Management Data at the Project Level and Economic Evaluation of Pavement Management Decisions. The *Pavement Notebook* can be accessed at: http://www.wsdot.wa.gov/Business/MaterialsLab/Pavements/PavementNotebook.htm.

56 Asset Management: Highway Maintenance Annual Report

Notable results

- *WSDOT achieved 79% of highway maintenance asset condition targets in 2014*
- *WSDOT estimates a current maintenance backlog of $90 million*

Highway maintenance declines slightly in 2014

WSDOT met 79 percent of highway maintenance targets in 2014, slightly lower than the 80 percent achieved in 2013. The Maintenance Accountability Process (MAP) measures performance of 28 maintenance activities using two metrics: asset condition level of service (LOS) and task completion.

Asset condition LOS results from condition assessments and operational assessments. A condition assessment is measured through data collection from site surveys in many different forms, including statewide surveys. An operational assessment evaluates the operation of the asset, such as how many traffic signal repairs were needed in a given period of time.

Task completion quantifies the number of planned tasks for a specific activity each year, and how many of those tasks were completed. See *Gray Notebook* 36, p. 17 for a more comprehensive overview of the task completion metric. To see a table that shows both LOS and task completion percentages for select assets, go to http://wsdot.wa.gov/publications/fulltext/graynotebook/GNB56_Extra/Maintenance_TaskCompletion.pdf.

WSDOT reduced the number of maintenance activities reported from 30 to 28 in 2014. Bridge deck repair and structural bridge repair measures will no longer receive a MAP letter score but will be part of an integrated preservation performance measure approach to better align task completion and the activity. Task completion will now be reported with a performance-based condition determined by WSDOT's Bridge Preservation Office (see *Gray Notebook* 54, p. 4 for a comprehensive report on WSDOT Bridge Conditions).

The table to the right lists maintenance activities in order of priority and their asset condition LOS scores achieved compared to Legislative targets. These targets use a grading scale from A+ to F-, with A+ being the best and F- being the worst. *Gray Notebook* 32, p. 19 has a detailed overview of the MAP LOS standards.

WSDOT meets 79 percent of asset condition targets
Level of service (LOS) target and score achieved by priority

	Legislative target	2013 results	2014 results
Movable and floating bridge operations	A+	A+	**A**
Traffic signal system operations	C+	B-	B-
Snow and ice control operations	A	A+	A
Keller Ferry operations	B	**F-**	**D-**
Urban tunnel systems operations	B	**B-**	B+
Regulatory/Warning sign maintenance	C+	C+	**C**
Slope repairs	A	**A-**	A
Intelligent transportation systems	A-	A-	A-
Maintain catch basins & inlets	B	B+	A+
Guardrail maintenance	A-	A	**B+**
Pavement striping maintenance	B-	**C+**	**C+**
Raised/Recessed pavement markers	C+	B-	C+
Control of vegetation obstructions	C	C	C
Rest area operations	B	B	B
Sweeping and cleaning	A	A	A
Maintain ditches	B+	**B**	B+
Highway lighting systems	A-	A	A+
Guidepost maintenance	D	D	D
Maintain culverts	D	D	C
Pavement marking maintenance	D	D	C
Noxious weed control	C+	B	B+
Shoulder maintenance	C-	C	C
Guide sign maintenance	C+	B	B
Stormwater facility maintenance	C	C	I[1]
Bridge cleaning and painting	B	B	B
Nuisance vegetation control	D-	D+	D
Landscape maintenance	D	D+	D
Litter pickup	D	D	D
Percent of targets achieved or exceeded		**80%[2]**	**79%**
Percent of targets missed		**20%[2]**	**18%[3]**

Data source: WSDOT Maintenance Office.
Notes: The 28 maintenance activities are in prioritized order. 1 "I" indicates an incomplete rating. Technical information required to complete inspection and maintenance of older stormwater facilities is still being developed. 2 Percentage includes the two maintenance activities removed from reporting in 2014. 3 Stormwater facility maintenance LOS is not being included as met or not met because the score is incomplete.

Maintenance is critical to aging assets

Fewer preservation projects means maintenance crews will be taking care of assets longer, while the assets continue to age. WSDOT estimates a current maintenance backlog of $90 million, an increase of $18 million from 2013.

WSDOT meets 22 of 28 maintenance targets in 2014

Maintenance plays a critical role in WSDOT's asset management by meeting the daily needs of approximately 19,000 highway and state route lane miles and 2,000 miles of ramps and special use lanes on the state highway system, focusing on preventive maintenance, repairs, and the safe operation of highway infrastructure. Asset condition LOS is affected not only by maintenance actions, but also by rehabilitation/rebuilding highway infrastructure, third party damage, disaster events and new construction projects. Twenty-two maintenance LOS targets were met in 2014. Five did not achieve their goals, and one was incomplete.

Movable and floating bridge operations missed its LOS target of A+. The LOS is determined by the number of openings and closings delayed due to mechanical malfunction. Moveable and floating bridges obtained an A with 29 delays out of 5,036 openings/closings. These delays occurred on 0.6 percent of the openings/closings. The A+ target would have been achieved if there had been four less delays.

Keller Ferry operations missed its LOS target of B and received a rating of D- for 2014, an unusually low score for this asset. The LOS for this asset is determined by the hours of operational downtime. The Motor/Vessel (M/V) *Sanpoil*, the newly constructed vessel that replaced the M/V *Martha S*, was put into service August 14, 2013. The new ferry experienced 310 hours of downtime in 2014 due to electrical and steering issues, engine repairs and patching of cracks in the hull. Although all of the issues were covered by the manufacturer's warranty, travel time to reach the ferry for repairs in Ferry County contributed to additional downtime. Twelve hours of downtime was due to high winds and landing moves due to changing water levels, which are normal and expected. If not for the warranty issues described above, the 12 hours of "normal" downtime would have resulted in a LOS rating of A.

Pavement striping maintenance missed its LOS target of a B-, receiving a rating of C+ for 2014. This is the same rating received in 2013. The target was set early in the 2013-2015 biennium when additional funds were planned to be spent on this activity. However, unforeseen critical bridge needs necessitated shifting some funds from striping to bridge maintenance.

Both **guardrail and regulatory sign maintenance** missed their LOS targets with relatively minor drops in LOS compared to prior years. As the inventory of guardrails and regulatory signs continues to rise as a result of construction projects, lack of corresponding increases in maintenance and preservation funding gradually leads to deterioration of these assets.

Since 2000, WSDOT's sign inventory increased approximately 52 percent. It is estimated that nearly three million linear feet of guardrail has been added to the highway system since 2007. While WSDOT personnel use historical data and best professional judgment to establish achievable LOS targets at the beginning of each biennium, continuous increases in inventory, wear and tear in older highway assets, and fluctuations in preservation funding impact what happens to the actual asset condition during a biennium.

Stormwater facility level of service to be developed as work continues

WSDOT is required to annually inspect, maintain and repair nearly 2,000 stormwater facilities under terms of a federal stormwater management permit (see *Gray Notebook* 55, p. 17 for additional information). Inspection and maintenance requirements have been met on the majority of these facilities, but WSDOT has been unable to locate the associated design and construction documentation for 367 of the older facilities.

This stormwater basin has overgrown vegetation and does not adequately filter sediment from stormwater runoff. Approximately 19 percent of WSDOT's stormwater facilities are not yet in compliance.

WSDOT hydraulic engineers are currently evaluating each of these facilities, identifying the specifications and standards needed to complete any maintenance and repairs required by the permit, and compiling this information for maintenance personnel. This is a long-term effort which includes development of appropriate performance measures. WSDOT anticipates achieving full compliance for these facilities by December 31, 2016.

Contributors include Rico Baroga, Kelly Shields, Anna Zaharris, Erica Bramlet and Todd Lamphere

56 Travel Time Trends Semi-Annual Report

Notable results

- *Peak period travel times increased on 15 of 18 Puget Sound region commute routes evaluated*
- *Some I-5 and I-405 commutes experienced travel time increases of four minutes, while SR 167 saw a three-minute increase*

Puget Sound region travel times trending higher

Puget Sound region travel trends observed during the first half of 2014 indicate corridor travel times are trending up, while the traffic volume changes varied depending on the corridor and location. The increase in travel times on Puget Sound region freeways — Interstate 5 (I-5), I-405, I-90, State Route (SR) 520, and SR 167 — comes at a time of growth in the region's economy.

This travel time trends analysis looks at traffic conditions for the first half of 2014 (January through June) and changes relative to the same time period in 2013. Key observations include:

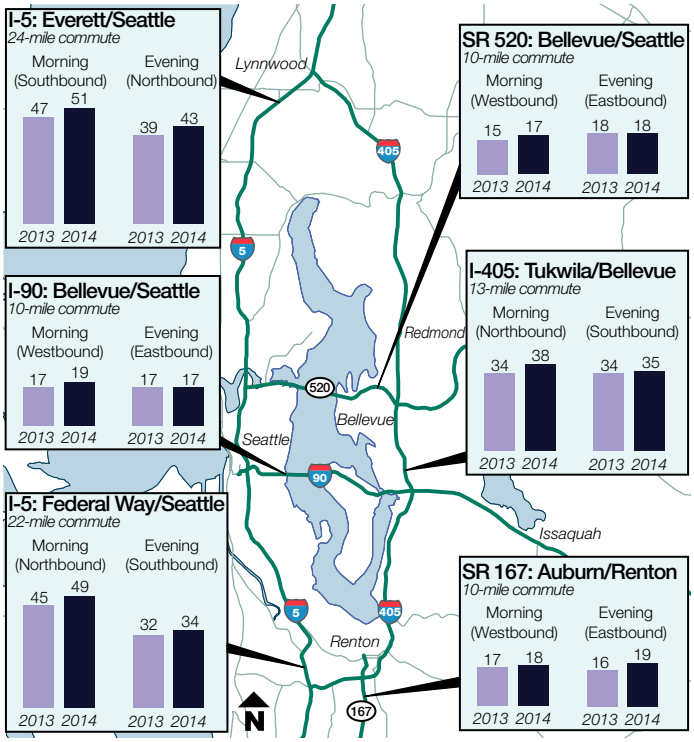
Travel times: Peak period (Monday-Friday, 5-10 a.m. and 2-8 p.m.) travel times increased on 15 of the 18 commute routes. Of the remaining three, two commutes saw no change in travel time while one improved by two minutes.

Traffic volumes: During peak periods (Monday-Friday, 5-10 a.m. and 2-8 p.m.), traffic volume (number of vehicles passing a location) on 15 of the 18 commute routes changed 2 percent or less. The remaining three commute routes experienced significant variations in traffic volume, ranging from an 8 percent decrease to a 5 percent increase.

Economy: Employment levels increased by 3.2 percent between June 2013 and June 2014 in the Seattle-Bellevue-Everett metropolitan area, indicating continued economic growth.

Lake Washington commute times remain stable as volumes increase

Between 2013 and 2014, travel times on all of the eight cross-lake commute routes on SR 520 and I-90 changed by two minutes or less, while traffic volumes increased up to 5 percent depending on the direction of travel and the time of day.



Source: WSDOT Northwest Region and the Washington State Transportation Center (TRAC)
Notes: Travel times are for single occupant vehicles in minutes. Data is for the first half of 2013 and 2014 (January through June). Peak periods are 5-10 a.m. for morning and 2-8 p.m. for evening.

SR 520 corridor (2014 vs. 2013): Eastbound peak period traffic volumes on SR 520 (between Bellevue and Seattle) increased by 5 percent, while westbound peak period traffic volume increased by up to 2 percent. In comparison, average daily volume increased by 4 percent in the eastbound direction while the westbound direction remained unchanged.

State Route 520 travel times changed by two minutes or less in both directions of travel.

I-90 corridor (2014 vs. 2013): Peak period traffic volumes on I-90 (between Bellevue and Seattle) increased by 1 percent or less in both directions of travel. Daily volume remained unchanged.

Interstate 90 travel times increased by up to two minutes in both directions of travel.

I-5, I-405 commutes experience increased congestion

North-south corridors experience longer travel times in 2014

Between 2013 and 2014, travel times increased on all 10 north-south (along I-5, I-405, SR 167) commute routes. Among these, three routes on I-5 and I-405 (during the morning commute) and two on I-5 and SR 167 (during the evening commute) represent the most congested trips. The increases in travel times ranged between three and four minutes. The remaining five commutes showed moderate increases in travel times of up to two minutes.

I-5 corridor (2014 vs. 2013): Peak period traffic volume changes on I-5 between Everett and Seattle, were relatively small, with a 1 percent reduction in the northbound direction, while southbound peak period traffic volume remained steady. Similarly, peak period volumes on I-5 between Federal Way and Seattle were up by 2 percent in both the northbound and southbound directions. Daily volume remained steady north of Seattle, but was up 3 percent south of Seattle.

Interstate 5 commutes between Federal Way, Seattle and Everett have taken more time during the past few years. Travel times on these routes had three of the four largest travel time increases among the 18 monitored trips: four-minute increases on the Federal Way to Seattle and Everett to Seattle morning commutes, and a four-minute increase on the Seattle to Everett evening commute.

I-405 corridor (2014 vs. 2013): During the morning peak period, southbound traffic volume on I-405 (between Everett and Bellevue) experienced an 8 percent reduction. Similarly, northbound volume on I-405 (between Tukwila and Bellevue) was down by 2 percent. However, during the evening peak period, traffic volumes on both the I-405 evening commutes from Bellevue to Everett (northbound) and Bellevue to Tukwila (southbound) remained unchanged. Daily traffic volumes decreased up to 5 percent north of Bellevue, and up to 1 percent south of Bellevue.

Interstate 405 commutes between Tukwila, Bellevue, and Everett have shown travel time growth during the past few years. Similar to I-5 routes, travel times on the I-405 routes had one of the four largest travel time increases among the 18 monitored trips: a four-minute increase on the northbound Tukwila to Bellevue morning commute. The three other commutes along I-405 saw travel times increase by up to two minutes.

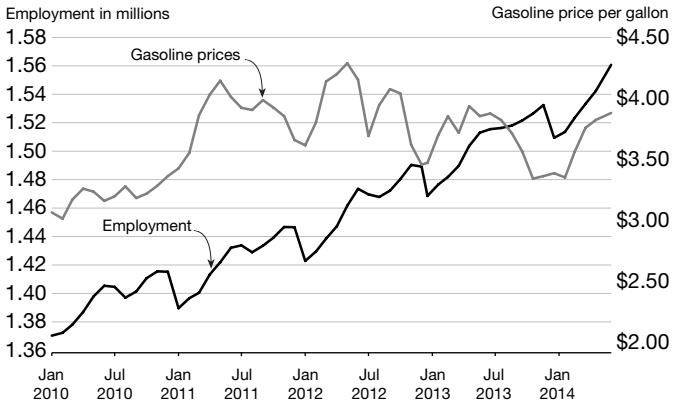
SR 167 corridor (2014 vs. 2013): Peak period traffic volumes on SR 167 between Auburn and Renton decreased by 1 percent on the northbound morning commute and increased by 1 percent on the southbound evening commute.

State Route 167 commutes between Renton and Auburn have shown moderate travel time growth. Travel times on the Renton to Auburn southbound evening commute increased by three minutes in the first half of 2014, while the Auburn to Renton northbound morning commute travel time increased by one minute.

A list of 18 monitored Puget Sound area commutes during the first half of 2014 can be accessed at http://wsdot.wa.gov/publications/fulltext/graynotebook/GNB56_Extra/2014_FirstSemi-AnnualTravelTimes.pdf.

Employment rises, gas prices stabilize

January 2010 through June 2014; Employment for the Seattle-Bellevue-Everett metropolitan area; Washington state gas prices



Data source: Bureau of Labor Statistics – Local Area Unemployment Statistics; US Department of Energy – Energy Information Administration.

Note: Gas prices are inflation adjusted using the Cosumer Price Index.

Employment growth adds to travel time increases

Economic activity continued to grow in the Puget Sound region in the first half of 2014. The employment trend that began in 2011 continued, with employment in King and Snohomish counties increasing by 3.2 percent from June 2013 (1,513,000 nonfarm jobs) to June 2014 (1,560,700 nonfarm jobs). Gas prices can also impact travel volumes. The price of regular gas in the region edged up from $3.85 per gallon in June 2013 to $3.88 in June 2014. Gas prices typically begin to decline in the mid-summer months and fall until the end of the year and then begin to rise again around late February and early March.

Contributors include Mark Hallenbeck, John Ishimaru, Trevor Skelton and Sreenath Gangula

56 WSDOT Ferries Division Quarterly Update

Notable results

- ***WSDOT Ferries Division exceeded its annual on-time performance goal of 95% with 96.4% of its 40,436 trips departing on time***
- ***Ferries farebox revenues were $37.2 million, up 6.9% ($2.4 million) compared to the same quarter in fiscal year 2014***

Ferries ridership continues steady quarterly growth

WSDOT Ferries Division (Ferries) ridership was approximately 5.26 million during the second quarter of fiscal year (FY) 2015 (October through December 2014). This is 145,000 (2.8 percent) more than the second quarter in FY2014. It also marked the eighth consecutive quarter that ridership has increased over the corresponding quarter from the previous fiscal year. Fiscal years run from July 1 through June 30.

Ferries make 99.4 percent of trips to exceed annual reliability goal

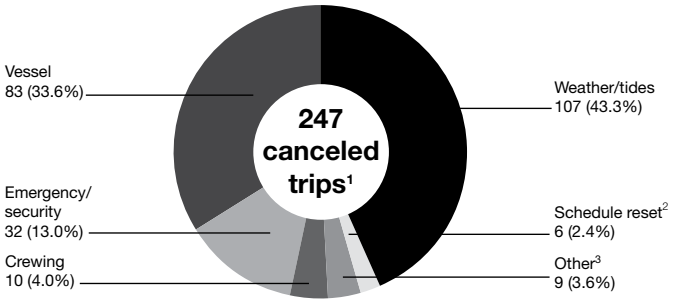
There were 40,664 regularly scheduled trips during the second quarter of FY2015. Ferries made 99.4 percent (40,436) of them, exceeding its annual reliability performance goal of 99 percent (see table on p. 19).

Ferries canceled 247 trips and was able to replace 19 of them, resulting in 228 net missed trips for the second quarter of FY2015. Ferries missed the same number of trips during the second quarter of FY2014.

Tides and weather were the primary reasons for cancellations during the quarter, totaling 107 (43.3 percent). The Port Townsend – Coupeville route accounted for 93 of the tide- and weather-related cancellations. The remaining 14 occurred on the Point Defiance – Tahlequah route in December when a storm warning was issued for the area.

Mechanical issues on vessels caused 83 trip cancellations, and accounted for 33.6 percent of all the cancellations for the quarter. Engine and rudder problems on the Motor/Vessel (M/V) *Salish* resulted in 51 cancellations, while generator issues on the M/V *Spokane* led to 10 canceled trips. The remaining 22 mechanical cancellations were spread across six other vessels. Emergency/security issues were the third highest reason and resulted in 32 cancellations during the quarter.

Weather, tides top reasons for canceled ferries trips
Second quarter (October through December), fiscal year 2015



Data source: WSDOT Ferries Division.
Notes: Fiscal years run from July 1 through June 30. 1 Ferries replaced 19 of the 247 canceled trips. 2 A schedule reset occurs when a vessel cancellation requires the resetting the schedule for other in-service vessels on that route. 3 "Other" includes events like disabled vehicles, issues at terminals, environmental reasons or non-ferries related incidents that can impact operations.

Ferries on time performance strong, sees slight decrease

System-wide on time performance for the WSDOT Ferries Division was 0.2 percentage points lower than the same quarter in FY2014, decreasing from 96.6 percent to 96.4 percent for the second quarter of FY2015. This rate exceeds Ferries annual on time performance goal of 95 percent for its scheduled trips this quarter.

On average, 16 out of 442 daily trips did not leave the terminal within 10 minutes of the scheduled departure time in the second quarter of FY2015. This is a slight increase from the 15 daily trips that were late during this period last year.

The international route, which travels from Anacortes to Sidney, British Columbia experienced the largest improvement in on time performance with a 6.4 percent increase over the same quarter last year. This jump was related to improved visibility during the quarter. Numerous poor visibility days in the second quarter of FY2014 negatively impacted on time performance.

Farebox revenues highest yet for second quarter

With less than 200 trips in the second quarter of FY2015, the international route is prone to higher fluctuations year to year in on time percentages. The Seattle – Bremerton route experienced a 2.7 percent increase in on time performances compared to the same quarter last year, which was also due to improved visibility from a year ago.

The Fauntleroy – Vashon – Southworth route had the largest decrease in on time performance, down 2.0 percent compared to the same quarter a year ago. This was due to a series of boat moves stemming from mechanical problems on the M/V *Tacoma.* The M/V *Evergreen State* was scheduled for retirement, but was called back into service and assigned to the route 63 days last quarter. Being a slower vessel, the *Evergreen State* could not keep the schedule on the Fauntleroy – Vashon – Southworth route during peak travel times.

Farebox revenues increase

Ferries farebox revenues continued their upward trend, coming in at $37.2 million for the second quarter of FY2015, the highest yet for the fall quarter (October through December). Farebox revenues were $2.4 million (6.9 percent) more than the second quarter of FY2014, and $950,000 (2.6 percent) more than revenue projections based on the state's June 2014 economic and population growth forecasts. A fare increase in May 2014 did not impact ridership enough to outweigh the higher revenues for the quarter.

Rider complaints increase due to reservation issues

Ferries received a total of 383 complaints and 18 compliments from the 5.25 million riders it served during the second quarter of FY2015. This is a 15 percent increase from the 332 complaints and 37 compliments received the same quarter in FY2014. The largest increase of complaints was in the reservation category, which increased from eight to 34 compared to the same quarter in FY2014. This increase reflects the initial phase of implementation of a new reservations system on the San Juan route. Ferries began taking reservations December 5, 2014 for sailings on or after January 2, 2015.

The largest decrease in complaints was in the loading/unloading category, which dropped from 61 in the second quarter of FY2014 to 47 in the second quarter of FY2015. Crew-related complaints decreased from 15 to 7, compared to the second quarter in FY2014.

Contributors include Matt Hanbey, Kynan Patterson and Joe Irwin

An interactive map with more route information is updated quarterly at http://bit.ly/GNBferriesmap.

Ferries' on time performance and trip reliability exceed goal for the second quarter of fiscal year 2015

Second quarter (October through December), FY2014 and FY2015; Annual on time goal = 95 percent; Annual reliability goal = 99 percent

	On time performance				Trip reliability			
Route	**FY2014**	**FY2015**	**Status**	**Trend**	**FY2014**	**FY2015**	**Status**	**Trend**
San Juan Domestic	93.6%	94.8%	+1.2%	↑	99.6%	99.9%	+0.3%	↑
Anacortes/Friday Harbor – Sidney, B.C.	90.2%	96.6%	+6.4%	↑	100.0%	100.0%	0.0%	↔
Edmonds – Kingston	99.6%	98.7%	-0.9%	↓	99.7%	99.7%	0.0%	↔
Fauntleroy – Vashon – Southworth	95.7%	93.7%	-2.0%	↓	99.6%	99.6%	0.0%	↔
Port Townsend – Coupeville	95.2%	94.7%	-0.5%	↓	94.8%	93.0%	-1.8%	↓
Mukilteo – Clinton	98.8%	98.7%	-0.1%	↓	99.8%	99.9%	+0.1%	↑
Point Defiance – Tahlequah	99.4%	99.6%	+0.2%	↑	99.5%	99.4%	-0.1%	↓
Seattle – Bainbridge Island	96.5%	96.1%	-0.4%	↓	100.0%	100.0%	0.0%	↔
Seattle – Bremerton	96.0%	98.7%	+2.7%	↑	99.5%	99.9%	+0.4%	↑
Total	**96.6%**	**96.4%**	**-0.2%**	↓	**99.4%**	**99.4%**	**0.0%**	↔

Data source: WSDOT Ferries Division.

Note: FY = fiscal year (July 1 through June 30). A trip is considered delayed when a vessel leaves the terminal more than 10 minutes later than the scheduled departure time. Ferries operates 10 routes but combines the Anacortes – Friday Harbor route with the San Juan Interisland route into 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.

56 Incident Response Quarterly Update

Notable results

- *WSDOT's Incident Response teams helped clear the road and keep traffic moving at 10,782 incidents in the fourth quarter of 2014*
- *WSDOT cleared incidents in 13 minutes and 12 seconds on average, providing drivers an estimated $17.7 million in economic benefits*

WSDOT teams keep traffic moving at 10,782 incidents

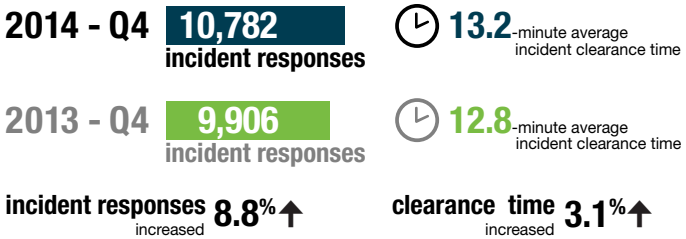
WSDOT's Incident Response (IR) teams assisted at 10,782 incidents during the fourth quarter of 2014 (October through December). This averages to a WSDOT team responding to an incident scene roughly every 12 minutes during the quarter. The agency responded to 876 more incidents — about 8.8 percent — during the fourth quarter of 2014 than during the same period in 2013. WSDOT teams cleared incidents in an average of 13 minutes and 12 seconds. This is 24 seconds slower than the average incident clearance time for the same quarter last year.

WSDOT's goal is to clear incidents as quickly and safely as possible to reduce incident-induced delay and the chance for secondary collisions to occur. Secondary collisions 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. 21.

WSDOT's assistance at incident scenes provided an estimated $17.7 million in economic benefit 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 $9.9 million of IR's economic benefit for the quarter is from reduced traffic delay. Second, by proactively managing traffic at incident scenes, WSDOT helps prevent secondary collisions.

About $7.8 million of IR's economic benefit is from preventing an estimated 2,054 secondary collisions 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 lower left), every $1 spent on the program this quarter provided drivers roughly $16 in economic benefit.

WSDOT Incident Response clearance times and number of responses are up from last year
Fourth quarter (October through December) 2013 and 2014



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 (Q4 2014) are considered preliminary. In the previous quarter (Q3 2014), WSDOT responded to 13,423 incidents, clearing them in an average of 12.1 minutes. These numbers have been confirmed and are now finalized.

$ The mission of WSDOT's Incident Response program is to clear traffic incidents safely and quickly, minimizing congestion and the risk of secondary collisions. The program is active in all six WSDOT regions with a biennial budget of $9 million, funding about 47 full-time equivalent positions (approximately 80 trained IR drivers) and 62 dedicated vehicles. Teams patrol 493 centerline miles of state highway on major corridors during peak traffic hours.

WSDOT's teams reduce impacts of incidents on traffic, cost to drivers

Incident-induced traffic delay on state highways cost motorists $39.7 million in wasted time and fuel during the fourth quarter of 2014. This is about $4.4 million more than in the same quarter of 2013. Without WSDOT's assistance, the economic impact would have been $57.4 million ($17.7 million in prevented delay and secondary incidents plus $39.7 million in actual delay).

WSDOT assists at eight incidents lasting six-plus hours

WSDOT's Incident Response prevents $17.7 million in delay and secondary collisions
October through December 2014; Incidents by duration; Times in minutes; Costs and benefits in millions of dollars

Incident duration	Number of incidents[1]	Percent blocking[2]	Average *incident* clearance time[3]	Average *roadway* clearance time[4]	Cost of incident-induced delay	Economic benefits from IR program[5]
Less than 15 minutes	8,165	17.6%	5.1	4.8	$10.4	$4.9
Between 15 and 90 minutes	2,467	57.0%	29.9	25.7	$20.6	$9.1
Over 90 minutes	150	91.3%	177.4	167.6	$8.6	$3.7
Total	**10,782**	**27.7%**	**13.2**	**22.9**	**$39.7[6]**	**$17.7**
Percent change from fourth quarter 2013	↑ **8.8%**	↑ **5.0%**	↑ **3.1%**	↑ **10.1%**	↑ **12.5%**	↑ **12.0%**

Data source: Washington Incident Tracking System.
Notes: 1 Teams were unable to locate 510 of the 10,782 incidents. These incidents are included in the total count because an IR team attempted to respond 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 Incident clearance time is the time between an 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 the last responder has left the scene. 4 Roadway clearance time is the time between the IR team's first awareness of an incident and when all lanes are available for traffic flow. This metric applies to blocking incidents. 5 Estimated economic benefits include benefits from delay reduction and prevented secondary collisions. See *WSDOT's Handbook for Corridor Capacity Evaluation*, pp. 40-42 for WSDOT's benefits calculation methods from reduced delay and prevented secondary incidents. 6 Numbers do not add up due to rounding.

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.

State highways saw more incidents lasting over 90 minutes than last year

WSDOT incident response units provided assistance at the scene of 150 incidents that lasted more than 90 minutes during the fourth quarter of 2014. This is 30 more incidents — roughly 25 percent — than the same quarter in 2013. While these over-90-minute incidents accounted for 1.4 percent of all incidents, they created 21.8 percent of incident-related costs.

Eight of the over-90-minute incidents took six hours or more to clear (referred to as extraordinary incidents). This is two more extraordinary incidents than the same quarter in 2013. The eight extraordinary incidents took an average of eight hours and 10 minutes to clear. Together, the eight extraordinary incidents accounted for 3.3 percent of all incident-induced delay costs for the quarter.

WSDOT crews cleared over-90-minute incidents in about two hours and 58 minutes on average. This is eight minutes slower than the same quarter in 2013. The higher number of extraordinary incidents is likely contributing to this increase in clearance times. Excluding the eight extraordinary incidents, WSDOT's average clearance time for over-90-minute incidents would have been two hours and 40 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 Paula Connelley, Vince Fairhurst, Ida van Schalkwyk and Bradley Bobbitt

An Incident Response team conducts traffic control at the scene of a collision, helping to protect emergency responders and keep traffic moving safely.

Customer feedback: Incident Response teams provide quick assistance in fourth quarter 2014

WSDOT IR teams give comment cards to drivers they help. Below are samples of the comments received from drivers WSDOT assisted during the fourth quarter of 2014:

- It was my first time to have a flat tire and I never thought that someone might help me in less than 10 minutes. Thank you.
- Abe was great. Thanks for the help. He was there in minutes after the tire blew out. Helped me get safely off the freeway to where the tire could be changed.
- Received excellent service. Jan showed up after I broke down on I-405, he was very friendly. I was on my way within five minutes. Thanks.

56 Rail: Amtrak Cascades Quarterly Update

Notable results

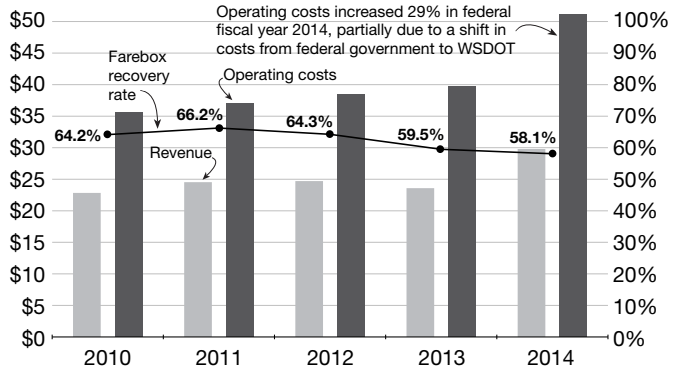
- *Ticket revenues covered 58.1% of state-funded Amtrak Cascades operating costs in federal fiscal year 2014*
- *Federal funds no longer cover 20% of costs*
- *Ten of the 20 federally funded rail projects are under construction; four are complete*

Loss of federal funding impacts farebox recovery

Both ticket revenues and operating costs for Washington-funded Amtrak Cascades trains hit their highest levels in five years in federal fiscal year (FFY) 2014 (October 2013 through September 2014). Ticket revenues in FFY2014 of $29.8 million covered 58.1 percent of the $51.3 million in operating costs. This represents a minor decrease in the farebox recovery rate from 59.5 percent in FFY2013 (see graph below). The farebox recovery rate is defined as the amount of operating costs covered by ticket revenues.

One reason for increased ticket revenue was the transfer of responsibility from Amtrak to WSDOT for one round trip between Seattle, Washington, and Portland, Oregon, implemented in October 2013. At the same time, the Passenger Rail Investment and Improvement Act (PRIIA) took effect in October 2013, and the federal government no longer contributed to the operating costs or revenue recovered for this intercity passenger rail system. As a result, WSDOT and the Oregon Department of Transportation (ODOT) are now responsible for 20 percent of the operating costs previously subsidized by the federal government. This increased the percentage of Amtrak Cascades' operating costs for which WSDOT is responsible from approximately 50 percent to 66 percent (see *Gray Notebook* 52, p. 21). Therefore, the majority (16 percent) of the 29 percent operating cost increase observed between FFY2013 and FFY2014 was the direct result of the cost shift from the federal government to WSDOT.

Farebox recovery rate decreases due to operating costs increasing more than ticket revenues
Federal fiscal years 2010 through 2014; Dollars in millions



Data source: WSDOT Rail Division - Based on financial billing data from Amtrak.
Note: Farebox recovery rate is defined as the amount of operating costs covered by ticket revenues. The above revenues, operating costs and farebox recovery rates are for Washington-funded trains only.

Maintaining current revenue levels is key to minimizing the financial impact to the state. WSDOT continues to work with service partners and stakeholders to raise awareness about the service to increase ridership. In addition, the passenger rail line running through Washington has 20 projects being designed and constructed, which will add two daily round trips between Seattle and Portland in 2017 and are expected to improve on time performance (see p. 23).

Rail folio is now available online

WSDOT recently prepared a Request for Information (RFI) folio to gather information from the industry on options for savings and efficiencies that align with WSDOT's service goals that prioritize safe, reliable, on time travel and increase ridership and revenue.

Thirteen service providers shared ideas on managing costs and revenues. The respondents that WSDOT interviewed included maintenance providers, union representatives, advocacy groups, research and planning entities, and international rail service providers. WSDOT is identifying opportunities for cost reduction and developing priorities based on what will generate the best value relative to the resources required.

Some cost management strategies will be implemented in the coming year, whereas others will be addressed in future agreements with Amtrak. The folio is available online at http://1.usa.gov/1woQp2v.

With preliminary design nearing completion on the new Freighthouse Square Station in Tacoma, the focus will

WSDOT developing Freighthouse Square Station design

soon shift to final design. Construction on the new Amtrak Cascades station is expected to begin in 2016 and be complete in 2017. The station is a major feature of the Point Defiance Bypass project, which will reroute passenger trains away from a congested rail corridor and help improve service along the Amtrak Cascades line as part of nearly $800 million in federally funded improvements.

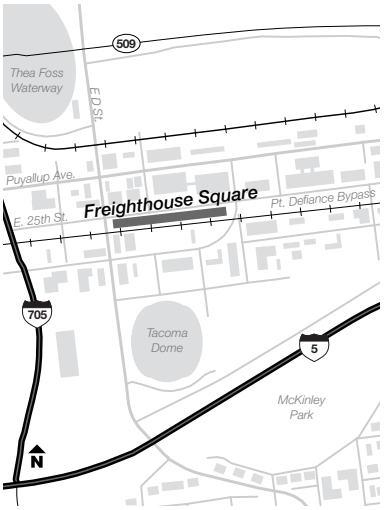
WSDOT's new Freighthouse Square Station will be part of a larger building that also includes a Sound Transit station and several restaurants and shops. The building is a former railroad warehouse located near the Tacoma Dome. The station location was selected in June 2014, after several meetings with city leaders and community members.

The WSDOT team developed the station design through many venues, such as the three highlighted below:

- Collaborating with the City of Tacoma's citizen advisory committee, comprised of representatives from local businesses, architectural firms, public agencies, educational institutions and the community.
- Participating in meetings where the city-hired architect presented overall concepts for the station and surrounding Dome District. The architect showed how the station could help reinvigorate the broader area.
- Conducting an online survey about station features, such as the windows, pillars and ceilings.

The general consensus among stakeholders was that the station should be welcoming to visitors, using large glass windows to create an indoor/outdoor feeling and to aid travelers in finding the station. Another major element requested by the stakeholders was the use of wood. The wood and glass design will reflect similar styles on adjacent sections of the building, and echo the building's historic architectural grid details.

Contributors include Chris Dunster, Teresa Graham, Barbara LaBoe, Michael Port, Brent Thompson, Gayla Reese Walsh, Erica Bramlet and Alison Wallingford



WSDOT's Freighthouse Square Station project in Tacoma will become part of a multimodal hub.

Interactive online map shows progress of the 20 federally funded rail projects

As of December 31, 2014, WSDOT had 10 passenger rail projects in construction, six in the design phase and four projects completed. 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.

When the program is completed in 2017, passengers will benefit from the addition of two daily round trips between Seattle and Portland with an expected travel time reduction of 10 minutes. In addition, WSDOT, Amtrak and BNSF are committed to an average of 88 percent on time performance for trains traveling from Portland to Seattle and Seattle to Vancouver, British Columbia.

To view the most recent map of the federally funded rail projects visit http://bit.ly/GNBrailmap.

Thanksgiving trains repeat success

Each year during the busy Thanksgiving holiday, Amtrak Cascades provides additional trains to meet the high demand while minimizing the need for state subsidies. For the second year in a row, WSDOT offered four extra Amtrak Cascades trains between Seattle and Portland during the Thanksgiving holiday. All four trains were sold out or nearly sold out, carrying over 1,100 passengers and generating over $56,000 in revenue. The profit of about $33,000 will help to offset annual Amtrak Cascades operating costs funded by WSDOT and ODOT.

56 Environmental Compliance Annual Report

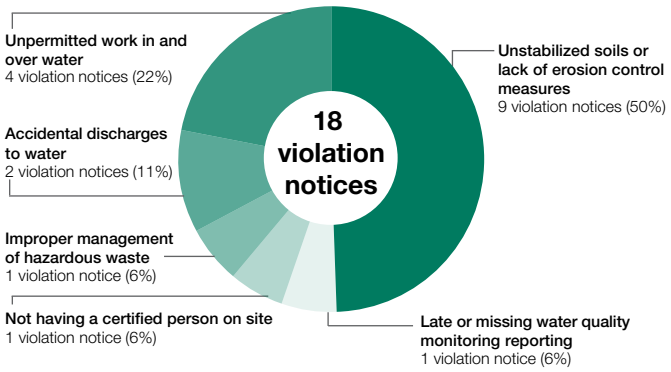
Notable results

- ***WSDOT received 18 environmental violation notices out of hundreds of thousands of work activities conducted in 2014***
- ***WSDOT received two monetary penalties in 2014 totaling $750, which is less than 2% of the previous year's total***

Compliance is a priority for all WSDOT activities

WSDOT had 160,000 ferry sailings, 690 active construction projects and 2.5 million maintenance work hours in 2014, receiving 18 environmental violations for these activities. This is two more than the agency received in 2013. The low number of violations compared to the amount of work done can be attributed to improved training designed to ensure compliance with environmental permits and regulations. For more information about WSDOT's environmental compliance training program refer to *Gray Notebook* 48, p. 37.

WSDOT receives 18 environmental violation notices
2014; Number of notices by violation category



Data source: WSDOT Environmental Services Office.
Note: Percents may not equal 100 due to rounding.

The range of activities monitored for environmental compliance at WSDOT includes maintaining 18,689 lane miles of state highways, 3,765 bridges, and 1,100 state-owned and operated traffic signal systems. In addition, the agency operates a ferry system with 22 vessels that serves 22.8 million passengers, keeps major mountain passes open throughout the winter months and maintains 48 safety rest areas that serve 20.8 million visitors year round.

The most common activity that resulted in a violation notice in 2014 was unstabilized soils or lack of erosion control measures, which accounted for nine of the 18 notices (50 percent). WSDOT monitors water quality and notifies the Washington State Department of Ecology (Ecology) when turbid discharges are above a benchmark limit. After Ecology is notified, the agency may follow up by conducting a site visit and issuing an inspection report. If the inspection report cites violations, then WSDOT has 10 days to work with its contractors to implement corrective measures.

WSDOT receives two monetary penalties totaling $750 in 2014

Of WSDOT's 18 violation notices, two included monetary penalties totaling $750 in 2014. This is less than 2 percent of the penalties of $44,500 assessed in 2013.

The U.S. Coast Guard issued a $250 penalty to WSDOT after it self-reported a spill of approximately two gallons of ultra-low-sulfur diesel into the Puget Sound. This occurred when a relief engineer was refilling an emergency generator tank in the dark.

The other penalty issued was for $500 for not having a certified underground storage tank (UST) supervisor on site during a UST removal in Port Orchard. To ensure

WSDOT's contractors improve the environment by removing old underground storage tanks on the Interstate 5 – M Street to Portland Avenue Project in Tacoma.

WSDOT works to leave project sites better than before

future compliance, WSDOT employees at UST removal projects now review all permits and certifications daily before allowing tank removal activities to start. For more information on compliance at WSDOT go to http://www.wsdot.wa.gov/Environment/Compliance.

SR 529 Bridge team receives award for replacement project

In 2014, WSDOT received more than 30 nominations for teams and individuals demonstrating the agency's commitment to protect the state's natural resources and leave the environment better than before. The winner of the agency's annual Environmental Excellence Award was the State Route 529 Ebey Slough Bridge Replacement project in Snohomish County.

The project replaced the original two-lane bridge, built in 1925, with a new four-lane bridge. WSDOT added wider lanes, sidewalks, a bike lane, and:

- Removed 5,500 cubic yards of contaminated soils;
- Removed three undocumented underground storage tanks and several chemical drums;
- Removed an old bridge that was flaking lead paint;
- Planted approximately 7,000 native plants to match the surrounding wetland vegetation where the old bridge stood, and;
- Removed 300 pilings treated with creosote, a chemical found to have negative environmental impacts once widely used to preserve and waterproof wood in bridge construction projects.

The project team accomplished all of the above in a sensitive marine environment, surrounded by many small channels and acres of wetlands.

WSDOT carefully planned and executed the construction work to ensure the natural resources would be protected. Within each year's six month in-water work window (August through January of the three-year construction project), the team utilized coffer dams, work trestles and barges to prevent environmental contamination. Ultimately, WSDOT improved a marine area that had been occupied for several decades by heavy industrial users.

Contributors include Tanya Johnson, Eric Wolin and Erica Bramlet

Before and after: WSDOT removed the original 1927 Ebey Slough Bridge on State Route 529, made improvements to the surrounding environment and built a new bridge.

56 Freight Rail Semi-Annual Update

Notable results

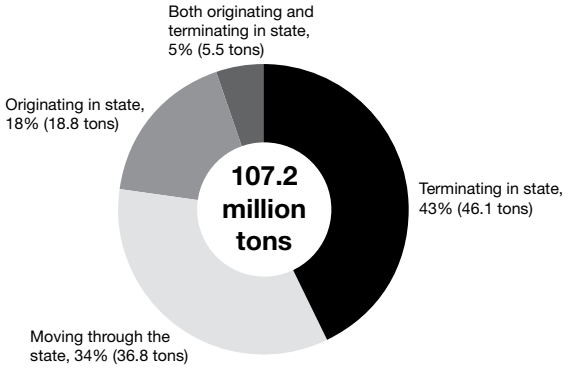
- *Freight rail tonnage increased 3.8% between 2012 and 2013*
- *Hazardous material comprised 12% of all commodities shipped by freight rail in 2013, an increase of 46.2% from 2012*
- *Grain Train shipments increased 10.8% between the third quarters of 2013 and 2014*
- *WSDOT awarded $10.1 million in grant and loan funding during the 2013-2015 biennium to support 14 freight rail projects*

Overall freight rail tonnage increases in 2013

Washington state railroads transported 107.2 million tons of freight in 2013, an increase of 3.8 percent from 2012 levels. Farm products such as wheat and soybeans continue to be the largest commodity transported. However, there was a decline of almost three million tons (10.1 percent) of farm products transported between 2012 and 2013. This was primarily due to Midwestern droughts during the 2012 growing season that affected commodities shipped from the region. Because there is a lag between the time farm products are grown and when they are shipped to market, the 2012 drought had an impact on 2013 tonnage.

Offsetting a reduction in farm products was an 11.5 percent increase in coal traffic, rising to 17.3 million tons during 2013. Hazardous materials increased more than four million tons (46.2 percent) to 13.2 million tons due to increased crude oil shipments by rail in the state.

Washington rail freight tonnage by type of movement
Calendar year 2013; Millions of tons shipped

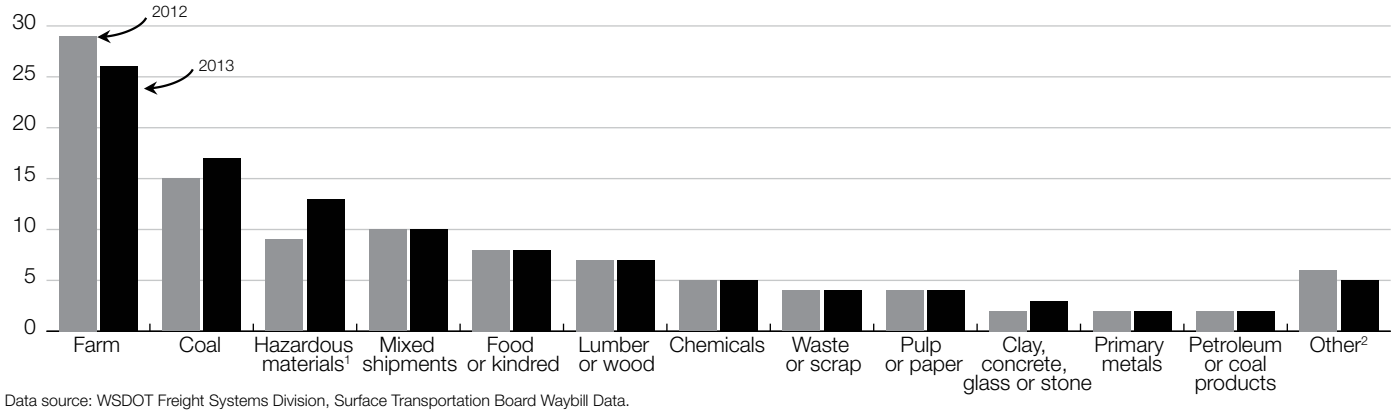


Data source: WSDOT Freight Systems Division, Surface Transportation Board Waybill Data.

Crude oil shipments were responsible for 85 percent of the total increase of the hazardous materials category.

About 43 percent (46.1 million tons) of the total freight rail tonnage shipped into and terminating in Washington in 2013 was either for international export or consumption within the state. This was a slight increase (2.1 percent)

Farm products and coal make up largest share of freight rail shipments
2013 compared to 2012; Commodities shipped by rail in millions of tons



Data source: WSDOT Freight Systems Division, Surface Transportation Board Waybill Data.

Notes: 1 Federal rulemaking in 2013 required crude oil to be classified as "hazardous materials" depending on its volatility. The less volatile version of crude oil is included in "petroleum or coal products." 2 "Other" includes commodities such as machinery, apparel, plastic products and furniture.

Grain Train carloads up more than 10 percent in 2014

from 2012 levels. Freight rail shipments moving through the state accounted for more than one-third of total tonnage and increased almost 9 percent between 2012 and 2013.

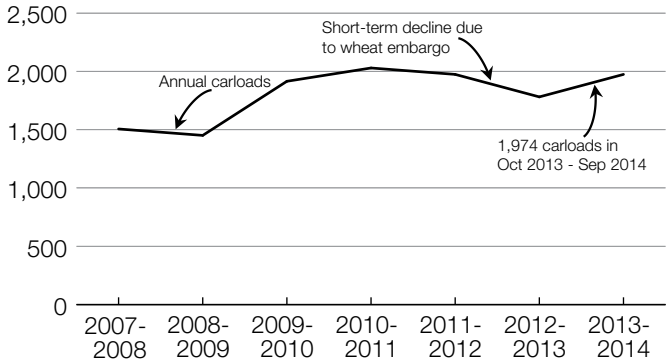
Imports and other cargo originating in Washington increased slightly (less than 1 percent) for the year and accounted for almost 18 percent of all tonnage. The only freight rail movement to decrease between 2012 and 2013 was intrastate traffic (goods both originating and terminating within the state). Intrastate traffic decreased almost 4 percent.

Annual Grain Train carloads on the rise after short-term decline

Washington Grain Train shipments increased 10.8 percent to 1,974 carloads between October 2013 and September 2014, from 1,781 carloads for the previous 12 months. This reverses the temporary decline in Grain Train carloads resulting from the short-term wheat embargo reported in *Gray Notebook* 51, p. 25.

According to the Washington Grain Commission, Washington state's 2013 wheat crop (which usually begins shipping to market by way of the Grain Train in October) was 144.2 million bushels, a decrease of 1.4 percent from 146.3 million bushels in 2012. Despite the smaller wheat crop, the number of Grain Train carloads increased during the 12 month period as a result of an increasing demand for grain cars. BNSF Railway, a large carrier of grain shipments in Washington state, experienced significant delays across its northern rail corridor from Washington to Chicago, Illinois, due to severe winter weather conditions and increased train traffic. BNSF grain

Annual Grain Train carloads increase 10.8 percent
October through September, 2007-2008 through 2013-2014



Data source: WSDOT Freight Systems Division.
Note: October through September represents a crop-year, defined by harvest occuring in August and shipment of the agricultural products.

The Washington Grain Train transports Washington-grown wheat and barley to domestic and international markets.

car availability was further impacted by a high-yielding corn crop during the 2013 growing season in the Midwest, resulting in more BNSF grain cars needed for corn and fewer cars for Washington state's wheat farmers.

The Washington Grain Train, which WSDOT jointly manages with the ports of Whitman County, Walla Walla and Moses Lake, serves more than 2,500 cooperative members and farmers. The Grain Train carries thousands of tons of grain from eastern Washington to deepwater ports along the Columbia River and Puget Sound. Since its creation in 1994, the Grain Train has transported over 2.1 million tons of grain, moving product efficiently and reliably to domestic and international markets while supporting short-line railroads and rural businesses in Washington. For a map of the wheat supply chain in Washington and its associated freight rail corridors, see http://1.usa.gov/1vuKwr4.

Palouse River and Coulee City Rail rehabilitation ongoing

In 2012, the Washington State Department of Commerce awarded a $4 million grant for track and bridge rehabilitation work on the WSDOT-managed Palouse River and Coulee City (PCC) Rail System. As a result of the funding, 28 miles of track and eight bridges have been rehabilitated.

Further maintenance and restorative work is being funded by $2.4 million allocated by the Legislature for the 2013-2015 biennium. Two construction contracts for 2015 will rehabilitate almost eight miles of track. In partnership with PCC operators, WSDOT has

WSDOT invests in 14 freight rail projects

completed work to address the 79 defective grade crossings identified by the Utilities and Transportation Commission between October 2012 and April 2013.

WSDOT purchased the deteriorating PCC rail system in 2007 with the goal of improving rail access and protecting the infrastructure. These rehabilitation efforts will preserve a vital short-line rail system that serves eastern Washington grain cooperatives that purchase and ship grain from hundreds of farmers. See *Gray Notebook 47, p. 42*, for a map of the PCC Rail System.

Fourteen projects receive funding

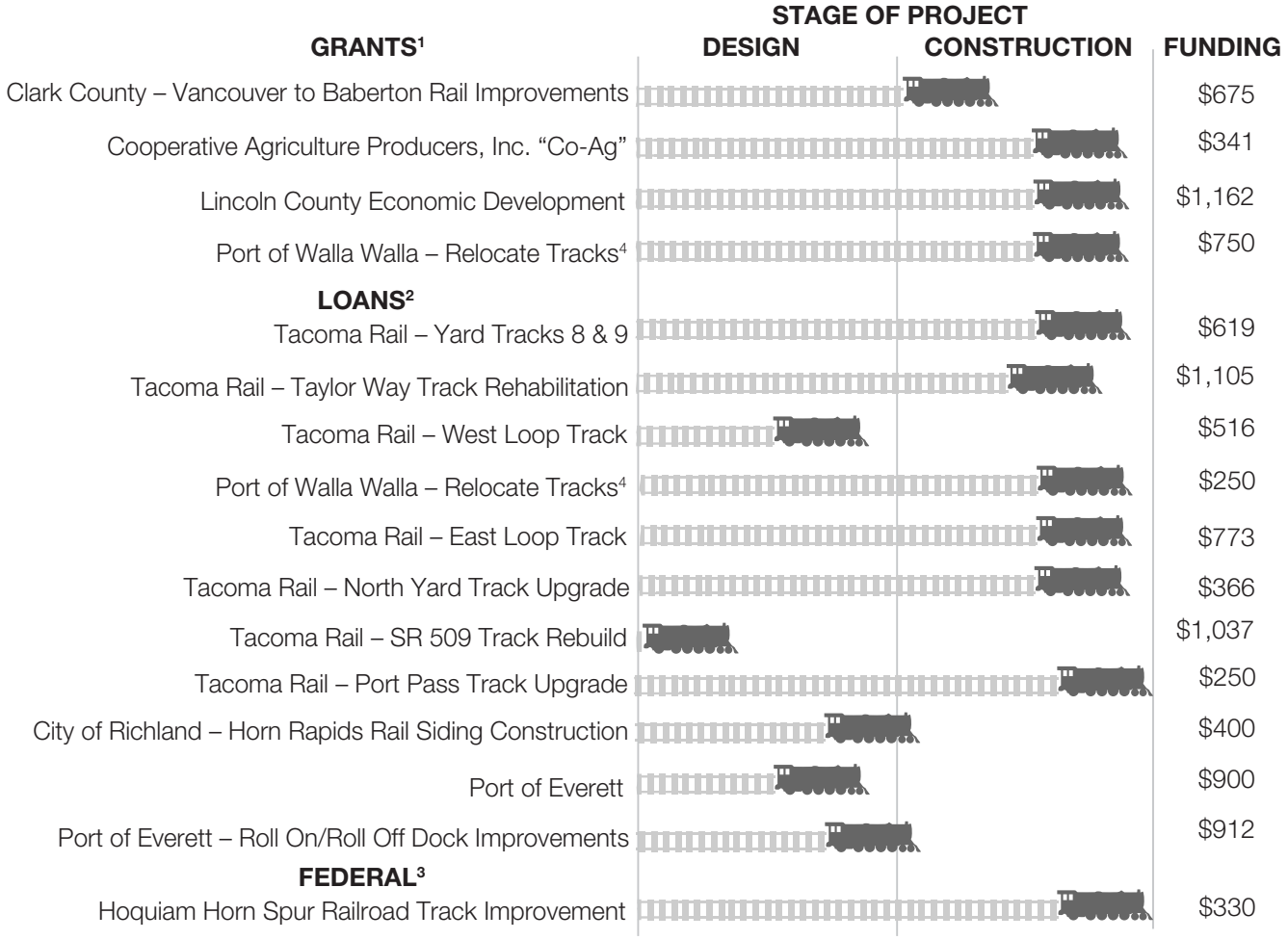
In the 2013-2015 biennium, WSDOT awarded nearly $10.1 million in grant and/or loan funding to 14 projects around Washington state as part of the Freight Rail Assistance Program and Freight Rail Investment Bank. Eleven of these projects (78.6 percent) are in construction phase and one project (7.1 percent) has been completed.

These projects are designed to improve the state's long-term economic vitality while creating jobs by using capital investments in rail infrastructure. For example, the Clark County – Vancouver to Baberton Rail project is improving rail track infrastructure in Vancouver, Washington, by making rail, tie and grade crossing improvements to better address the recent increase of short-line rail traffic in the area. This project is part of a multi-phased improvement project that will rehabilitate sections of the 33-mile Vancouver rail corridor.

Contributors include Chris Herman and Zoe Zadworny

WSDOT awards more than $10 million for 14 freight rail capital projects during the 2013-2015 biennium to support infrastructure and economic vitality

Project status as of December 31, 2014; Projects by funding type; Funding in thousands of dollars



Data source: WSDOT Freight Systems Division.

Notes: 1 Projects are funded by a Freight Rail Assistance Program (FRAP) grant. 2 Projects are funded by a Freight Rail Investment Bank (FRIB) loan. 3 Project is federally funded and is not included in the total number of projects. 4 Project received both grant and loan funding.

Notable results

- *WSDOT's Construction Cost Index increased by more than one-third in 2014 to its highest level since 1990*
- *The price of roadway excavation has more than tripled since 2013, strongly influencing the Construction Cost Index*

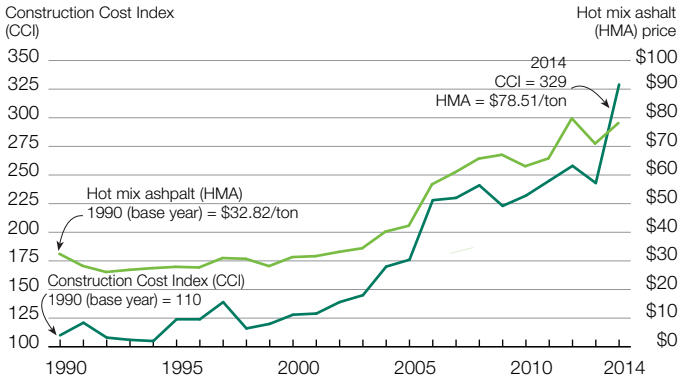
Construction costs increase across common activities

WSDOT's Construction Cost Index (CCI) increased 35.4 percent in 2014, following a 5.8 percent decrease in 2013. WSDOT uses the CCI to track price changes in some of its common construction activities.

WSDOT's CCI is based on low bid prices since 1990 for seven work activities common to highway construction (see table at right). The resulting index provides an inflation rate for WSDOT's construction program as a whole. The significant increase in prices is not likely to trend into 2015 as it was driven by work on several expensive, large-scale projects, including work on the State Route 520 Bridge west approach and northbound Interstate 5 widening in Tacoma. Even though the prices of materials and common work activities make up different proportions of the CCI, large-scale, expensive projects can cause the index to increase.

The increase in CCI was due in part to the roadway excavation needs of large projects, such as excavating ditches and disposing of excavated material. Roadway excavation prices more than tripled, strongly influenced by the large quantities and high unit bid prices associated with the two projects listed above left. The change in price from $5.42 per cubic yard in 2013 to $18.16 in 2014 contributed to higher project costs for WSDOT and a higher CCI for 2014.

WSDOT's Construction Cost Index increases by more than one-third in 2014
1990 through 2014; Costs of construction materials and activities relative to 1990 levels



Data source: WSDOT Construction Office.

Majority of common work activity bid items[1] that make up Construction Cost Index increase
Percent change in cost from 2013 to 2014

Common work activity (example[2])	Percent cost change
Roadway Excavation (grading)	235.1%
Crushed surfacing (placing crushed rock)	29.6%
Hot mix asphalt (asphalt paving)	10.1%
Concrete pavement (concrete paving)[3]	-39.8%
Steel rebar (placing rebar to construct bridges)	5.2%
Structural steel (placing steel forms to construct bridges)	N/A[4]
Structural concrete (placing concrete to construct bridges)	26.4%

Data source: WSDOT Construction Office.
Notes: 1 WSDOT's Construction Cost Index (CCI) is based on the low bid prices for the seven most common construction work activities for highway projects. 2 For the official definitions of each of these work activities, see the *2014 Standard Specifications*. 3 Concrete pavement is also known as Portland Cement Concrete Pavement. 4 No structural steel was awarded in 2013.

Six of the seven common work activities listed above saw an increase in their price in 2014. A notable decrease in the cost index was the price per cubic yard of Portland Cement Concrete Pavement (PCCP). The PCCP price dropped 39.8 percent, from $304.91 in 2013 to $183.62 in 2014. However, the decrease in the cost for PCCP was not enough to offset the effect of the increases in roadway excavation prices and the other work activities included in the CCI.

Hot mix asphalt (HMA) prices, a major component of the CCI, tend to vary with crude oil prices (see *Gray Notebook 52, p. 28* for further information). However, the HMA prices for 2014 did not reflect the recent decline in crude oil prices, most likely due to the lag in time for crude oil prices to filter down through the refineries. Hot mix asphalt prices are just beginning to trend down, and have dropped about 10 percent in the fourth quarter of 2014.

Contributors include Dacia Stricklett and Zoe Zadworny

56 WSDOT Tolling Annual Report

Notable results

- *Toll revenues increased to $126.6 million in fiscal year 2014, up 9.9 percent from $115.2 million in fiscal year 2013*
- *Toll transactions increased 3.1 percent from 35 million in fiscal year 2013 to 36.1 million in fiscal year 2014*

Toll transactions increase 3.1 percent to 36.1 million

WSDOT collected $126.6 million in gross toll revenue from its three toll facilities through 36.1 million transactions in fiscal year (FY) 2014 (July 2013 through June 2014). This is a 9.9 percent increase compared to $115.2 million in FY2013. Transactions increased 3.1 percent, from 35 million to 36.1 million during the same period.

WSDOT's toll facilities include the State Route (SR) 520 Bridge between Seattle and Bellevue, the eastbound SR 16 Tacoma Narrows Bridge between Gig Harbor and Tacoma and the SR 167 High Occupancy Toll (HOT) lanes between Auburn and Renton. The majority of drivers who use tolled facilities also use the state's all-electronic tolling system — *Good To Go!* — the least expensive way to pay tolls. Other options allow drivers to Pay By Plate, Pay By Mail and, on the Tacoma Narrows Bridge only, pay at the tollbooths. The cost to collect tolls varies by method.

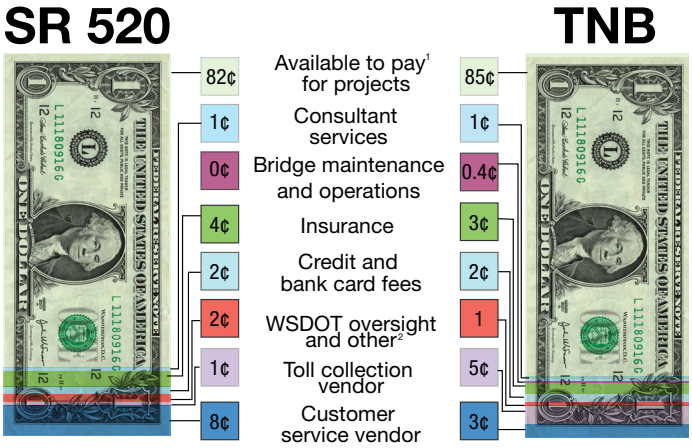
Eighty-two percent of tolls collected on the SR 520 Bridge and 85 percent from the Tacoma Narrows Bridge support WSDOT projects. The remainder of funds cover toll-related costs including the customer service vendor, insurance and bank card fees. See infographic (at right) for more details.

Cost to collect tolls varies by facility and method
Fiscal year 2014; Average cost per transaction

	Tacoma Narrows Bridge		State Route 520 Bridge	
Payment Method	**Toll[1]**	**Cost**	**Toll[2]**	**Cost**
Good To Go! Pass	$4.50	$0.33	$3.80	$0.31
Pay By Plate	$4.75	$0.34	$4.05	$0.33
Pay By Mail	$6.50	$1.23	$5.40	$1.20
Tollbooths	$5.50	$1.07	N/A	N/A
Percent cost to collect toll per average transaction		12%		15%

Data source: WSDOT Toll Division.
Notes: The SR 167 HOT lanes are not included above because they are not directly comparable to the other facilities. 1 Tolls vary by number of axles per vehicle. Example used is for 2-axle vehicle. 2 Tolls vary by time of day and number of axles per vehicle. Example used is for weekday peak period and 2-axle vehicle.

SR 520, Tacoma Narrows tolls support projects
Fiscal year 2014 (July 2013 through June 2014)



Data source: WSDOT Toll Division.
Notes: TNB = State Route (SR) 16 Tacoma Narrows Bridge. The SR 167 HOT lanes are not included above because they are not directly comparable to the other facilities. 1 Net revenue pays debt service and capital outlays. 2 Includes expenditures for supplies, communications, rent and services supplied by outside vendors.

WSDOT continues to meet congestion reduction goals on SR 520 bridge

The average weekday traffic volume on SR 520 during FY2014 was 72,000 vehicles, up from 70,000 in FY2013. The traffic counts mean WSDOT is meeting its goal of reducing congestion on SR 520 where the weekday volume is down about one-third from the average pre-tolling weekday volume of 103,000 vehicles in 2011.

Of the 20.9 million toll transactions on the SR 520 bridge in FY2014, approximately 84 percent were made by *Good To Go!* account holders. WSDOT collected about $61.9 million in gross toll revenue on the SR 520 bridge in FY2014, an increase of $6.5 million from FY2013.

Tolling began on the existing SR 520 bridge in December 2011 to manage congestion and provide $1.2 billion to fund a replacement bridge. The existing bridge needs to be replaced due to concerns of an earthquake or severe windstorm causing a catastrophic failure. The $4.5 billion SR 520 Bridge Replacement and High Occupancy Vehicle (HOV) Program is building 12.8 miles

WSDOT improves drivers' access to SR 167 HOT lanes

of improvements to address safety and congestion from Interstate 5 (I-5) in Seattle to SR 202 in Redmond.

Tacoma Narrows Bridge sees increase in tolling revenues and transactions

WSDOT collected approximately $63.5 million in gross toll revenue from the Tacoma Narrows Bridge in FY2014, below WSDOT's revenue forecast of $64.7 million but $4.8 million more than was collected in FY2013. Tacoma Narrows Bridge traffic increased slightly in FY2014 with approximately 13.9 million toll transactions, compared to 13.8 million in FY2013.

During FY2014, an average of 41,000 vehicles crossed the eastbound Tacoma Narrows Bridge each weekday, with 70 percent (approximately 28,700) of the tolls being paid through *Good To Go!* accounts.

Since the introduction of Pay By Plate and Pay By Mail methods at the Tacoma Narrows Bridge in 2011, the number of transactions being paid by *Good To Go!* passes or at the tollbooths has decreased by 8 percent. This shows a growing number of drivers prefer the convenience of paying by plate or mail, even if it costs between 25 cents and $2 more than the normal toll. WSDOT continues to monitor this trend and evaluate the potential cost savings of removing the toll booths and converting the Tacoma Narrows Bridge to an all-electronic tolling system.

SR 167 High-Occupancy Toll lanes saving more and more drivers time

While average daily traffic on the SR 167 corridor increased approximately 7 percent compared to the pre-toll level in 2007, the average number of weekday tolled trips in the HOT lanes has more than quadrupled since they opened. Daily HOT lane transactions were up from 1,000 in June 2008 to 4,500 in June 2014.

Solo drivers can opt to pay a toll to use the SR 167 HOT lanes, reducing their commute times. Carpools, vanpools and transit use the lanes for free. Compared to the general purpose lanes, the northbound HOT lane saved weekday drivers eight minutes during the morning peak hour for an average toll of $2.25. Compared to the general purpose lanes during the afternoon peak hour, the southbound HOT lane saved weekday drivers about six minutes in the car for an average toll of $1.50. HOT lane tolls cost between 50 cents and $9 and can change based on time of day and traffic congestion.

Toll facilities transactions and revenues increase
Fiscal years 2013 and 2014 (July through June); Transactions and revenues in millions

Facility (Transactions)	FY2013	FY2014	Percent change
SR 520 Bridge	20.2	21.0	+4%
Tacoma Narrows Bridge	13.8	14.0	+1.4%
SR 167 HOT Lanes	1.0	1.1	+10%
Total	**35.0**	**36.1**	**+3.1%**
Facility (Revenues)			
SR 520 Bridge	$55.4	$61.9	+11.7%
Tacoma Narrows Bridge	$58.7	$63.5	+8.2%
SR 167 HOT Lanes	$1.1	$1.2	+9.1%
Total	**$115.2**	**$126.6**	**+9.9%**

Data source: WSDOT Toll Division.
Note: Numbers and percentages have been rounded.

The SR 167 HOT lanes generated $1.2 million in gross toll revenue in FY2014, up from $1.1 million in FY2013.

WSDOT changes HOT lane access on SR 167 following customer survey

In a 2012 customer survey, 40 percent of drivers who used the SR 167 HOT lanes indicated they disliked the designated entry and exit points. Transit agencies have also stated that it is tough for their drivers to use the HOT lanes because buses frequently need to enter and exit the highway to make stops. In August 2014, WSDOT removed striping and updated signage on the SR 167 HOT lanes as part of a pilot project that enables drivers to enter and exit the lanes along nearly the entire length of the corridor between Renton and Auburn. WSDOT has partnered with the Washington State Transportation Center at the University of Washington to evaluate the impact of the change in summer 2015.

Majority of toll customers satisfied with state's *Good To Go!* service

In a spring 2014 survey, 82 percent of customers who responded said they were satisfied or very satisfied with the customer service they received from *Good To Go!* In FY2014, *Good To Go!* customer service representatives handled more than 417,000 calls and sent more than 2.8 million emails. The most common reasons for calls are to update account information, make a payment or buy a pass. In FY2014, *Good To Go!* service centers in Bellevue, Gig Harbor and Seattle had nearly 110,000 walk-in customer visits; about two-thirds were in Gig Harbor.

Contributors include Alex Atchison, Annie Johnson, Brian Mann and Joe Irwin

56 Lean Process Improvements Quarterly Update

Notable results

- *WSDOT has trained 28 of its planned 50 Lean liaisons who will promote a Lean culture*
- *WSDOT has launched 42 Lean projects in the past 30 months*

WSDOT advances in-house Lean trainings, support

WSDOT continues to train its employees on Lean tools with in-house training. In November 2014, WSDOT provided refresher training for 12 employees with previous Lean experience and trained 16 additional employees in December, better enabling them to facilitate improvement projects, provide introductory-level training and disseminate information to other WSDOT employees. These liaisons will be facilitating Lean improvement projects in 2015, working on efforts such as accelerating the process for making pavement rating data available to WSDOT users and expediting the online publication of WSDOT's construction project Watch List. WSDOT currently has 320 employees with some form of Lean training.

Goal 4: ORGANIZATIONAL STRENGTH
Strategy 4.1 (Workforce): Implement various strategies that foster a safe, capable, engaged and valued workforce.
To date, WSDOT has provided training for 28 employees of the 50 planned liaisons who serve as points of contact to support Lean efforts within their division or region.

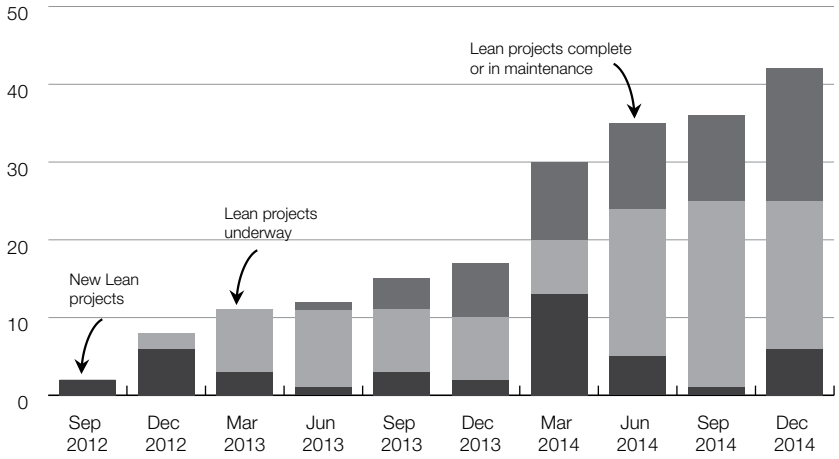
WSDOT launches 42 Lean projects in past 30 months

WSDOT started six new Lean projects in the final quarter of 2014. Lean thinking helps WSDOT gain efficiencies with processes. For example, the Olympic Region Human Resources Office improved how information is shared with and received from new employees during their new-hire orientation process. Olympic Region started contacting new employees before their hire date to welcome them to the agency and collect pertinent information. This allowed staff to generate employee identification numbers and grant new employees access to necessary systems more quickly. This improvement was shared with other regional offices as part of the agency's new best practices.

WSDOT measures its Lean engagement by projects, trainings

WSDOT and other Washington state agencies are working toward instilling a Lean culture in which employees and their leaders are focused on customer service and continual process improvement. Building a lasting workplace culture is a major organizational transformation, and WSDOT's Lean journey is still in the early stages. WSDOT tracks the number of employees trained and the number of Lean projects agency-wide as an indicator of employee engagement with Lean thinking. Lean projects

Lean projects increase steadily at WSDOT
Project phase by calendar quarter[1] and year



Data source: Lean Process Improvement Office.
Note: 1 Calendar quarters are January - March (Mar), April - June (Jun), July - September (Sep) and October - December (Dec).

Lean shows results at year-end

help employees learn to use new principles in their daily work processes to encourage further efficiencies. WSDOT's vision will be achieved when all employees are problem solvers and all managers are coaches.

WSDOT continues to use Lean thinking and tools to improve the way the agency does business. The table below shows examples of the results achieved through WSDOT's Lean journey.

Contributors include Rachel Barckley, Lucinda Broussard, Jean Denslow, Todd Merkens, Anna St. Martin, Patrick Watson and Zoe Zadworny

Lean projects in the Toll Division benefit customers and WSDOT staff
October through December 2014; Progress reported on select projects

Project, program	Changes to process	Measuring success	As a result
Reduce roadway toll systems vendor deliverable reviews *Toll Division*	■ Reduced the allowed timelines for vendor deliverable reviews from 10 to three days. ■ Eliminated meeting for the first round of reviews for each deliverable outline.	■ Comments were delivered to vendor within 4.2 days on average, a reduction from 5.0 days before. ■ Staff time valued at $3,100 annually will be redeployed to other critical tasks instead of reviewing contract documents.	Vendors can plan for shorter schedules when delivering products to WSDOT. WSDOT staff are able to focus their time and resources on more value-added activities.
Improve Toll Division escalated customer inquiry process *Toll Division*	■ Established criteria and delegated authority to customer service representatives to directly address more customer issues, including dismissing fees.	■ Annually, more than 700 customers will receive resolution during their first call. ■ WSDOT staff time (anticipated value of $43,000 annually) that was formerly spent responding to customer issues will be redeployed to other critical tasks, as customer service representatives can now handle these issues directly.	Customers receive more direct help regarding their tolling inquiries, with the goal of a single response resolution.

Data sources: WSDOT Toll Division, and Lean Process Improvement Office.

Lean projects help customers receive first call resolution on tolling issues for facilities such as the State Route 520 Bridge.

56 Capital Project Delivery Programs

Notable results

- *WSDOT has completed 19 Nickel and TPA projects worth $502.5 million this biennium*
- *WSDOT added four projects to the Watch List and removed 12, bringing the total to 16*

Five Nickel, TPA projects operationally complete

WSDOT listed five Nickel and Transportation Partnership Account (TPA) projects as operationally complete in the sixth quarter of the 2013-2015 biennium (October through December 2014). Operationally complete projects are open to the public, but some work items are yet to be finished. Projects operationally complete this quarter include:

- Adding lanes to the SR (State Route) 522/US 2 Snohomish River Bridge;
- Stabilizing slopes between US 101 and the Hoh River;
- Adding a roundabout to improve traffic flow on SR 9;
- Mitigating the effects of stormwater on Interstate 90, and;
- Improving the Eastside high occupancy vehicle (HOV) system by adding transit stops and HOV lanes on SR 520.

While the latter two projects are operationally complete, they are part of larger, unfinished mega-projects and therefore are not included in cumulative Nickel and TPA counts.

WSDOT has 19 projects operationally complete so far in the 2013-2015 biennium (July 2013 through December 2014; the biennium goes through June 2015). Of these projects, 68 percent were on time and 84 percent were on budget. Combined, the projects' current cost at completion is about $502.5 million, which is about 8 percent less than the baseline estimate of $543.9 million.

WSDOT completes 364 Nickel and TPA projects
July 2003 through December 2014; 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	131	$732.9
Projects completed in earlier biennia that *are* included in the current transportation budget	233	$5,422.3
Completed projects subtotal:	**364**	**$6,155.2**
Projects included in the current transportation budget that are not yet complete	57	$10,100.2
Total:	**421**	**$16,255.4[1]**

Data source: WSDOT Capital Program Development and Management.
Note: Numbers have been rounded. 1 The total has changed because the previous baseline was incorrect for one project.

—Goal for Nickel and TPA is 90%—

364 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 precentages of projects on time and on budget does not fluctuate often due to the increasing total number of completed projects.

A total of 364 of 421 Nickel and TPA projects have been completed since July 2003, with 87 percent on time and 91 percent 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. The current cost at completion for the 364 projects is $6.04 billion, about $118 million less than the $6.16 billion baseline cost at completion originally projected by WSDOT.

Nickel, TPA funding still 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 will continue past the original 10-year period. Funding from the 2005 TPA package has also come in short of original March 2005 projections. The original projection for the TPA account was $4.9 billion over a 16-year period from 2005-2021.

Continued on p. 35

TPA revenue shortfall defers nine projects indefinitely

Continued from p. 34

The current projections through 2021 are estimated to be $3.9 billion, roughly a $1 billion reduction (20.2 percent) from 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, all revenues collected will be used to pay the debt. In the 2014 supplemental budget, Nickel bonds are projected to be sold through the 2015-2017 biennium and TPA bonds are expected to be sold through 2023.

Beige Page contributors include Mike Ellis, Mitzi Frick, Penny Haeger, Heather Jones, Claudia Lindahl, Tony Peterman, Charles Rosalin, Theresa Scott, Dean Walker, Joe Irwin and Zoe Zadworny

Highway construction performance summary shows about $10.3 billion in projects remain to be completed

Current Legislative Evaluation and Accountability Program (LEAP) as of December 31, 2014; Dollars in millions

Combined Nickel and TPA programs		**Number of projects**	**Value of program**
Subtotal of completed projects		**364**	**$6,155.2**
Projects completed in earlier bienniums that are not included in the current transportation budget		*131*	*$732.9*
Projects completed that are included in the current transportation budget		*233*	*$5,422.3*
Projects included in the current transportation budget but not yet complete		57	$10,100.2
Total number of projects[1] in improvement and preservation budget		**421**	**$16,255.4[2]**
Schedule and budget summary Nickel & TPA combined: Results of completed projects in the current Legislative Transportation Budget and prior budgets.	**Completed in 2013-2015 biennium budget**	**Total in current legislative budget**	**Cumulative program[3]**
Number of projects completed	19	233	364
Percent completed early or on time	68%	85%	87%
Percent completed under or on budget	84%	93%	91%
Baseline cost at completion	$543.9	$5,422.3	$6,155.2
Current cost at completion	$502.5	$5,306.9	$6,037.4
Percent of total program over or under budget	7.6% under	2.1% under	1.9% under
Advertisement record: Results of projects entering into the construction phase or under construction are detailed on pp. 41-42.			**Combined Nickel & TPA**
Total current number of projects in construction phase as of December 31, 2014			17
Percent advertised early or on time			71%
Total number of projects advertised for construction in 2013-2015 biennium to date (July 1, 2013 through December 31, 2014)			9
Percent advertised early or on time			44%
Projects to be advertised: Results of projects now being advertised for construction or planned to be advertised, detailed on p. 42.			**Combined Nickel & TPA**
Total projects being advertised for construction bids January 1 through June 30, 2015			2
Percent on-target for advertisement on schedule or early			100%
Budget status for the 2013-2015 biennium:			**WSDOT biennial budget**
Budget amount for 2013-2015 biennium			$2,922.6
Actual expenditures in 2013-2015 biennium to date (July 1, 2013 through December 31, 2014)			$1,633.8
Total 2003 Transportation Funding Package (Nickel) expenditure			*$154.1*
Total 2005 Transportation Partnership Account (TPA) expenditure			*$673.7*
Total Pre-existing Funds (PEF) expenditures[4]			*$806.0*

Data source: WSDOT Capital Program Development and Management.

Notes: Numbers have been rounded. 1 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. 2 The total has changed because the previous baseline was incorrect for one project. 3 Cumulative projects completed from July 1, 2003 to December 31, 2014. 4 For full details of the Pre-existing Funds program, see pp. 46-47.

Nickel, TPA rail and ferries projects remain steady

There were no changes to Current Legislative Evaluation and Accountability Program (LEAP) rail and ferry projects supported by Nickel and Transportation Partnership Account (TPA) funds this quarter. WSDOT has completed 18 rail projects and 21 WSDOT Ferries Division projects since 2003. Nickel and TPA funding supported approximately $103.3 million in rail projects and $403.4 million in ferries projects to date. WSDOT advertised four Nickel- and TPA-funded rail projects, with awards amounting to $158 million. Two Nickel Ferries projects, with awards amounting to $232.4 million, are also currently under construction or entering the construction phase.

WSDOT finishes 18 rail construction projects since 2003

Current Legislative Evaluation and Accountability Program (LEAP) as of December 31, 2014; Dollars in millions

	Nickel (2003)	TPA (2005)	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed projects			
Cumulative to date (July 1, 2003 through December 31, 2014)	11	7	18
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	$62.4	$41.0	$103.3
Current cost at completion	$62.4	$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 December 31, 2014)			
Total advertised	2	2	4
Percent advertised early or on time	100%	100%	100%
Total award amounts to date	$130.9	$27.1	$158.0

Data source: WSDOT Capital Program Development and Management.

Notes: 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). Numbers may not total 100 percent due to rounding.

WSDOT finishes 21 Ferries' construction projects since 2003

Current Legislative Evaluation and Accountability Program (LEAP) as of December 31, 2014; Dollars in millions

	Nickel (2003)	TPA (2005)	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed projects[1]			
Cumulative to date (July 1, 2003 through December 31, 2014)	11	10	21
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	$59.9	$343.5	$403.4
Current cost at completion	$59.9	$343.5	$403.4
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 December 31, 2014)	2	0	2
Percent advertised early or on time[2]	100%	N/A	100%
Total award amounts to date	$232.4	$0	$232.4

Data source: WSDOT Capital Program Development and Management.

Notes: 1 Ferries completed projects record includes one 144-car vessel, the Motor/Vessel (M/V) *Tokitae*, which started service in June 2014, and 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 ferry 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). Numbers may not total 100 percent due to rounding.

WSDOT completes five Nickel and TPA projects

WSDOT completed five Nickel and Transportation Partnership Account (TPA) projects in the sixth quarter of the 2013-2015 biennium (October through December 2014).

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. Two completed projects in this section are part of larger, ongoing mega-projects that, as a whole, are not yet complete. As a result, these smaller projects are not counted in Nickel and TPA cumulative totals. See chart on p. 34 for more details. For information on previously completed Nickel and TPA projects, visit http://www.wsdot.wa.gov/projects/completed.

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 2014 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. Nickel and TPA budgets and schedules reset whenever changes are made in the last approved legislative budget.

SR 522/Snohomish River Bridge to US 2 – Add Lanes – *Nickel (Snohomish County)*

This Nickel project addressed high traffic volumes on State Route (SR) 522 from the Snohomish River Bridge to US 2 by adding two lanes to form a four-lane divided highway. This project also added a roundabout at the 164th Street ramp and improved fish passage and wildlife crossings.

Project benefits: The additional lanes increase capacity along SR 522 and reduce the potential for collisions. The constructed detention ponds improve water quality by filtering water slowly into creeks, benefitting both fish and wildlife.

Budget performance: The project was completed for $145.5 million, on target with the last legislatively approved budget of $145.5 million, and approximately $36.8 million more than the original 2003 budget of $108.7 million.

Schedule performance: The project was completed in December 2014, on target with the last legislatively approved schedule and about 18 months later than the original schedule of June 2013.

Highlights/challenges: The accepted construction bid for the first stage of the project was 31 percent below the engineer's estimate; the accepted second stage bid was 15 percent below. The majority of cost increases occurred before project advertisement and were due to inadequate initial project scoping, an underestimation of the right of way and a revised design that included a new noise wall. The design budget was increased by 91 percent due to a change from design-build to design-bid-build and an oversight that did not correctly match the budget with the project size.

US 101/Hoh River (Site No. 2) – Stabilize Slopes – *TPA (Jefferson County)*

This TPA project addressed erosion risk on a section of US 101 along the Hoh River. The project installed a continuous cribwall to stabilize the bank and prevent further roadway loss.

Project benefits: The cribwall provides stabilization and reduces the likelihood of emergency closures and repairs along the highway due to river flooding and bank erosion.

Budget performance: The project was completed for $5.1 million, on target with the last legislatively approved budget of $5.1 million, and approximately $4.4 million less than the original 2007 budget of $9.6 million.

Schedule performance: The project was completed in October 2014, one month later than the last approved schedule and about five years after the original schedule of September 2009.

Highlights/challenges: The project was delayed due to environmental concerns about the effects of engineered log jams on the Hoh River's fish habitat and permit acquisition. A revised engineer's estimate decreased costs by more than $4 million due to a redesign of the project from log jams to a continuous log cribwall. The accepted construction bid was awarded for 6.4 percent less than the revised estimate.

Crews use an excavator to place large logs and create a retaining wall that protects a section of US 101 from erosion caused by the Hoh River.

Completed work on SR 520, I-90 part of mega-projects

SR 9/84th Street NE (Getchell Road) – Improve Intersection – *TPA (Snohomish County)*

This project, part of the larger SR 9 corridor improvement program, improved the SR 9/84th Street Northeast intersection with a roundabout and right turn lanes for all legs of the intersection. The intersection features upgraded illumination, drainage and stormwater facilities.

Project benefits: The roundabout helps reduce the risk of collisions and improves traffic flow, with features such as the right turn lane and upgraded intersection illumination. Improvements along the entire SR 9 corridor help address the growing Snohomish County population.

Budget performance: The project was completed for $6.8 million, on target with the last legislatively approved budget of $6.8 million, and approximately $7.3 million less than the original 2007 budget of $17.0 million.

Schedule performance: The project was completed in December 2014, on target with the last approved schedule of December 2014, and one year earlier than the original schedule of December 2015.

Highlights/challenges: The project completion date was advanced one year due to a change in delivery method from design/bid/build to design/build. The accepted construction bid was awarded for 11.8 percent less than the engineer's estimate. Project costs were reduced by approximately $7.4 million because of design changes that replaced the planned signalized intersection with a roundabout.

SR 520/Medina to SR 202 Vicinity – Eastside Transit and HOV – *Nickel/TPA (King County)*

This Nickel/TPA project improved the Eastside high occupancy vehicle (HOV) system on SR 520. The improved system includes transit stops and direct-access ramps. The project, which is part of the ongoing SR 520 Bridge Replacement and HOV Program, also reconfigured the existing two lanes to support HOV lanes.

Project benefits: The project improved transit access and added HOV lanes accommodate mobility and transit needs. It also provided improvements such as a bicycle-pedestrian path and wider shoulders.

Budget performance: The project was completed for $480.9 million, on target with the last legislatively approved budget of $480.9 million, and approximately $37.1 million more than the original 2010 budget of $443.8 million.

Schedule performance: The project was completed in December 2014, six months later than the last approved schedule and on target with the original schedule of December 2014.

Highlights/challenges: The accepted construction bid was 23 percent below the engineer's estimate. Project construction was delayed by the Fairweather Basin residents' lawsuit alleging reduced property values as well as issues regarding soil stability.

I-90/Yellowstone Road to Hyak Phase 1D – Stormwater Retrofit – *TPA (Kittitas County)*

This mitigation project, part of the larger Interstate 90 Snoqualmie Pass East project, was done in conjunction with work on I-90 to add lanes and bridges and removed the snowshed in the Hyak to Keechelus Dam vicinity. Due to site constraints, stormwater is being treated at two off-site areas, along mainline I-90 west of the project and at the Hyak Maintenance Facility.

Project benefits: This mitigation project helps facilitate more efficient retention and treatment of stormwater in the project area.

Budget performance: The project was completed for $2.7 million, on target with the last legislatively approved budged of $2.7 million, and approximately $300,000 more than the original 2009 budget of $2.4 million.

Schedule performance: The project was completed in October 2014, on target with both the last approved schedule and the original schedule of October 2014.

Highlights/challenges: The engineer's estimate was increased prior to advertisement to account for costs associated with temporary stormwater pollution and disposal of concrete slurry. Cost increases after advertisement were due to additional development of the project design, including a change to the project limits.

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

WSDOT adds four projects to Watch List

WSDOT added four projects to its Watch List and removed 12 this quarter (October through December 2014). As of December 31, there were 16 projects remaining on the Watch List.

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 the schedules and budgets of projects. The Watch List helps WSDOT track these projects, providing status reports, explaining the factors affecting delivery and what WSDOT 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 on p. 40.

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/.

WSDOT's Watch List projects with schedule or budget concerns
Quarter ending December 31, 2014

Project (County)	Date added	Date removed	Watch List issue
SR 105/North Cove to Washaway Beach - Erosion Protection (Pacific)[1]	Dec-2014	Dec-2014	Emergency work was required to repair a failing slope that supports the roadway and protects sections of SR 105 from further erosion. A contractor has been assigned and the project has been removed from the Watch List.
SR 3/Chico Creek - Construct Weir (Kitsap)[1]	Nov-2014		The schedule has been delayed due to weir modifications and the installation of two additional weirs that will modify the flow of the creek.
SR 7/Ohop Vicinity Slide - Emergency Slope Stabilization (Pierce)[1]	Oct-2014		Emergency work is required to stabilize a slope and repair SR 7 after a landslide in March 2014. More permanent restoration work is needed, and construction is anticipated to begin in 2015.
I-90/Freya St. Interchange - Ramp Improvements (Spokane)[1]	Oct-2014	Oct-2014	A schedule delay on this project has been realized and the project has been removed from the Watch List.
SR 161/24th St. East to Jovita - Add Lanes (Pierce)	Sep-2014		The project was completed in August and is facing a potential cost increase pending a claim from the contractor.
US 101/North of Salmon Creek Bridge - Stabilize Slope (Grays Harbor)	May-2014		Ongoing landslide movement on the side slope threatens to close US 101. The scope and schedule are at risk and continued drainage efforts are necessary.
US 12/0.8 miles West of Chapman Rd. - Erosion Protection (Lewis)	Apr-2014		The project advertisement was delayed in June 2014 due to right of way issues and will be re-advertised in spring 2015. Costs might increase depending on the extent of additional erosion that may occur before construction begins.
I-90/Easton Hill Vicinity to Kachess River Bridge Eastbound - Replace/Rehabilitate Concrete (Kittitas)	Apr-2014		Design element changes for traffic control strategies delayed the project schedule and increased costs. Project advertisement was delayed by four months.
US 101/Hoquiam River - Simpson Ave. Bridge - Bridge Painting (Grays Harbor)	Apr-2014		The project schedule has been delayed nine months due to a required bridge load rating analysis, increasing the project's cost estimate.
SR 241/SR 22 Mabton Vicinity/Railroad Crossing - Install Beacons and Stop Refuge (Yakima)	Apr-2014	Nov-2014	The project faced schedule delays due to coordination with BNSF Railroad. The project went to advertisement and has been removed from the Watch List.
I-90/Columbia River Vantage Bridge - Painting (Grant, Kittitas)	Mar-2014	Dec-2014	The advertisement date was delayed for additional analysis on wind load and its potential impacts on painting equipment. The project went to advertisement and has been removed from the Watch List.
US 2/SR 206 Analysis of Alternatives (Spokane)	Jan-2014	Oct-2014	The project schedule has been further delayed and construction has been deferred until fall 2015 due to a change in scope. As a result, the project has been removed from the Watch List.
SR 104/Hood Canal Bridge - Special Repair (Jefferson, Kitsap)	Jan-2014	Oct-2014	The project achieved its advertisement date after delays due to project work scope and has been removed from the Watch List.

Table continued on p. 40.

WSDOT has 16 projects remaining on the Watch List

Project (County)	Date added	Date removed	Watch List issue
SR 20/Race Rd. to Jacobs Rd. - Safety Improvements - Phase 2 (Island)	Dec-2013		The project has design element changes stemming from stakeholder meetings and discussions, a cost increase and a schedule delay.
SR 99/South King St. Vicinity to Roy St. - Viaduct Replacement (King)	Dec-2013		The tunnel boring machine's progress has been halted since December 2013. The machine's restart has been rescheduled from March to April 2015.
SR 99/George Washington Bridge - Painting (King)	Dec-2013		The schedule has been delayed to provide WSDOT time to examine the bridge to determine whether additional repairs are required.
US 101/Siebert Creek - Remove Fish Barrier (Clallam)	Dec-2013	Nov-2014	The new scope, schedule and budget have been approved after a project redesign. The project has been removed from the Watch List.
SR 162/Puyallup River Bridge - Replace Bridge (Pierce)	Dec-2013	Nov-2014	The schedule was delayed due to permitting issues. The project went to advertisement and has been removed from the Watch List.
SR 520/Medina to SR 202 Vicinity - Eastside Transit and HOV (King)	Dec-2013	Dec-2014	Project completion delays have been realized and accepted. The project was opened to traffic in December 2014 and removed from the Watch List.
I-5/Portland Ave. to Port of Tacoma Rd. - Southbound HOV (Pierce)	Oct-2013		The advertisement was delayed due to cancellation of the bid opening for the related I-5/Portland Ave. to Port of Tacoma Rd. - Northbound HOV project.
I-90/Snowshed to Keechelus Dam Phase 1C - Replace Snowshed and Add Lanes (Kittitas)	Sep-2013		The completion date has been delayed one year due to delays in the contractor's schedule which reflect design revisions. Due to unanticipated voids in the existing embankment, slower than expected construction of a wall supporting the westbound lanes is also delaying the project.
SR 3/Belfair Area - Widening and Safety Improvements (Mason)	Feb-2013		The schedule is at risk due to a complex right of way acquisition and utility relocation.

WSDOT Watch List projects reprioritized, deferred or delayed due to funding constraints

Quarter ending December 31, 2014

SR 302/Purdy Bridge - Bridge Rehabilitation (Pierce)[2]	Sep-2014		The project has been deferred for six years for bridge preservation funding reprioritization.
US 195/Spring Flat Creek - Bridge Replacement (Whitman)[3]	Jul-2014	Jul-2014	This project has been deferred to meet reduced levels of available funding for bridge replacement. The project has been removed from the Watch List.
SR 202/Little Creek - Fish Barrier Removal (King)	Jan-2014	Dec-2014	The schedule has been delayed due to reprioritization of funds. The project was removed from the Watch List.
SR 542/Hedrick Creek - Fish Barrier Removal (Whatcom)	Oct-2013	Oct-2014	This project has been deferred for five years due to reprioritization of funds, and has been removed from the Watch List.
SR 16/Anderson Creek Tributary to Sinclair Inlet - Fish Barrier Removal (Kitsap)	Oct-2013	Dec-2014	The project was deferred to accelerate design and scoping of other projects. Advertisement is now anticipated for December 2015 and the project has been removed from the Watch List.
SR 307/Dogfish Creek - Fish Barrier Removal (Kitsap)	Oct-2013		The project has been delayed until additional funding is acquired, and is being deferred for two years to accelerate scoping and design on other projects.
SR 507/Lacamas Creek Tributary to Muck Creek - Fish Barrier Removal (Pierce)	Oct-2013		The project has been delayed until additional funding is acquired. Construction was deferred to accelerate scoping and design on other projects. The project is being deferred for approximately three years.

Data sources: WSDOT Capital Program Development and Management, 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. 3 This project was removed from the Watch List last quarter but not reported due to an oversight. It is not included in the number of removed projects for the current quarter.

WSDOT meeting Legislative goal to reduce highway construction force by June 30, 2015

As of December 31, 2014; Compared to December 31, 2013

1758 **Highway construction program workforce**

5 % **less than the 1,853 employed one year ago**

2000 **June 30, 2015 target**

Data source: WSDOT Capital Program Development and Management.

Notes: Highway construction full-time equivalent (FTE) counts are not just permanent full-time positions, but also include temporary hires and part-time workers. The FTE count is based on the number of hours worked. The declining number of FTEs shown above follows the Legislature's direction for WSDOT to reduce the size of its highway construction workforce to a level of 2,000 FTEs by June 30, 2015.

WSDOT moves forward on Nickel and TPA projects

Seventeen WSDOT projects in construction phase as of December 31, 2014

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) Multiple contractors continue to work on this project.	Nickel	√	Jul-2009	multiple contractors	May-2023	$9.8
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.						
• SR 99/South Massachusetts Street to Union Street – Electrical Line Relocation	TPA	√	May-2008	Frank Coluccio Construction	Nov-2009	$17.0
This subproject has several contract components; the contract awarded to Skanska USA in May 2010 began removal of the southern portion of the viaduct. Work was delayed from October 2013 because nearby bridge construction and a busy sports season reduced the number of available days for road closures.						
• SR 99/Battery Street Tunnel – Safety Improvements	TPA	√	Nov-2009	Signal Electric	Nov-2010	$2.4
Additional sign-bridges have some elements that were not initially planned. Additional environmental right of way work and review was needed.						
• SR 99/South King Street Vicinity to Roy Street – Viaduct Replacement	Nickel/ TPA	√	May-2010	Seattle Tunnel Partners	Dec-2015	$1,089.7
• SR 99/South Holgate Street to South King Street – Viaduct Replacement	TPA	√	Oct-2009 May-2010	Signal Electric Skanska USA Civil West	Jan-2014 Jan-2014	$4.9 $114.6
This subproject has several contract components; the contract awarded to Skanska USA in May 2010 began removal of the southern portion of the viaduct. Work was delayed from being completed in October 2013 because nearby bridge construction and a busy sports season reduced the number of available days for road closures.						
U.S. 395/North Spokane Corridor (NSC) – Design and Right of Way – New Alignment (Spokane)	Nickel/ TPA					
The U.S. 395/North Spokane Corridor project is ongoing and several phases still require funding.						
• U.S. 395/NSC – Francis Avenue Improvements	Nickel	√	Apr-2012	Graham Construction	Nov-2013	$14.4
I-5/Mellen Street Interchange to Grand Mound Interchange – Add Lanes (Thurston, Lewis)	TPA					
• I-5/Blakeslee Junction Railroad Crossing to Grand Mound Interchange – Add Lanes	TPA	√	Feb-2010	Tri-State Construction	Dec-2011	$19.7
• 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.			
I-5/Chehalis River – Flood Control (Lewis)	Nickel	√	Mar-2012	Cascade Bridge	Aug-2013[1]	$21.6
The operationally complete date was delayed to allow additional time for environmental and geotechnical analysis and to finalize designs for drainage and intersections.						
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	TPA	Late	Nov-2014	Selby Bridge Company	Nov-2015	$5.5
SR 6/Rock Creek Bridge East – Replace Bridge (Lewis)	TPA	Late	Dec-2013	Scarsella Bros.	Sep-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.	Sep-2015	$4.7
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
• I-405/Northeast 195th Street to SR 527 – Northbound Widening	TPA	Early	May-2009	Kiewit Pacific	Jun-2010	$19.3

Table continued on p. 42

WSDOT moves forward 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 520/Bridge Replacement and HOV (King)	TPA					
• SR 520/Pontoon Construction (Grays Harbor, Pierce)	TPA	√	Aug-2009	Kiewit-General, A Joint Venture	May-2015	$367.3
Portions of this project are now in construction, but were not previously captured in *Gray Notebook* "Projects to be advertised" tables.						
• SR 520/I-5 to Medina – Evergreen Point Floating Bridge and Landings	TPA	√	Dec-2010	Kiewit-General, A Joint Venture	Apr-2015	$586.6
• SR 520/Medina to SR 202 Vicinity – Eastside Transit and HOV	TPA	√	May-2010	Eastside Corridor Constructors	Dec-2014	$306.3
Contractor delays due to pontoon construction repairs continue, and have delayed the operationally complete date from March to December 2014.						
I-205/Mill Plain Interchange to Northeast 18th Street – Build Interchange – Stage 2	TPA		Aug-2014	Cascade Bridge	Dec-2016	$24.3
SR 167/8th Street East Vicinity to S 277th Street Vicinity – Southbound Managed Lane	TPA	√	Aug-2014	Guy F. Atkinson	Jun-2017	$53.9
SR 167/SR 18 Interchange West-North Ramp North-East Ramp Overcrossing – Seismic Retrofit	TPA	√		Combined with project above for 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-5/Port of Tacoma Road to King County Line – Add HOV Lanes	Nickel	Late	Jun-2009	Tri-State Construction	May-2011	$31.0
Advertisement date was delayed due to design challenges associated with stormwater and floodplain issues, resulting in a formal consultation with U.S. Fish and Wildlife and National Oceanic and Atmospheric Administration. Inflation factor applied in early July 2008 added $6.6 million to project cost estimate. This project has received federal American Reinvestment and Recovery Act funds.						
• I-5/SR 16 Interchange – Rebuild Interchange	TPA	√	Jul-2008	Guy F. Atkinson Construction	Jun-2011	$119.9
• I-5/SR 16/Eastbound Nalley Valley – HOV	Nickel/ TPA	√	Jun-2011	Mowat Construction Company	Jul-2014	$74.7
Adverse weather reduced the number of workable days in the schedule and delayed the operationally complete date from March to July 2014.						
SR 302/Key Peninsula Highway to Purdy Vicinity Safety and Congestion	TPA	Late	May-2014	Tucci and Sons	Feb-2015	$1.3
The advertisement date was delayed to complete right of way acquisition and utility work.						
I-90/Snoqualmie Pass East – Hyak to Keechelus Dam – Corridor Improvement (Kittitas)	TPA					
• I-90/Snoqualmie Pass East, Phase 1A Hyak to Crystal Springs – Detour	TPA	Early	Feb-2009	KLB Construction	Oct-2009	$3.3
• I-90/Snoqualmie Pass East, Phase 1B Hyak to Snowshed Vicinity – Add Lanes and Bridges	TPA	√	Nov-2009	Max J. Kuney Company	Oct-2013	$76.7
• 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.

Notes: 1 This project was completed in an earlier quarter and was not reported due to an error. A full report on the project will be provided in the *Gray Notebook* 57 beige pages.

Two projects to be advertised between January 31 and June 30, 2015

Nickel and Transportation Partnership Account (TPA) projects planned to be advertised; Dollars in millions

Project description	Fund type	Baseline planned ad date	Current planned ad date	On schedule	Baseline estimated cost at completion	Current estimated cost at completion
SR 3/Belfair Area – Widening and Safety Improvements	TPA	Feb-2015	Mar-2015	√	$19.3	$20.4
I-90/Concrete Rehabilitation	Nickel	Jan-2015	Mar-2015	√	$52.3	$52.3

Data source: WSDOT Capital Program Development and Management.

WSDOT finishes 16 of 19 Nickel, TPA projects on budget

Biennial summary: Nineteen projects completed so far in 2013-2015 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 quarter reporting on capital project delivery							
2013-2015 biennium summary[1] This information is updated quarterly throughout the biennium.	4 Nickel 15 TPA	14 on time 5 late	13 on time 6 late	19	$543.9	$502.5	16 on budget 3 over budget
Earlier reporting on capital project delivery							
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. Dollars amounts are rounded up. Prior *Gray Notebooks* may be accessed at http://www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm.

WSDOT adds three[1] projects to cumulative Nickel and TPA list of completed projects

October through December 2014, Nickel and Transportation Partnership Account (TPA) projects; Dollars in millions

Project description	Fund type	Advertised on time	Completed on time[2]	Baseline estimated cost	Current estimated cost at completion	On budget[2]
SR 522/Snohomish River Bridge to US 2 - Add Lanes	Nickel	√	√	$145.5	$145.5	√
US 101/Hoh River (Site No. 2) - Stabilize Slopes	TPA	√		$9.6	$5.1	√
SR 9/84th Street N.E. (Getchell Road) - Improve Intersection	TPA	√	√	$17.0	$6.8	√

Data source: WSDOT Capital Program Development and Management.

Notes: 1 While the SR 520/Medina to SR 202 Vicinity - Eastside Transit and HOV and I-90/Yellowstone Road to Hyak Phase 1D - Stormwater Retrofit are operationally complete, they are part of larger, unfinished mega-projects and therefore are not included in cumulative Nickel and TPA counts. 2 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 pp. 37-38 due to different reporting periods and baselines being used.

WSDOT delivers 112 Nickel highway projects

The performance summaries below and those on p. 45 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. 35-36.

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 December 31, 2014; 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	128	82%	112	88%	2	40%	14	58%
Total projects underway	15	10%	12	9%	2	40%	1	4%
In pre-construction phase	*4*		*3*		*1*		*0*	
In construction phase	*11*		*9*		*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 equal 100 percent 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 2011-2013 biennium	$3,887.5	100%	$3,380.1	100%	$297.9	100%	$209.5	100%
Actual expenditures, 2003 through 2011-2013 biennium	$3,700.8	95%	$3,297.7	98%	$271.6	91%	$131.5	63%
Original plan through 2013-2015 biennium	$3,887.5	100%	$3,380.1	100%	$297.9	100%	$209.5	100%
Current plan through 2013-2015 biennium	$4,222.7	109%[1]	$3,626.2	107%[1]	$461.6	155%[1]	$134.9	64%
Actual expenditures, 2003 through December 31, 2014	$3,970.0	102% [1]	$3,451.8	102%[1]	$385.4	129%[1]	$132.8	63%

Data source: WSDOT Capital Program Development and Management.
Notes: 1 The Legislature added $130 million for construction of a second 144-vehicle ferry for the WSDOT Ferries Division 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. Expenditures are Nickel funds only. Totals do not include projects that cities, counties and tribes collaborate on with WSDOT to complete.

WSDOT completes 183 TPA highway projects

WSDOT project delivery and budget update: Original 2005 Transportation Partnership Account (TPA)
As of December 31, 2014; 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	190	77%	183	80%	0		7	47%
Total projects underway	37	15%	32	14%	1	25%	4	27%
In pre-construction phase	*11*		*10*		*0*		*1*	
In construction phase	*26*		*22*		*1*		*3*	
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	*2*		*2*		*0*		*0*	
Construction starts within six months	*1*		*1*		*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 equal 100 percent 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 2011-2013 biennium	$4,084.8	59%	$3,886.3	58%	$87.7	47%	$110.9	94%
Actual expenditures, 2005 through 2011-2013 biennium	$3,804.3	54%	$3,656.2	55%	$77.0	42%	$71.1	60%
Original plan through 2013-2015 biennium	$5,641.4	81%	$5,386.8	81%	$136.3	74%	$118.3	100%
Current plan through 2013-2015 biennium	$5,165.5	74%	$5,004.7	75%	$79.8	43%	$81.0	69%
Actual expenditures, 2005 through December 31, 2014	$4,481.4	64%	$4,333.5	65%	$77.1	42%	$70.9	60%

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 December 31, 2014, WSDOT approved six change orders costing $500,000 or more. These change orders totaled approximately $35.7 million with the majority — $27 million — addressing re-design and construction of retaining walls for the State Route 520 Eastside Transit Center. 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://1.usa.gov/Sb96L8.

WSDOT advertises 30 Pre-existing Funds projects

WSDOT advertised 30 Pre-existing Funds (PEF) projects in the sixth quarter of the 2013-2015 biennium (October through December 2014).

Of these advertised projects, two projects were advanced from a future quarter, 13 were on time, six were late and nine resulted from unexpected, emergent events, like the rock slide onto State Route 20 at Granite Creek. There were 15 projects that were scheduled for the quarter that were delayed to future quarters, four that were deferred to a future biennium, one that was deleted and one was that was advertised in an earlier quarter. (See p. 47 for this quarter's advertisements, and *Gray Notebook* 51, p. 38 for full definitions of PEF terms).

The current cost to complete the 30 PEF projects advertised during the quarter was approximately $47.7 million, about $1.9 million (3.5 percent) less than the original value of $49.4 million.

Cost to complete WSDOT's project advertisements indicates continued savings
2013-2015 biennium (July 2013 through June 2015); Quarter ending December 31, 2014; Dollars in millions

	Number of projects	Original value	Current cost to complete
Total PEF advertisements planned 2013-2015 biennium	258	$574.5	$408.6
Planned advertisements through December 31, 2014	217	$446.0	$283.1
Actual advertisements through December 31, 2014	195	$399.4	$337.9

Data source: WSDOT Capital Program Development and Management.

WSDOT completes 74 percent of Pre-existing Funds project advertisements on time for biennium
2013-2015 biennium (July 2013 through June 2015)

Project status	Quarter[1]	Cumulative[2]
Projects advanced[3, 5]	2	9
Projects advertised on time	13	144
Emergent projects advertised	9	25
Late projects advertised	6	17
Total projects advertised	**30**	**195**
Projects delayed within the biennium	15	51
Projects deferred out of the biennium	4	9
Projects deleted	1	6
Projects advertised early[4, 5]	1	2

Data source: WSDOT Capital Program Development and Management.
Notes: 1 The quarter refers to October through December 2014. 2 Cumulative refers to July 2013 through December 2014. July 1, 2013 marked the beginning of the 2013-2015 biennium. 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. 5 Numbers for advanced and early projects were combined last quarter.

Since the beginning of the 2013-2015 biennium there have been 195 project advertisements. The current cost to complete them is approximately $337.9 million, about $61.5 million (15 percent) less than the original value of $399.4 million. The cost reduction is due to competitive bids resulting in savings to these projects. In total, WSDOT has 258 PEF advertisements planned during the 2013-2015 biennium.

The current estimated cost to complete them is $408.6 million, a decline of $23.1 million from last quarter's 431.7 million, and about $165.9 million (29 percent) less than the original value of $574.5 million. This reduction is due to continued project savings.

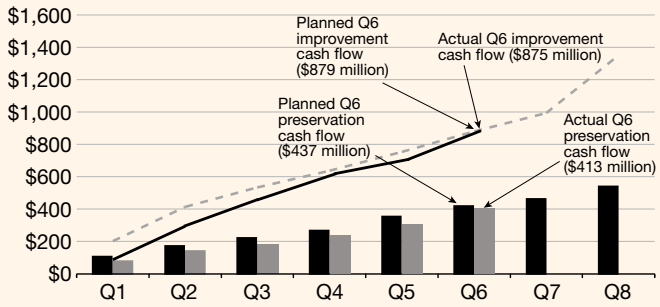
Improvement costs see increase, preservation costs decrease

WSDOT planned to spend $879 million on improvement projects through the sixth quarter of the 2013-2015 biennium, but has spent $875 million. This is a difference of less than 1 percent from estimates given approximately 18 months ago. The improvement program funds projects that optimize highway capacity, enhance safety, and reduce the environmental impact of construction projects.

WSDOT planned to spend $437 million through the sixth quarter of the 2013-2015 biennium, but has spent $413 million on preservation projects (6 percent less) due to favorable bids, and by using project prioritization to restrict funding to the most needed projects, while delaying less pressing projects. 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 and improvement actual cash flows edging toward planned levels
2013-2015 biennium; Quarter ending December 31, 2014; Planned vs. actual expenditures; Dollars in millions



Data source: WSDOT Capital Program Development and Management.
Note: Q6 refers to the sixth quarter (October through December) of the 2013-2015 biennium (July 2013 through June 2015).

WSDOT advertises 13 of 30 PEF projects on time

WSDOT advertises nine emergent Pre-existing Funds projects this quarter

October through December 2014

Early (1)	
SR 509/Tacoma Rail Railroad Crossing 0.3 Miles E. of Port of Tacoma Rd. - Safety	
On Time (13)	
SR 509/Southbound S. 160th St. Vicinity to S. 112th St. Vicinity - Paving	SR 507/Pearl St. and Fifth St. Vicinity - Railroad Crossing Improvements
I-5/Southbound Mount Vernon to Joe Leary Slough - Paving	South Central Region Basic Safety - Guardrail
SR 203/Coe-Clemons Creek - Chronic Environmental Deficiency	Eastern Regionwide Basic Safety - Guardrail
SR 507/Tower St. and Fifth St. Vicinity - Railroad Crossing Improvements	North Central Region Backup Power for Mountain Passes
North Central Regionwide Basic Safety - Guardrail	SR 181/S. 180th St. to Southcenter Blvd. - Paving
North Central Regionwide Basic Safety - Signing	Eastern Regionwide Basic Safety - Signing
Olympic Region VMS Rehabilitation - Update Variable Message Signs	
Advanced (2)	
SR 20/S. Burlington Blvd. - Railroad Crossing Improvements	US 195/Junction SR 27 to Babbit Rd. - Paving
Emergent (9)	
SR 509/Southbound S. 160th St. Vicinity to S. 112th St. Vicinity - ADA Compliance	SR 14/SR 221 to 2 Miles East of Christy Rd. - Paving
SR 20/Carlton Complex Emergency Repair	SR 181/S. 180th St. to Southcenter Blvd. - ADA Compliance
SR 153/Carlton Complex Emergency Repair	Southwest Regionwide Curve Warning Signing - Chevron Alignment
South Central Regionwide Curve Warning Signing - Chevron Alignment	SR 20/Granite Creek Vicinity Rock Slide
I-405/Northbound Off-ramp to Northeast 8th St. - Drainage Repair	
Late (6)	
SR 104/Hood Canal Bridge - Special Repair Project delayed due to additional design work involving anchor cable replacement.	US 2/East of Coulee City - Railroad Crossing Improvements Project started late to allow additional coordination with facilities.
SR 241/SR 22 Mabton Vicinity/Railroad Crossing - Install Beacons and Stop Refuge Project delayed to allow additional coordination with rail facility.	US 395/Foster Wells Rd. Vicinity to E. Elm Road - Paving Project advertised late due to changes in funding and prioritization.
Southwest Regionwide Basic Safety - Guardrail Project delayed for workforce rebalancing.	I-90/Columbia River Vantage Bridge - Painting Project delayed for completion of wind load study.
Delayed (15)	
SR 17/Othello Vicinity - Seal Project delayed to combine with another project for efficiencies.	SR 14/Benton County Line to Whitcomb Island Rd. Vicinity - Chip Seal Project delayed for additional design for the city of Walla Walla.
SR 28/Quincy West - Seal Project delayed to accommodate workforce balancing.	SR 124/South Lake Rd. to Charbonneau Park Vicinity - Chip Seal Project delayed for additional design for the city of Walla Walla.
SR 207/Coles Corner North - Seal Project delayed to combine with another project for efficiencies.	SR 285 Couplet/Wenatchee Area - Paving Project delayed to accommodate workforce balancing.
SR 281 Spur/George Vicinity - Seal Project delayed to accommodate workforce balancing.	US 195/Colfax to Dry Creek - Paving Project delayed to allow additional coordination with stakeholders.
SR 17/South of Othello - Left Turn Lanes Project delayed to combine with another project for efficiencies.	I-90/Easton Hill Vicinity to Kachess River Bridge Eastbound - Replace/Rehabilitate Concrete Project delayed for additional design efforts and resulting permits.
SR 281/South of Quincy at Road 9 N.W. - Left Turn Lanes Project delayed to accommodate workforce balancing.	SR 302/North of E. Victor Rd. - Culvert Replacement Project delayed to allow excavation during dry season.
US 12/Tieton River Bridges to Naches - Chip Seal Project delayed for additional design for the city of Walla Walla.	SR 20/Race Rd. to Jacobs Rd. - Safety Improvements (Phase 1) Project delayed to complete environmental documentation.
US 12/Turner Rd. Vicinity to Messner Rd. Vicinity - Chip Seal Project delayed for additional design for the city of Walla Walla.	
Deferred (4)	
SR 525/Bayview Rd. Vicinity to Lake Hancock - Paving Project deferred to allow funding of higher priority projects.	US 2/Leavenworth Vicinity - Paving Project deferred to allow funding of higher priority projects.
SR 542/Hedrick Creek - Fish Barrier Project deferred to allow funding of higher priority projects.	I-5/Ship Canal Bridge - Seismic Retrofit Project deferred due to bridge workforce availability.
Deleted (1)	
I-90/Mt. Baker Tunnel - CCTV Replacement Project deleted due to work done by Sound Transit.	

Data source: WSDOT Capital Program Development and Management

56 Quick Response Codes and A Guide to Understanding Reporting Periods

Codes offer convenience

Quick Response codes, also known as QR codes, accompany some *Gray Notebook* articles. Many mobile devices have the ability to scan QR codes and link the reader to Web pages. Readers with mobile devices can scan the codes to access other information related to articles found in this issue of the *Gray Notebook* (search for "QR codes" to find a variety of these applications – while the *Gray Notebook* does not endorse any applications, some have been found to work better than others). A sampling of codes is presented here.

Gray Notebook sampling of Quick Response codes

Scan to access additional information

Subject and hyperlink[1]	Scan QR code
WSDOT website http://www.wsdot.wa.gov	
Gray Notebook online subject index http://www.wsdot.wa.gov/Accountability/GrayNotebook/SubjectIndex.htm	
Gray Notebook archives http://www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm	
2014 *Biennial Transportation Attainment Report* http://www.wsdot.wa.gov/Accountability/PerformanceReporting/Attainment.htm	

Note: 1 As an alternative to scanning the QR code, readers can type the hyperlink address into their Web browsers.

To improve readability, many of the numbers in the *Gray Notebook* tables have been rounded. As a result, some may not calculations equal 100 percent.

A guide to understanding reporting periods

Some performance measures addressed in the *Gray Notebook* (GNB) refer to calendar years and their corresponding quarters, others to state fiscal years/quarters, and still others to federal fiscal years/quarters. While an effort is made to standardize reporting periods, WSDOT programs make the determination on the best time period in which to report their data. For example, a program that receives substantial federal funds may report performance based on the federal fiscal year.

The chart below illustrates the quarters discussed in the pages of the *Gray Notebook*. GNB 56 reports quarterly performance data for October through December 2014, which is the fourth quarter of the calendar year (Q4 2014). This time period is also considered the second quarter of the state's current fiscal year (Q2 FY2015) as well as the first quarter of the federal fiscal year (Q1 FFY2015).

Calendar, fiscal and federal fiscal quarters

Jan Feb Mar	Apr May Jun	Jul Aug Sep	Oct Nov Dec
GNB 53	GNB 54	GNB 55	**GNB 56**
Q1 2014	Q2 2014	Q3 2014	Q4 2014
Q3 FY2014	Q4 FY2014	Q1 FY2015	Q2 FY2015
Q2 FFY2014	Q3 FFY2014	Q4 FFY2014	Q1 FFY2015

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.

There is also the matter of biennial quarters. The Washington State Legislature sets a biennial budget. This issue highlights the sixth quarter of the 2013-2015 biennium. These quarters are as follows:

2013-2015 biennial quarters

Period	Biennial Quarter	Period	Biennial Quarter
July – September 2013	Q1	July – September 2014	Q5
October – December 2013	Q2	**October – December 2014**	**Q6**
January – March 2014	Q3	January – March 2015	Q7
April – June 2014	Q4	April – June 2015	Q8

Gray Notebook Edition Index 56

Calendar year	Edition number / Date (Washington state fiscal year and quarter)			
2001	1 / Mar 31, 2001 (Q3 FY2001)	2 / Jun 30, 2001 (Q4 FY2001)	3 / Sep 30, 2001 (Q1 FY2002)	4 / Dec 31, 2001 (Q2 FY2002)
2002	5 / Mar 31, 2002 (Q3 FY2002)	6 / Jun 30, 2002 (Q4 FY2002)	7 / Sep 30, 2002 (Q1 FY2003)	8 / Dec 31, 2002 (Q2 FY2003)
2003	9 / Mar 31, 2003 (Q3 FY2003)	10 / Jun 30, 2003 (Q4 FY2003)	11 / Sep 30, 2003 (Q1 FY2004)	12 / Dec 31, 2003 (Q2 FY2004)
2004	13 / Mar 31, 2004 (Q3 FY2004)	14 / Jun 30, 2004 (Q4 FY2004)	15 / Sep 30, 2004 (Q1 FY2005)	16 / Dec 31, 2004 (Q2 FY2005)
2005	17 / Mar 31, 2005 (Q3 FY2005)	18 / Jun 30, 2005 (Q4 FY2005)	19 / Sep 30, 2005 (Q1 FY2006)	20 / Dec 31, 2005 (Q2 FY2006)
2006	21 / Mar 31, 2006 (Q3 FY2006)	22 / Jun 30, 2006 (Q4 FY2006)	23 / Sep 30, 2006 (Q1 FY2007)	24 / Dec 31, 2006 (Q2 FY2007)
2007	25 / Mar 31, 2007 (Q3 FY2007)	26 / Jun 30, 2007 (Q4 FY2007)	27 / Sep 30, 2007 (Q1 FY2008)	28 / Dec 31, 2007 (Q2 FY2008)
2008	29 / Mar 31, 2008 (Q3 FY2008)	30 / Jun 30, 2008 (Q4 FY2008)	31 / Sep 30, 2008 (Q1 FY2009)	32 / Dec 31, 2008 (Q2 FY2009)
2009	33 / Mar 31, 2009 (Q3 FY2009)	34 / Jun 30, 2009 (Q4 FY2009)	35 / Sep 30, 2009 (Q1 FY2010)	36 / Dec 31, 2009 (Q2 FY2010)
2010	37 / Mar 31, 2010 (Q3 FY2010)	38 / Jun 30, 2010 (Q4 FY2010)	39 / Sep 30, 2010 (Q1 FY2011)	40 / Dec 31, 2010 (Q2 FY2011)
2011	41 / Mar 31, 2011 (Q3 FY2011)	42 / Jun 30, 2011 (Q4 FY2011)	43 / Sep 30, 2011 (Q1 FY2012)	44 / Dec 31, 2011 (Q2 FY2012)
2012	45 / Mar 31, 2012 (Q3 FY2012)	46 / Jun 30, 2012 (Q4 FY2012)	47 / Sep 30, 2012 (Q1 FY2013)	48 / Dec 31, 2012 (Q2 FY2013)
2013	49 / Mar 31, 2013 (Q3 FY2013)	50 / Jun 30, 2013 (Q4 FY2013)	51 / Sep 30, 2013 (Q1 FY2014)	52 / Dec 31, 2013 (Q2 FY2014)
2014	53 / Mar 31, 2014 (Q3 FY2014)	54 / Jun 30, 2014 (Q4 FY2014)	55 / Sep 30, 2014 (Q1 FY2015)	56 / Dec 31, 2014 (Q2 FY2015)

Gray Notebook subject index and acronym list are available online

The *Gray Notebook* subject index is online at http://wsdot.wa.gov/Accountability/GrayNotebook/SubjectIndex. All editions of the *Gray Notebook* are available online at http://wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives. WSDOT's transportation acronym guide is also available online at http://www.wsdot.wa.gov/reference/acronym.

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Android **iPhone**

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