Washington State
Department of Transportation

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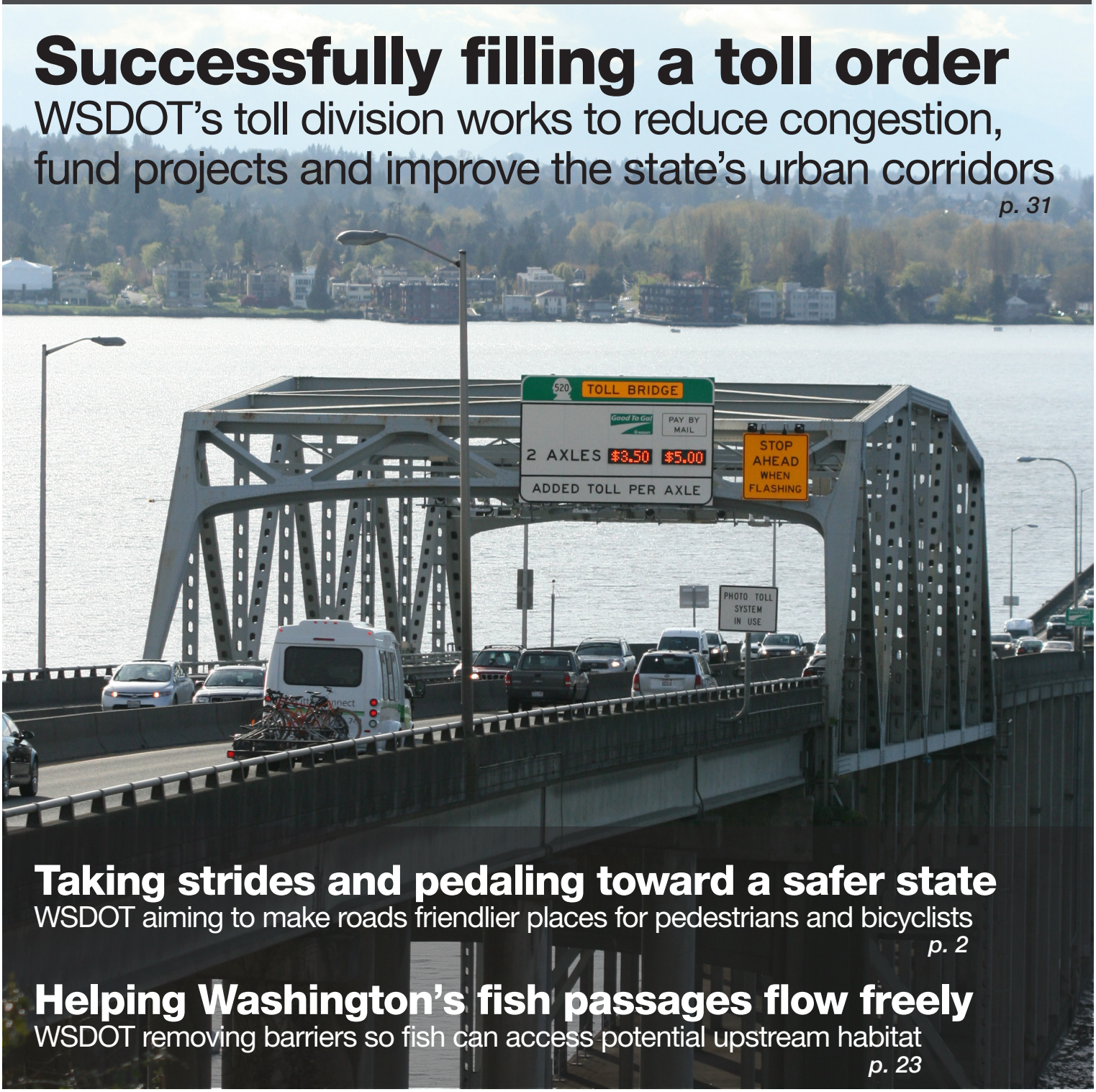
The Gray Notebook

WSDOT's quarterly performance report on transportation systems, programs, and department management
Quarter ending December 31, 2013 • Published February 21, 2014 Lynn Peterson, Secretary of Transportation



Successfully filling a toll order

WSDOT's toll division works to reduce congestion, fund projects and improve the state's urban corridors

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Taking strides and pedaling toward a safer state

WSDOT aiming to make roads friendlier places for pedestrians and bicyclists

p. 2

Helping Washington's fish passages flow freely

WSDOT removing barriers so fish can access potential upstream habitat

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PERFORMANCE HIGHLIGHTS reported for the quarter ending December 31, 2013

91.8%
of WSDOT's **roads** were in fair or better condition in 2012

$343 M
WSDOT's pavement rehabilitation **backlog**

8
the number of **Results Washington** measures for which WSDOT is the lead

80%
highway **maintenance condition targets** met in 2013

↔
Puget Sound area **congestion** stabilizes

425,000
drivers had ***Good To Go!*** accounts in FY2013

5 M
ferry **riders** and

$ 34.8 M
ferry **farebox** revenues this quarter

↑ **17%**
WSDOT's share of **Amtrak** funding increases

10
Federally funded **rail projects** complete or under construction

16
formal environmental violation notices **received** in 2013

$ 115.2 M
toll revenue in FY2013

35.0 M
toll transactions in FY2013

352 OF 421
Nickel and TPA **projects** complete since 2003

THREE NEW PROJECTS COMPLETED THIS QUARTER

53
scheduled Pre-existing Funds projects advertised **on time** this quarter

18
projects added to ***Watch List***

$5.77 B
Nickel and TPA projects **completed** since 2003

69 NICKEL AND TPA PROJECTS IN THE CURRENT TRANSPORTATION BUDGET ARE NOT YET COMPLETE

↓ **11%**
price decrease in **hot mix asphalt** in 2013, a key material for highways

WSDOT HAS 17 LEAN PROJECTS

971
miles of fish passage habitat restored by WSDOT since 1991

$ 15.8 M
economic **benefit** provided by WSDOT Incident Response

12.8
average number of minutes WSDOT teams took to **clear** roadway incidents

9,906 INCIDENTS **CLEARED** BY WSDOT

↑ **11%**
increase in employee **days away** from work due to workplace **injuries and illnesses**

84
pedestrian and bicyclist fatalities in 2012, an **increase** from 67 in 2010

↑ **2.8%**
increase in Washington state's **construction** sector employment in 2013

Accountability drives *Gray Notebook* reporting

This 52nd edition of the *Gray Notebook* features annual articles on pedestrian and bicyclist system safety, asset management: pavement conditions, highway maintenance, fish passage barriers, environmental compliance, construction cost trends and tolling. Other features in this issue include a transportation economic update, travel time trends, worker safety, incident response, ferries, passenger rail, Lean, Results Washington and Moving Ahead for Progress in the 21st Century (MAP-21). Information pertaining to project delivery and finance starts on p. 34. The "beige pages," still printed on beige paper, address the delivery of projects funded in the 2003 Transportation Funding Package (Nickel), 2005 Transportation Partnership Account (TPA), and Pre-existing Funds (PEF).

The *Gray Notebook* is published quarterly in February, May, August and November. Contents include quarterly and annual reports on key agency functions, providing regularly updated system and program performance information.

The *Gray Notebook* is available electronically; the publication, with hyperlinks, can be downloaded as a Portable Document Format (PDF) and printed as needed. One recent improvement allows readers to scan Quick Response (QR) codes that provide instant links to background information for those who want to know more of the story. QR codes are found on some articles, linking readers to additional information. Read more about QR codes on p. iv.

WSDOT also publishes a quarterly highlights folio of selected performance topics from the *Gray Notebook*, called *Gray Notebook Lite*.

Strategic plan in development

WSDOT's Secretary of Transportation Lynn Peterson is leading the agency in the development of a new strategic plan, moving the agency in a new direction for the future while taking into account the programs and budgets authorized by the state Legislature and Gov. Jay Inslee.

WSDOT is an active participant in *Results Washington*, Gov. Inslee's plan for building a working Washington. At the same time, WSDOT is preparing for future federal transportation reporting requirements (read about MAP-21 in *Gray Notebook* 49, p. vii, and in this issue on p. vi).

These three efforts — WSDOT's new strategic plan, Results Washington and MAP-21 — will all play a vital role in guiding future performance reporting.

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.

The transportation progress report

The Washington State Office of Financial Management (OFM) is responsible for setting objectives and establishing performance measures for the state's transportation policy goals. OFM reports on the attainment of the goals and objectives to the Governor and Legislature each biennium. The most recent *Attainment Report*, for 2012, is available online at http://www.wsdot.wa.gov/Accountability/PerformanceReporting/Attainment.htm.

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, each article features bylines indicating contributors. WSDOT's graphics team, including Steve Riddle, Jinger Hendricks, Diana Lessard, Jessie Lin and Fauziya Mohamedali, create the majority of the graphics, while WSDOT communicators typically take the photographs. The *Gray Notebook* is printed in house by a team including Deb Webb, Trudi Phillips and Jordan Hansen. Linda Pasta coordinates distribution.

52 Quick Response Codes and A Guide to Understanding Reporting Periods

Codes offer convenience

Quick Response codes, also known as QR codes, accompany many *Gray Notebook* articles. Many mobile operating systems have the ability to "read" QR codes and link the reader to Web pages. Readers with mobile operating systems can scan the codes to read 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	
2012 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.

A guide to understanding reporting periods

Some performance measures addressed in the *Gray Notebook* 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 52 reports quarterly performance data for October through December 2013, which is the fourth quarter of the calendar year (Q4 2013). This time period is also considered the second quarter of the state's current fiscal year (Q2 FY2014) as well as the first quarter of the federal fiscal year (Q1 FFY2014).

Calendar, fiscal and federal fiscal quarters

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
GNB 49			GNB 50			GNB 51			GNB 52		
Q1 2013			Q2 2013			Q3 2013			Q4 2013		
Q3 FY2013			Q4 FY2013			Q1 FY2014			Q2 FY2014		
Q2 FFY2013			Q3 FFY2013			Q4 FFY2013			Q1 FFY2014		

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 the matter of biennial quarters. The Washington State Legislature sets a biennial budget. This issue highlights the second 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

WSDOT's Goals, Performance and Trends

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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 2011 & 2012)	0.80	0.77	1.00	✓		↓
Rate of **recordable incidents** for every 100 WSDOT workers[1] (Cumulative year to date 2012 & 2013)	5.5	5.7	5.0	—	(Two-year trend)	↓
Preservation						
Percentage of state **highway pavement** in fair or better condition by vehicle miles traveled (Annual measure: calendar years 2012 & 2013)	91.9%	91.9%	92.0%	—		↑
Percentage of **state bridges** in fair or better condition by bridge deck area (Annual measure: fiscal years 2012 & 2013)	91.1%	91.7%	95.0%	—		↑
Mobility (Congestion Relief)						
Highways: Annual (weekday) vehicle **hours of delay** statewide at **maximum throughput speeds**[2] (Annual measure: calendar years 2010 & 2012)	31.6 million	30.9 million	N/A	N/A		↓
Highways: Average **incident clearance times** for all Incident Response program responses (Calendar quarterly measure: Q3 2013 and Q4 2013)	12.9 minutes	12.8 minutes	N/A	N/A		↓
Ferries: Percentage of trips departing on time[3] (Fiscal quarterly measure: year to year Q2 FY2013 & Q2 FY2014)	96.3%	96.6%	95%	✓		↑
Rail: Percentage of Amtrak Cascades trips arriving on time[4] (Calendar quarterly measure: year to year Q3 2012 & Q3 2013 – Q3 2013 is latest available data)	71.9%	76.4%	80%	—		↑
Environment						
Number of WSDOT **stormwater management facilities** constructed (Annual measure: fiscal years 2012 & 2013)	146	169	N/A	N/A		Not applicable
Cumulative number of WSDOT **fish passage barrier improvements** constructed (Annual measure: calendar years 2012 & 2013)	270[5]	285	N/A	N/A		↑
Stewardship						
Cumulative number of Nickel and TPA **projects completed,** and **percentage on time**[6] (Calendar quarterly measure: Q4 2012 through Q4 2013 – trend shows last 5 quarters)	348/ 88%	352/ 88%	90% on time	—		↑
Cumulative number of Nickel and TPA **projects completed** and **percentage on budget**[6] (Calendar quarterly measure: Q4 2012 through Q4 2013 – trend shows last 5 quarters)	348/ 91%	352/ 91%	90% on budget	✓		↑
Variance of total project costs compared to **budget expectations**[6] (Calendar quarterly measure: Q4 2012 through Q4 2013 – trend shows last 5 quarters)	under budget by 1.4%	under budget by 1.6%	on budget	✓		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 WSDOT began reporting the recordable incident rate in January 2012; trend shows two years. 2 Compares actual travel time to travel time associated with "maximum throughput" (defined as 70 to 85 percent of the posted speeds), where the greatest number of vehicles occupy the highway at the same time. 3 WSDOT Ferries Division's "on-time" departures include any trip recorded by automated tracking as leaving the terminal within 10 minutes of scheduled time. 4 Amtrak Cascades' "on-time" arrivals are any trips that arrive at their destination within 10 to 15 minutes of scheduled time. 5 Updated from GNB 48 to capture an emergent need project that was not included. 6 Budget and schedule expectations are defined in the last approved State Transportation Budget. See p. 34 for more information.

52 Moving Ahead for Progress in the 21st Century (MAP-21)

MAP-21 is intended to increase the transparency and accountability of states in their investment of taxpayer dollars in transportation infrastructure and services nationwide, and ensure states invest money in transportation projects that collectively make progress toward achieving these national goals. Performance measures will be developed through the federal rule making process. Final rules are anticipated by March 2015.

MAP-21 federal performance reporting requirements

MAP-21 goals by program area	Federal threshold/ benchmark[1]	MAP-21 target[2]	Penalty[3] Y/N	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	Traffic fatality rates using the NHTSA[5] methodology, see *Gray Notebook* 50, p. 2
Rate of **traffic serious injuries** per million vehicle miles traveled (VMT) on all public roads	No	TBD	Yes	Serious injury rates using the NHTSA[5] methodology
Number of **traffic fatalities** on all public roads	No	TBD	Yes	Traffic fatalities using the NHTSA[5] methodology see *Gray Notebook* 50, p. 2
Number of **traffic serious injuries** on all public roads	No	TBD	Yes	Serious injuries using the NHTSA[5] methodology
Rate of per capita **traffic fatalities** for drivers and pedestrians 65 years of age or older	No	TBD	No	Traffic fatalities for pedestrians 65 years of age or older. See *Gray Notebook* 48, p. 8, for an update on MAP-21 implications. The rate of traffic fatalities for older pedestrians is part of Washington state's Target Zero campaign
Rate of fatalities on high-risk rural roads	No	TBD	Yes	Traffic fatality rates on high-risk rural roads as part of Washington state's Target Zero campaign
Highway-railway crossing fatalities	No	TBD	No	Fatalities at highway-railway crossings
National Highway Performance Program				
National Highway System and Interstate **pavement condition**	TBD	TBD	Yes	Pavement structural and functional condition. See *Gray Notebook* 48, p. 16, for an update on MAP-21 implications for pavement
Condition of bridges on the National Highway System	<10% of deck area on SD[6] bridges	TBD	Yes	Several measures of bridge condition including good/fair/poor condition rating and structural deficiency (SD) rating, see *Gray Notebook* 50, p. 4
Measures to be determined through federal rule-making	No	TBD	No	The *2013 Corridor Capacity Report* details highway travel time and reliability trends in Washington state
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 an update on MAP-21 freight implications
Congestion Mitigation and Air Quality (CMAQ) Program				
Measures to be determined through federal rule-making	No	TBD	No	The *2013 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	Greenhouse gas emissions by source, including fleet vehicles and ferry vessel operations
Project Delivery				
Duration of NEPA[7] documentation preparation	No	TBD	No	Percent of projects completed early or on time, percent completed on or under budget, and duration for 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 USDOT 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 the DOT or MPO does not attain the target within a given time frame. Penalties include minimum allocations of federal funding toward programs that advance progress toward the desired target. 4 TBD = To be determined. 5 NHTSA = National Highway Traffic Safety Administration. 6 SD = structurally deficient. 7 NEPA= National Environmental Policy Act.

Results Washington sets vision, mission for state

Governor Jay Inslee introduced Washington state's new performance management system, Results Washington, in September 2013, outlining his priorities for the state. The Governor established this new strategic framework for his administration to set the state's vision and mission, as well as the foundational expectation of all state agencies to achieve goals collaboratively. WSDOT and other Washington state agencies are working hard to implement reporting systems that will meet the Governor's new performance goals.

Results Washington combines aspects of previous performance management systems such as former Gov. Gregoire's Government, Management, Accountability, and Performance, and her Priorities of Government with a significantly expanded Lean initiative that involves all state agencies. This initiative will provide both policy leaders and the public with detailed information about progress toward the governor's goals. As a part of Results Washington, agencies will strategically apply Lean thinking, tools and techniques across state government operations to eliminate waste and create more value for the taxpayers.

Results Washington builds upon previous efforts to deliver value and transparency to taxpayers as it:

- Clearly aligns numerous activities around the state's new mission and vision
- Expands performance improvement efforts to include all state agencies as well as boards and commissions
- Increases frequency of reporting and forums on results so legislators and the public have regular access to up-to-date performance results
- Increases the level of collaboration among state agencies and their partners
- Better integrates improvement efforts, such as Lean, in everyday operations
- Simplifies data so it is easier to use and more accessible
- Emphasizes engagement with citizens, employees and stakeholders

Gov. Inslee's five focus areas for Results Washington:

- World Class Education
- Prosperous Economy
- Sustainable Energy and a Clean Environment
- Healthy and Safe Communities
- Efficient, Effective and Accountable Government

Transportation is directly aligned with the governor's plans. Improving Washington's infrastructure and building a more sustainable transportation system are two of the six outcomes that the Inslee administration will strive to accomplish in building a prosperous economy.

Gov. Inslee recognizes that Washington's economic health is fundamentally linked to the infrastructure WSDOT builds and maintains. Improving infrastructure assets — from bridges and roads to ferries and broadband Internet — allows people and goods to move efficiently, improving Washington state's ability to be competitive. Further, connecting our communities with better transportation options supports improved health and safety outcomes.

For more information on WSDOT's Lean efforts, see pp. 29-30.

This edition of the *Gray Notebook* includes articles that pertain to Results Washington including the Pedestrian and Bicyclist Safety Annual Report and Asset Management: Pavement Conditions Annual Report. The table on p. viii is intended to highlight WSDOT's progress and strategies to achieve Results Washington's desired outcomes.

State performance reporting requirements

Results Washington measures by goal area	Previous period	Current period	Target met	Current Trend	Desired Trend
Measures for which WSDOT is the lead agency					
Goal 2: Prosperous Economy					
Improve percentage of state and local bridges in fair or better condition to 95% or higher[1] (Annual measure: fiscal years 2012 & 2013)	91.1%	91.7%	No	↑	↑
Improve percentage of state and local pavement in fair or better condition to 92% or higher[1] (Annual measure: calendar years 2011 & 2012)	90.5%	91.8%	No	↑	↑
Improve percentage of ferry terminal systems in fair or better condition to XX%[2]; improve percentage of ferry vessel systems that are not overdue for replacement to 95%[1]	Expected to report in June 2014				
Maintain percentage of transit fleet that exceeds Federal Transit Administration minimum useful life scheduled at 2012 baseline levels of X%[2]	Expected to report in December 2014				
Increase the percentage of Washingtonians using alternative transportation commute methods to 33% by 2015 (Annual measure: calendar years 2011 & 2012)	26.7%	27.8%	No	↑	↑
Improve travel and freight reliability on strategic corridors resulting from economic growth to within 5% of 2012 baseline[1] (Annual measure: calendar years 2011 & 2012; in minutes)	5,741	5,820	Yes	↔	↔
Maximize existing capacity of strategic corridors by increasing people and/or goods moved per corridor mile from X%[2] in 2012 to X%[2] in 2015	Expected to report in December 2014				
Reduce number of pedestrian and bicyclist fatalities on public roadways from 84 in 2012 to zero in 2030 (Annual measure: calendar years 2011 & 2012)	75	84	No	↑	↓
Measures for which WSDOT is not the lead agency, but has an interest[3]					
The following measures are lead 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%	Expected to report in June 2014				
Goal 3: Sustainable Energy and a Clean Environment					
Reduce transportation related greenhouse gas emissions from 44.9 million metric tons (mmt)/year (projected 2020) to 37.5 mmt/year (1990) by 2020	Expected to report in June 2014				
Increase transportation sector renewable energy use per vehicle mile travelled from X to X by 20XX[2]	Expected to report in June 2014				
Decrease tons of transportation-related emissions of greenhouse gases per real dollar of gross state product from X to X 20XX[2]	Expected to report in June 2014				
Increase miles of stream habitat opened from 350 to 450 by 2016	Expected to report in March 2014				
Increase number of fish passage barriers corrected per year from 375 to 500 by 2016	Expected to report in March 2014				
Goal 4: Healthy and Safe Communities					
Decrease number of traffic related fatalities on all roads from 454 in 2011 to zero in 2030	Expected to report in June 2014				

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

Notes: 1 Requires passage of a transportation revenue package. 2 Measure currently under development. 3 WSDOT has an interest in Goal 5: Efficient, Effective and Accountable government; the agency will contribute performance information that will be combined and reported with data from all state agencies.

Worker Safety Quarterly Update 52

Notable results

- *Incidents involving employee days away from work due to workplace injuries and illnesses increased 11% compared to previous year*
- *WSDOT's recordable incident rate is 5.7 per 100 full-time employees, missing the 2013 goal of 5.0 or less*

WSDOT's incident rate increases

WSDOT's injured workers are experiencing fewer injuries that require days away from work, restricted duty or a need for a job transfer, from a rate of 3.5 in 2010 to 3.0 in 2013. While the longer term trend shows an agency-wide improvement of 14.2 percent since 2010, WSDOT's agency-wide days away, restricted duty, or job transfer (DART) rate was 3.0 for every 100 full-time employees for calendar year 2013. This is 11 percent higher (worse) than it was for calendar year 2012. See the table below for information on how the rate is calculated.

WSDOT reported 339 Occupational Safety and Health Administration (OSHA) recordable incidents in 2013 (January through December), three more than the 336 in the same period of 2012. WSDOT continues to be guided by the core value that every employee should leave work at the end of their shift just as healthy as when they started.

WSDOT's recordable incident rate is 5.7 per 100 full-time employees, 3.6 percent higher than the rate of 5.5 in 2012, and 0.7 above the target rate of 5.0 or fewer incidents (per 100 full-time employees). See *Gray Notebook* 47, p. 2, for additional details about these rates.

WSDOT's "days away" rate[1] and recordable incident rate[2] worsen
Year to date (YTD) (January through December) 2012 and 2013; Rate percent change from YTD 2012 to YTD 2013

	Rate of incidents resulting in Days Away, Restricted duty, and/or job Transfer (DART)			Number of recordable incidents for every 100 full-time employees			
Region	Year to date 2012[3]	Year to date 2013	Rate % change[4]	Year to date 2012	Goal 2013	Year to date 2013	Rate % change[4]
Eastern	2.4	2.5	+4%	8.8	8.3	11.2	+27%
Headquarters	1.1	0.6	-45%	3.0	2.5	1.4	-53%
North Central	2.5	3.1	+24%	7.1	6.6	5.8	-18%
Northwest	2.4	4.0	+67%	5.7	5.2	7.6	+33%
Olympic	3.4	3.8	+12%	5.5	5.0	6.6	+20%
South Central	3.3	2.6	-21%	6.6	6.1	3.8	-42%
Southwest	3.5	2.5	-29%	6.1	5.6	6.7	+10%
Agency rate[5] excluding Ferries	**2.4**	**2.6**	**+8%**	**5.4**	**4.9**	**5.5**	**+2%**
Ferries Division	3.5	4.2	+20%	5.5	5.0	6.1	+11%
Agency-wide[5]	**2.7**	**3.0**	**+11%**	**5.5**	**5.0**	**5.7**	**+4%**

Data sources: WSDOT Office of Human Resources and Safety, WSDOT Ferries Division, Washington State Department of Labor & Industries.
Notes: 1 The "days away" or DART rate is the count of recordable incidents involving days away, restricted duty, or job transfer, multiplied by 200,000 hours, (approximate number of hours worked by 100 employees in one year), and divided by the total hours worked. 2 The recordable incident rate is calculated as the count of recordable incidents multiplied by 200,000 hours divided by the total hours worked. An OSHA recordable incident is work related, and a new case that results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. 3 WSDOT identified a formula calculation error in the 2012 data resulting in a 23% increase (over reported) in the first two quarters and 30% in the third quarter. The error was corrected by the fourth quarter. Corrected numbers for 2012 are shown in this table and will not match editions of the *Gray Notebook* prior to edition 49. 4 Incident rate changes: improved = decrease (-%); worsened = increase (+%). 5 Agency rates are not an average of regional rates, which are calculated as described in Notes 1 and 2, respectively.

WSDOT is reviewing the past five year incident history to assess trends, workplace conditions, behaviors and underlying systems. This in-depth analysis will allow the agency to evaluate what measures could be taken to prevent or reduce the frequency of similar incidents from occurring in the future.

Statewide, safety officers meet regularly with managers and supervisors to work together to implement solutions as a result of accident investigations, accident/injury reports and scheduled inspections to identify and reduce or eliminate potential hazards.

Contributors include Marlo Binkley, Kathy Dawley, Alana Neal, Ernst Stahn and Yvette Wixson

52 Pedestrian and Bicyclist Safety Annual Report

Notable results

- *Pedestrian and bicyclist fatalities increased in 2012, accounting for 19% of all traffic fatalities in Washington*
- *In Washington, 13% of all trips were on foot or by bicycle in 2009*
- *For the sixth consecutive year, the League of American Bicyclists named Washington as the No. 1 most "Bicycle Friendly State"*

Pedestrian and bicyclist fatalities increase in 2012

Pedestrian and bicyclist fatalities in Washington state have increased for the second year in a row, from 67 in 2010 to 84 in 2012. This accounts for 19 percent of all traffic fatalities in Washington in 2012 (the most recent year for which data is available), up from 17 percent in 2011.

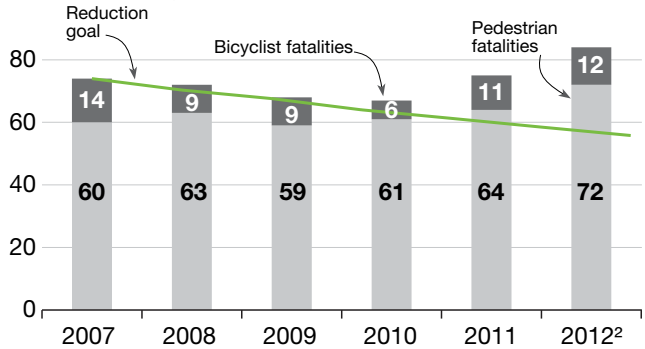
In the past 10 years, WSDOT's Pedestrian and Bicycle Safety Program has administered $44 million for 106 projects, improving 80 known pedestrian and bicycle safety risk locations and funding mobility improvements like Puget Sound Bike Share (see p. 4 for more bike share details).

Most bicyclist and pedestrian collisions occur on "main street highways"

City arterial streets or main streets that also serve as state highways account for less than 10 percent of the state highway system; however, about 63 percent of all bicycle and pedestrian collisions on state highways occurred on these routes from 2010 through 2012 (1,285 of 2,042 total collisions in three years). This includes 48 percent of all pedestrian and bicyclist fatalities and serious injuries on state highways (197 of 409 fatal and serious injury collisions). "Main street highways" tend to be higher speed roads in community centers and commercial areas that provide local community access, and serve as thoroughfares. These roads have limited pedestrian and bicycle connections, yet are well used by these travelers.

For a system-wide look at bicyclist and pedestrian collisions and fatalities on all public roads in Washington, see the graph: http://wsdot.wa.gov/publications/fulltext/graynotebook/GNB52_Extra/PedBikeGraph.pdf

Pedestrian and bicyclist fatalities continue to rise
2007 through 2012; Washington only; Reduction trendline is 5 percent annually[1]



Data sources: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

Notes: 1 See *Gray Notebook* 48, p. 5 for more details on the goal to reduce fatalities. 2 2012 data is preliminary. WSDOT no longer reports the "fatality rate" based on Washington state population, as it does not reflect changes in biking and walking activity. Numbers shown indicate fatalities.

Analysis underway

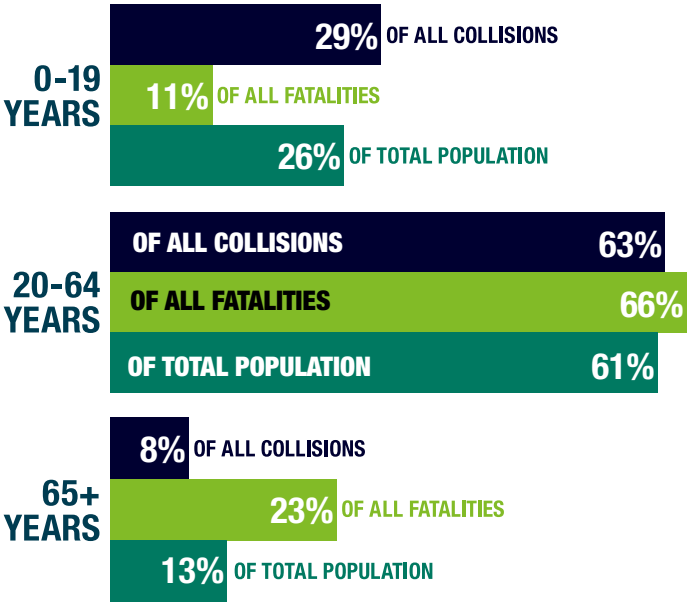
WSDOT is conducting research in partnership with Portland State University, the University of Washington and the University of Idaho to determine how much biking and walking have increased in relation to collisions, and to better understand risk and exposure rates. Results are expected to be reported in future *Gray Notebook* editions.

Washington is "most bicycle friendly state"

For the sixth consecutive year, the League of American Bicyclists named Washington as No. 1 in its "Bicycle Friendly State" ranking, with high performance in all evaluation categories. The league annually ranks all 50 states for bicycle friendliness.

Children, older adults more at risk when biking, walking

Young people and older adults are more at risk when walking than others
2008 through 2012; Washington only; Percents represent portion of collisions and fatalities that affect each age group



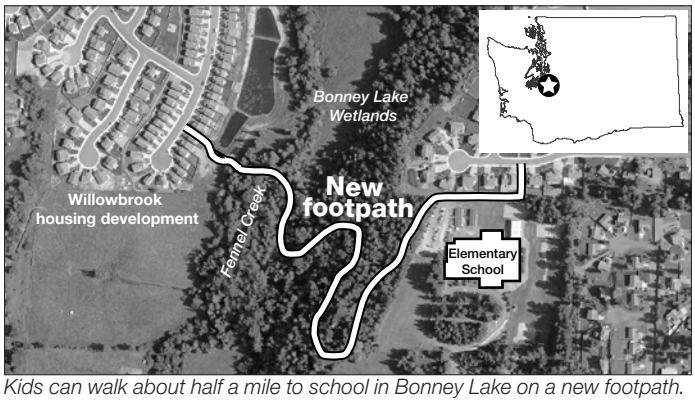
Data source: Office of Financial Management and WSDOT Statewide Travel and Collision Data Office.

There were 768 young Washingtonians up to 19 years old struck by vehicles while walking or biking in 2012, down 3 percent from 792 in 2011. Of these collisions, 124 were fatal or resulted in serious injury. This is 23 percent of about 3,300 pedestrian and bicyclist traffic collisions in Washington state in 2012.

Adults age 65 and older represent 13 percent of the population, yet they make up 23 percent of pedestrian fatalities, as shown in the graph above. About 29 percent of all pedestrian collisions affect young people up to 19 years old. Half of these collisions affect 15- to 19-year-old pedestrians, while they represent 7 percent of the population.

Strategy: education

One way to address this issue is to educate these at-risk groups. In 2010, WSDOT started a Bicycle and Pedestrian Safety Education Program in partnership with the Office of the Superintendent of Public Instruction, Feet First and Washington Bikes. This program has reached more than 10,000 students in 25 school districts across the state. WSDOT has scheduled trainings at 15 additional school districts in 2014, and is expecting to reach between 5,000 and 7,000 students.



Kids can walk about half a mile to school in Bonney Lake on a new footpath.

Strategy: Safe Routes to Schools

Through Washington's Safe Routes to Schools Program, WSDOT has administered $49 million to 136 projects in the past 10 years, improving conditions for children walking and biking to school at 230 locations across Washington. An infographic illustrating the Safe Routes to School program benefits and successes can be viewed online at: http://www.wsdot.wa.gov/NR/rdonlyres/441BD4EC-82BD-4E98-B0BF-8551E66638A7/0/SRTStabloid.pdf.

WSDOT and the city of Bonney Lake invested $1 million to create a footpath through city-owned wetlands in order to establish walking access between residential neighborhoods and the public schools in 2013. The school district has reduced bus service to these neighborhoods because children are now walking to school. This type of investment yields health benefits for individuals, the local economy, and the environment by increasing physical activity, reducing transportation costs, and reducing greenhouse gas emissions. WSDOT is partnering with other cities to address similar school access needs.

Children in a "walking school bus" approach a school crossing, escorted by crossing guards near Battle Ground.

Biking, walking are good for health and the economy

Bicycling and walking activity continues to rise in urban areas

Walking and biking in Washington increased 7 percent from 2011 to 2012 and 10 percent since 2007, according to activity counts conducted by WSDOT's Bicycle and Pedestrian Documentation Project. In Washington, 13 percent of all trips and 5 percent of commute trips in 2009 (accounting for 10 percent of all miles traveled) were made on foot or by bicycle, primarily in urban areas, as documented in the U.S. Census and National Household Travel Survey. This national survey also illustrates that commute trips were 16 percent of overall travel in 2009.

With more than half of all trips less than three miles long (the majority of which are made by automobile), there are significant opportunities to increase biking and walking in the state. Creating more local transportation connections such as Neighborhood Greenways (city streets with slow speeds and low vehicular volumes where bicyclists and pedestrians have priority) and targeting programs like bike shares toward those making non-commute trips could help reduce congestion and improve safety.

Way-finding signs and pavement markings such as "sharrows" (bicycle symbol combined with directional arrow), crosswalks and bike lanes are used on this greenway in Seattle's Ballard neighborhood.

Strategy: new bike share program

The Seattle area is expected to get a new public bike share program in 2014, as the Puget Sound Bike Share launches a network of publicly available bikes for short urban trips, helping meet urban mobility needs. Bike share systems consist of bikes provided at stations located throughout an urban area that are available on demand to provide fast and easy access for short trips. Bike shares are also instrumental in providing connections for the first and last miles of public transit trips.

Bikes available to rent at one of the many Capitol Bikeshare stations in Washington, D.C. A similar bike share program is on its way to Seattle in 2014, one of the first of its kind in Washington state.

Puget Sound Bike Share is a partnership of private and public organizations, including WSDOT, working to bring bike sharing to King County. The vision is to provide King County residents and visitors access to a low-cost, fast, flexible and convenient transportation alternative with economic, social, and environmental benefits to the region. More information is available at: http://pugetsoundbikeshare.org/.

Transportation choices linked to health concerns

One in three people and 17 percent of young people in Washington were obese in 2012, according to the Washington State Department of Health. Recent studies link increasing obesity rates to more time spent in cars, wide roads with no crossings, and no safe areas to walk or bike.

In order to better understand student transportation choices, WSDOT is partnering with the State Department of Health to conduct a statewide student travel survey. The purpose of the study is to document how students get to and from school. The results will be used to inform decisions about student transportation and help plan activities to promote walking, biking or riding the bus to school. It will also provide information to help schools and communities apply for future Safe Routes to School funding to improve conditions for walking and biking.

Walking, biking decrease emissions

Enhancing conditions for biking and walking may help people make active transportation choices that in turn will help improve health and reduce greenhouse gas emissions. WSDOT's Pedestrian and Bicycle Safety and Safe Routes to Schools grant programs improve conditions for biking and walking.

Strategies to improve pedestrian and bicyclist safety

WSDOT endorses design guide

To support trends in community economic development and improve local connections that support healthy and livable communities, WSDOT is the first state department of transportation to endorse the National Association of City Transportation Officials' Urban Street Design Guide. WSDOT consults with community representatives to define project objectives (such as the needs of different types of transportation system users), as required by the Complete Streets Act (Revised Code of Washington 47.04). In order to address the diverse needs of all users, WSDOT uses a context-sensitive and practical design approach for all projects. The Urban Street Design Guide builds on this foundation, providing guidance for retrofitting arterial streets that also serve as state highways in order to better serve current users' needs, including pedestrians and bicyclists in particular.

Grant program helps communities become more "walkable"

WSDOT's pedestrian and bicycle safety grant program helps cities and towns address locations that are hazardous to pedestrians. Some cities are establishing "walkable" communities that mix residential and commercial developments, and provide bicycle and pedestrian connections such as bike lanes, bike racks, sidewalks and convenient crosswalks. Walkable communities are expected to be explored in *Gray Notebook* 56.

Contributors include Charlotte Claybrooke, Paula Reeves, Ed Spilker and Anna St. Martin

$ Between 2009 and 2015, WSDOT is expected to spend more than $60 million on pedestrian accessibility investments as part of larger transportation projects, approximately 3 percent of the $2 billion budgeted. For the list of projects, see http://www.wsdot.wa.gov/projects/bike/map/.

WSDOT's investments in bicycle and pedestrian facilities and Americans with Disabilities Act (ADA) improvements ensure the state's integrated, multimodal transportation system provides travel options for everyone.

RESULTS WASHINGTON

Results Washington Leading Indicator

Reduce the number of pedestrian and bicyclist fatalities on public roadways from 84 in 2012 to zero by 2030

Status: At risk (yellow)

Number of pedestrian and bicyclist fatalities in 2012

Pedestrian fatalities	72
Bicyclist fatalities	12
Combined total	84

Note: 2012 is the most recent year for which data is available.

Strategies:

1. **Secure program funding for Pedestrian and Bicycle Safety and Safe Routes to Schools grant programs** - Both of these grant programs have more need than the current funding can provide. For the 2013-2015 biennium, $26 million was awarded for these programs, out of $160 million in requests received. WSDOT anticipates a total funding of $8 million for the 2015-2017 biennium for these grant programs.
2. **Complete Streets and Main Street Highways** - WSDOT is addressing priority locations on state highways that also serve as city streets through our Pedestrian and Bicycle Safety Grant Program and through revisions to WSDOT's Design Manual. Pedestrian and bicyclist fatalities and serious injuries in traffic collisions are concentrated on "main street highways" (see p. 2 for definitions and additional details).
3. **Improving coordination in design and traffic operations** - WSDOT is incorporating the National Association of City Transportation Officials' guidelines into its Design and Traffic Offices. This new tool will help improve urban street designs for bicyclist and pedestrian safety.
4. **Pupil Transportation Efficiency Pilot Project** - WSDOT is working with the Office of the Superintendent of Public Instruction to pursue a pilot program for schools to continue to meet the transportation needs of students while reducing student transportation costs. Sixty-five percent of school bus service is funded through state expenditures and the remaining 35 percent is funded locally through schools and school districts. More than half of the children using school bus service live within a two-mile radius of school. This is an opportunity to provide safe alternatives for students to bicycle and walk to school.

Immediate mitigation for at risk or off plan status:

1. WSDOT has contracted with the Office of the Superintendent of Public Instruction to provide traffic safety education to more than 15 school districts. This effort should reach approximately 5,000-7,000 students statewide.
2. WSDOT plans to request assistance from the Washington State Traffic Safety Commission to provide partnership on a public education campaign.

52 Asset Management: Pavement Conditions Annual Report

Notable results

- *Innovative management kept 91.8% of WSDOT roads in fair or better condition in 2012*
- *Pavement preservation funds are expected to drop between the 2013-2015 and 2017-2019 bienniums*
- *WSDOT had a $343 million backlog of deferred pavement rehabilitation work in fiscal year 2013*
- *WSDOT expects to avoid $52.7 million in preservation costs by the end of 2014 by converting asphalt roads to chip seal roads*

WSDOT works hard to make roads last longer

WSDOT missed the Governor's Results Washington target of at least 92 percent of pavement in fair or better condition, with 91.8 percent achieved in calendar year 2012. This is the most recent year data is available. Another way to capture pavement performance is to score road conditions by vehicle miles traveled (VMT), giving roads with heavier traffic more weight than those with less traffic. Using VMT, 91.9 percent of pavement was in fair or better condition in 2012. With either scale, the amount of good condition pavement has declined since 2008 (see p. 7). Continued pavement preservation and maintenance funding shortfalls led to the decline. Faced with the challenge of balancing high priority transportation needs, WSDOT works hard to make the state's roads last longer and cost less.

The agency's ability to replenish pavement service life as it is used has declined from an asset sustainability ratio of 0.76 in 2011 to 0.53 in 2012, not meeting the agency's 0.9 goal. An asset sustainability ratio of 1.0 means the agency is able to rehabilitate pavement at the same pace at which it deteriorates.

Less than half of the remaining service life (47.3 percent or about 7.47 years) was left in WSDOT's road network in 2012. This is a decline from 47.8 percent in 2011, yet it still met the agency's goal of maintaining the remaining service life of the pavement network between 45 and 55 percent.

WSDOT's $343 million backlog of deferred pavement preservation work in 2012 did not meet the agency's goal of no backlog. The backlog of past due repair and reconstruction work is expected to reach $1.6 billion by 2021 with the projected funding shortfall.

WSDOT pavement performance measures show some decline
2012 compared to 2011

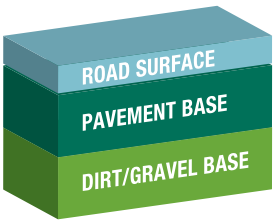
Pavement annual performance measures[1]		2011	2012	Goal	Goal met	Progress	Desired Trend
Percent of pavement in fair or better condition measured for asphalt and concrete pavement (chip seal data was not collected in 2011 or 2012 due to budget constraints). Condition is shown by lane miles as well as weighted by the vehicle miles traveled (VMT) to reflect road use.	Lane miles	90.5%	91.8%	92.0%[2]	–	↔	↑
	VMT	91.9%	91.9%				
Asset sustainability ratio measures the years of pavement service life replenished through rehabilitation, divided by the service life consumed annually.		0.76	0.53	0.9	–	↓	↑
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).		47.8% (7.55 yrs)	47.3% (7.47 yrs)	45% to 55%	✓	↓	↑
Deferred preservation liability (backlog) measures the accumulated cost in current dollars to fund the backlog of past due (deferred) pavement rehabilitation work.		$346 million	$343 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 2012 and 2011. For these reasons, the previous year's data is not comparable to data published in *Gray Notebook* 48, p. 10. 2 Through 2012, the pavement condition goal was 90 percent fair or better. In Results Washington, Governor Inslee's performance accountability system, the goal is 92 percent of state and local pavement in fair or better condition. Meeting this goal depends on a new transportation revenue package.

Motorists experience declining road conditions

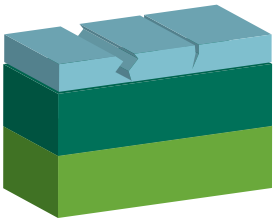
WSDOT's percent of good condition pavement declines while that in fair and poor condition increases
Actual numbers for 2008 and 2012; projected 2018; Percent of lane miles and vehicle miles traveled (VMT) by condition category; Characteristics of pavement at each condition

WHAT DRIVERS SEE	WHAT IS HAPPENING		2008	2012	Projected 2018	Trend	Desired trend
GOOD/VERY GOOD	GOOD/VERY GOOD	By lane miles	82.7%	75.8%	45%	↓	↑
		By VMT	79.2%	73.6%	40%		
FAIR	FAIR	By lane miles	11.8%	16.1%	29%	↑	↔
		By VMT	15.1%	18.4%	42%		
POOR	POOR	By lane miles	3.9%	5.2%	18%	↑	↓
		By VMT	4.4%	5.9%	13%		
VERY POOR	VERY POOR	By lane miles	1.6%	3.0%	8%	↑	↓
		By VMT	1.2%	2.1%	5%		



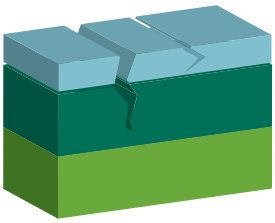
This pavement is in good condition with very minimal deterioration

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



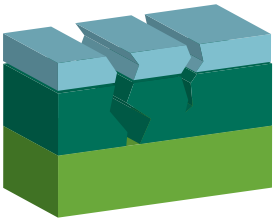
The most cost effective time to resurface or repair a road is when the surface shows wear, yet before the underlying structure is damaged, this means the agency is managing by lowest life cycle cost (LLCC)

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. Chip seal pavement, also known as Bituminous Surface Treatments, was not measured in 2011 or 2012 due to budget reductions. Chip seal pavement accounts for 29 percent of lane miles on WSDOT's road network, yet because chip seal is used on roads with less traffic than those made of asphalt or concrete, chip seal roads account for 5.5 percent of vehicle miles traveled on WSDOT roads.

Vehicle miles traveled indicates pavement performance from the public's perspective

To better capture how the typical motorist experiences the condition of the state's highway network, WSDOT is transitioning to reporting pavement condition weighted by vehicle miles traveled (VMT). For comparison, this report also includes the former standard of reporting condition by lane miles of pavement. 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.

Innovative strategies help road conditions

Although WSDOT has been able to keep the majority of its roads in fair or better condition through innovative asset management strategies, pavement lane miles in good or very good condition have declined from 82.7 percent in calendar year 2008 to 75.8 percent in 2012. Pavement in good or very good condition is expected to further decline to 45 percent in 2018. The trend is similar for vehicle miles traveled on good or very good condition pavement, which has declined from 79.2 percent in 2008 to 73.6 percent in 2012. It is expected to further decline to 40 percent in 2018.

More pavement is now in fair, poor and very poor condition compared to 2008, whether looked at by lane miles of pavement or weighted by vehicle miles traveled. At forecasted funding levels, the percent of pavement in all three of these condition categories is projected to increase, meaning WSDOT's pavement condition will continue to deteriorate.

Public pays more in fuel and vehicle wear by driving poor condition roads

Worsening road conditions mean the public will experience rough, rutted and noisy roads as well as increased fuel costs and vehicle wear and tear. Driving on roads in need of repair costs each Washington motorist $272 in extra vehicle repairs and operating costs per year, according to the American Society of Civil Engineers 2013 Report Card.

Reduced funding would leave a gap between budget and needs

Based on current projections, funding to maintain and preserve WSDOT pavement will drop to critically low levels for the next three bienniums, fiscal years (FY) 2015 to FY2021. WSDOT projects a 52 percent or higher decline in overall preservation funds in the next four years (2013-2017). This level of funding is less than what is needed to sustain the current pavement performance of 91.8 percent in fair or better condition.

Preserving WSDOT's pavement at the lowest life cycle cost requires an estimated annual investment of $250 million. Pavement preservation funding during the next three bienniums is forecasted to average about $89 million each year from FY2015 through FY2021. This results in an annual gap of 64 percent between projected funds and real needs, leaving $161 million of unmet needs each year.

WSDOT's *Pavement Notebook:* Detailed performance information

WSDOT's *Pavement Notebook* presents detailed performance reports of pavement, such as condition by county and legislative district, average pavement life, international roughness statistics, and lane miles paved by year. Two new papers presented at the 2014 Transportation Research Board annual meeting are also available: *Evaluation of Maintenance Effectiveness for WSDOT Pavement Network* and *Modeling and Analyzing Budget Constrained Pavement Preservation Strategies*. The *Pavement Notebook* can be accessed at: http://www.wsdot.wa.gov/Business/MaterialsLab/Pavements/PavementNotebook.htm.

The gap between funding and needs puts the agency at risk of further deferring pavement repair work. This will result in more pavement deteriorating to poor and very poor condition, at which point it will be more costly to fix, often requiring reconstruction rather than repair. At forecasted funding levels, WSDOT will reach a point in the next three bienniums in which it will need to use its preservation funds to reconstruct poor and very poor condition pavement, rather than the preferred strategy of maintaining and repairing pavement as deterioration occurs.

Making repairs early is more cost effective than waiting until a road is in poor condition to fix it

Deferring road repairs costs more

Just like deferred maintenance on a car or home, if needed repairs are delayed the cost to address them will eventually become more expensive. For example, if a leaky roof is repaired soon after it is noticed the repair could be as simple as patching the leak. However, the cost to fix the damage will increase if the leak is left untouched and water permeates under the roof and into the attic and walls.

WSDOT pavement preservation funding projected to decline in the next three bienniums
2013-2015 through 2019-2021 bienniums; Current and projected pavement preservation funding by biennium

	2013-2015	2015-2017	2017-2019	2019-2021
Funding (current or projected)	$267 million	$225 million	$103 million	$207 million

Data source: WSDOT Capital Program Development and Management.

Repairing early damage to roads is a good strategy

In the 2011-2013 biennium, WSDOT spent $3.8 million of the pavement preservation budget on maintenance preservation activities for 1,068 lane miles. This was an increase from $2.1 million spent in the 2009-2011 biennium for 600 lane miles. WSDOT uses lower cost maintenance strategies to extend pavement life and maximize the time between more substantial spending on capital pavement rehabilitation projects.

WSDOT expects to increase pavement service life in the next decade by 10 to 20 percent, from the current average service life of 15 years for asphalt and 6.7 years for chip seal. Concrete is managed differently due to its exceptionally long service life, see pp. 10-11 for more detail. WSDOT uses maintenance preservation activities to extend pavement service life and delay capital preservation projects.

Strategy: Address early deterioration with preventive preservation

Early applications of preventive preservation help extend pavement service life and can result in cost savings. In the 2011-2013 biennium, the average cost of preventive treatments was approximately $3,558 per lane mile. If these treatments extend pavement life by two or three years the resulting cost is $1,779 to $1,186 per lane mile year. By comparison, the typical annual cost per lane mile year is $6,000 for chip seal resurfacing and $18,000 for asphalt resurfacing.

WSDOT researches cost-effective maintenance

In 2011, WSDOT started to investigate the best use and timing of preventive preservation treatments to extend pavement service life and reduce costs as much as possible. Several types of treatments are being studied such as crack seal, chip seal, deep asphalt patch (called a digout) and fog seal. As of 2013, there are 35 test sections statewide. Each is about one quarter mile in length and the tests are designed to account for various climate and traffic conditions. The performance data from these and future test sections will be monitored for several years to determine and compare the effectiveness of each maintenance treatment.

Asphalt and chip seal preventive treatments include crack sealing and patching. Concrete preventive treatments include limited patching or crack sealing as well as selective panel replacement and surface grinding.

Delayed rehabilitation leads to more reactive preservation work

When capital pavement preservation projects are delayed, the result is more reactive preservation work on sections of roadway that are due for rehabilitation. Reactive preservation involves the repair of damaged pavement that is already due for rehabilitation, such as filling potholes.

Reactive preservation holds together pavement past due for rehabilitation

Reactive preservation is also used to hold together pavement that is past due for rehabilitation until a capital project can be planned and funded, stretching limited funding in the short-term. This is not an effective long-term strategy because treatments are less effective when applied to severely distressed pavement.

Seven percent of WSDOT roads are too rough according to the International Roughness Index

In 2012, 7.1 percent of the total vehicle miles traveled on WSDOT roads were on pavement in unacceptable condition, according to criteria set by the Federal Highway Administration (FHWA) for the International Roughness Index (IRI) performance measure. This is stable in recent years. In terms of lane miles on WSDOT's pavement network, 9.1 percent were in unacceptably rough condition in 2012, using FHWA criteria.

FHWA requires states to report vehicle miles traveled by IRI categories. The federal Moving Ahead for Progress in the 21st Century Act (MAP-21) may utilize IRI as a national pavement performance measure. For more information about pavement performance measures in MAP-21, see *Gray Notebook* 48, p. 16.

Latest available local agency pavement performance was reported in *Gray Notebook* 48

The latest available data for local agency pavement conditions was reported in *Gray Notebook* 48, p. 16. The Legislature has suspended pavement condition reporting requirements for most cities due to budget constraints. However, updated pavement condition data for counties is expected to be available in *Gray Notebook* 56.

Converting roads to chip seal surface saves money

The total cumulative cost avoidance due to chip seal conversion since 2010 is projected to be $52.7 million by the end of calendar year 2014. Resurfacing asphalt roadways with chip seal instead of asphalt saves WSDOT approximately $12,000 per year for every lane mile converted. The overall life-cycle cost of chip seal is about one-third that of asphalt. Between calendar years 2010 and 2012, 860 lane miles were converted to chip seal, for a total cost avoidance of $20.3 million. Roads that are appropriate for chip seal resurfacing typically have daily traffic of less than 10,000 vehicles and are not in urban areas.

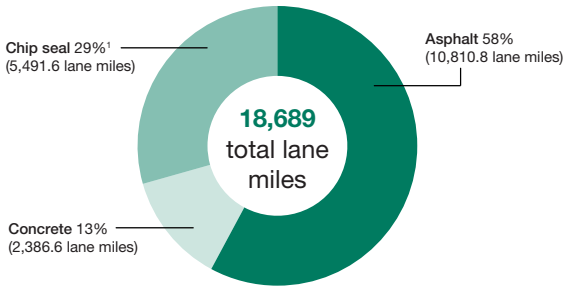
The overall life cycle cost of chip seal is about one-third that of asphalt

An additional 650 lane miles were either completed in 2013 or planned and funded for the 2014 construction season. WSDOT has identified 760 lane miles as candidates for conversion during the 2015 and 2016 construction seasons. If these lane miles are completed, WSDOT projects $102.7 million in cumulative cost avoidance by the end of calendar year 2016.

Despite high priority, chip seal conversion may be difficult to sustain

As a cost saving strategy, WSDOT prioritizes resurfacing flexible pavement using chip seal when appropriate. Although chip seal has a shorter service life than asphalt, the cost to resurface with chip seal is about one-fifth the cost of asphalt.

Chip seal makes up 29 percent of WSDOT pavement
Calendar year 2012; Lane miles of WSDOT pavement by type



Data source: WSDOT Materials Lab and Statewide Travel and Collision Data Office.
Notes: Lane miles data is from the State Highway Log Planning Report 2012, p. 13. 1 Chip seal lane miles have increased from 26 percent of WSDOT's road network in calendar year 2010 to 29 percent in 2012. 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 chip seal conversions avoid costs
Calendar years 2010 through 2016; Lane miles converted or planned for conversion; Actual and projected cumulative savings

860 lane miles converted between 2010-2012	=	**$20.3 M** cumulative cost avoidance between 2010-2012
650 lane miles completed or programmed for 2013-2014	=	**$52.7 M** projected cumulative cost avoidance since 2010 by end of 2014
760 lane miles have been identified for conversion in 2015-2016	=	**$102.7 M** projected cumulative cost avoidance since 2010 by end of 2016

Data source: WSDOT Materials Lab.
Note: Cumulative cost avoidance accounts for the money that would have been spent in each year of the pavement service life if not for the conversion. For example, lane miles converted each year are multiplied by $12,000 per lane mile and by the number of years until the end of the time frame: 300 lane miles converted in 2010 * $12,000 * 3 years = $10.8 million costs avoided by end of 2012.

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). Although 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.

WSDOT plans to cost-effectively restore aging concrete roads

Sixty-two percent (1,480 lane miles) of WSDOT's 2,387 lane miles of concrete pavement have never been rehabilitated. Concrete pavement accounts for 13 percent of WSDOT's total road network and most concrete roads are on the interstate routes, such as Interstate 5 (I-5). Concrete typically lasts more than 50 years before requiring rehabilitation.

With 48 percent of WSDOT's concrete pavement more than 40 years old, the agency is making plans to cost-effectively rehabilitate and eventually reconstruct it (see *Gray Notebook* 48, p. 15 for more details about the age of concrete pavement).

WSDOT uses four strategies to either restore existing concrete or fully reconstruct the pavement. The strategies are based on which treatment is most cost effective given site specific factors such as deterioration levels, amount of traffic and expected service life.

WSDOT uses four strategies to preserve concrete roads

Strategy: Triage improves smoothness, replaces concrete panels

Triage is used for older concrete pavement that needs surface renewal to improve smoothness and replace severely 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. This is typically the least expensive preservation option, ranging from $250,000 to $400,000 per lane mile, depending on the treatment and conditions of the roadway. Many sections of WSDOT roadways, such as the I-5 corridor though Seattle, have received triage treatment.

Strategy: Crack and seat turns existing concrete into base for asphalt

Crack and seat and asphalt overlay is a rehabilitation process for poor condition concrete. The existing concrete roadway is fractured in place, turning it into a new flexible base upon which a thick asphalt pavement is placed. Because the existing structure remains, there is substantial cost savings due to reduced material removal and replacement costs as well as reductions in traffic delay due to shorter construction periods. Typical costs of crack and seat projects range from $600,000 to $800,000 per lane mile. WSDOT has completed two crack and seat projects, the first rehabilitated 12.5 miles of I-5 in Skagit County in 2011, and the second project was completed on I-90 just east of Snoqualmie Pass in 2013. A third project is planned on I-5 in Federal Way during the 2015-2017 biennium.

WSDOT uses four strategies to repair or replace concrete roads, each has own advantages
Typical cost per lane mile of concrete preservation strategies

TREATMENT	DESCRIPTION	COST PER LANE MILE
Triage	existing surface is smoothed by grinding; delays reconstruction	$250,000 - $400,000
Crack and seat	fractures existing concrete to create base for a thick asphalt overlay	$600,000 - $800,000
Concrete overlay	new concrete is laid on top of a thin layer of asphalt on the existing roadway	$1.5 M - $2 M
Reconstruction	existing surface concrete and base layers are removed and replaced	$2.5 M

Data source: WSDOT Materials Lab.
Note: The four types of treatments for concrete pavement repair and rehabilitation are each appropriate for specific site conditions and are not meant to be selected by cost per lane mile alone.

Strategy: Concrete overlay stacks new asphalt and concrete over the old

Concrete overlay is another option used to rehabilitate poor condition concrete roadways. A thin layer of asphalt is placed on top of the existing roadway followed by a full depth concrete overlay on top of the new asphalt. Because this treatment adds pavement thickness to the existing road structure, height restrictions limit its use. Concrete overlay projects typically cost $1.5 million to $2 million per lane mile. A section on I-90 just east of Cle Elum will receive a concrete overlay in the 2015-2017 biennium.

Strategy: Reconstruction removes and replaces the existing road

Reconstruction is the complete removal and replacement of the existing concrete and underlying base layers. Reconstruction is selected when other options are exhausted due to site or pavement conditions or other limitations. This is the most costly option and can exceed $2.5 million per lane mile. During 2013, a portion of I-405 through Bellevue was reconstructed with concrete to match existing grades.

Contributors include Dave Luhr, Ruth McIntyre, Pat Morin, Greg Selstead, Jeff Uhlmeyer and Sarah Lowry

RESULTS WASHINGTON

Results Washington Leading Indicator

Improve percentage of state and local pavement in fair or better condition at 92 percent or higher

Status: At risk (yellow)

Strategies:

Current percent of pavement in fair or better condition (lane miles)	
WSDOT (see p. 6)	91.8% (2012)
Counties (see gray box p. 9)	91% (2012)
Cities (see gray box p. 9)	79% (2010)

1. **Low cost surface treatments** - WSDOT manages pavement using lowest life cycle cost models. One way WSDOT is accomplishing this strategy is to increase the lane miles of roads that are paved with chip seal (see p. 10).
2. **Concrete road triage repairs** - WSDOT utilizes innovative cost saving strategies for rehabilitating and replacing aging concrete roads. One such strategy is to replace select panels of poor condition concrete rather than replacing an entire roadway.
3. **Preventive repairs early pavement deterioration** - WSDOT applies low cost preventive repairs to pavement with early signs of deterioration. Fixing damaged roads early keeps the pavement substructure in good or fair condition and extends the time before more costly reconstruction is needed (see p. 9).

Immediate mitigation for at risk or off plan status:
WSDOT is seeking funding of a transportation new revenue package with funding for asset preservation.

52 Asset Management: Highway Maintenance Annual Report

Notable results

- *WSDOT achieved 80% of highway maintenance asset condition targets in 2013*
- *WSDOT estimates a current maintenance backlog of $72 million*

Highway maintenance holds steady in 2013

WSDOT met 80 percent of highway maintenance targets in 2013, the same as achieved in 2012. The Maintenance Accountability Process (MAP) measures performance of 30 maintenance activities using two metrics, asset condition level of service (LOS) and task completion.

Asset condition LOS applies two types of assessments, condition assessment and operational assessment. Condition assessment is measured through data collection from site surveys in many different forms including statewide surveys. Operational assessment looks at 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/GNB52_Extra//Maintenance_TaskCompletion.pdf.

Maintenance is critical to assets

Maintenance plays a critical role in WSDOT's asset management by meeting the daily needs of almost 19,000 highway and state route lane miles plus 2,000 miles of ramps and special use lanes on the state highway system, focusing on preventive maintenance, repairs and the safe operation of the highway infrastructure. LOS is affected not only by maintenance actions, but also by rehabilitation/rebuilding and new construction projects.

LOS targets for some of these assets were changed by the Legislature in 2013 (see the Legislative Evaluation and Accountability Program Transportation Document 2013-2014 http://leap.leg.wa.gov/leap/budget/lbns/2013transportation1315.pdf#page=60).

The table below lists maintenance activities in order of priority and their LOS scores achieved compared to the 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 80 percent of asset condition targets
Level of service (LOS) target and score achieved by priority

	Legislative target	2012 results	2013 results
Movable & floating bridge operations	*A+	A+	A+
Traffic signal system operations	*C+	C+	B-
Snow & ice control operations	*A	A	A+
Keller Ferry operations	B	B	**F-**
Urban tunnel systems operations	B	**C**	**B-**
Structural bridge repair	C	**D**	**D**
Regulatory/Warning sign maintenance	C+	C+	C+
Slope repairs	*A	A	**A-**
Intelligent transportation systems	*A-	A-	A-
Maintain catch basins & inlets	*B	C	B+
Bridge deck repair	*C+	C+	C+
Guardrail maintenance	*A-	A-	A
Pavement striping maintenance	*B-	C	**C+**
Raised/Recessed pavement markers	*C+	**C+**	B-
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	C-	D
Pavement marking maintenance	*D	**D**	D
Noxious weed control	*C+	B	B
Shoulder maintenance	*C-	**C+**	C
Guide sign maintenance	*C+	B	B
Stormwater best management practices	C	C	C
Bridge cleaning & painting	*B	B	B
Nuisance vegetation control	*D-	**D+**	D+
Landscape maintenance	*D	C-	D+
Litter pickup	D	D	D
Percent of targets achieved or exceeded		**80%**	**80%**
Percent of targets missed		**20%**	**20%**

Data source: WSDOT Maintenance Office.
Notes: The 30 maintenance activities are in prioritized order. The Legislative targets with an asterisk (*) denote a new target for 2013.

WSDOT meets 24 of 30 maintenance targets in 2013

Twenty-four maintenance LOS targets were met in 2013. Six missed their goals: Keller Ferry operations, urban tunnel system operations, structural bridge repair, slope repairs, pavement striping maintenance and maintain ditches.

Keller Ferry operations missed its level of service (LOS) target of B and received a rating of F- for 2013. The LOS is determined by the hours of operational downtime. At the Keller Ferry dock, the Motor/Vessel (M/V) *Martha S* that served the route since 1948, made its last run on July 7, 2013. The M/V *Sanpoil*, the newly constructed vessel that replaced the M/V *Martha S*, was put into service on August 14, 2013. During this time, the route was not operational and lowered the Keller Ferry Operations score. WSDOT capitalized on the down time and conducted needed improvements on the ferry terminal ramps.

Twenty-four maintenance level of service targets were met in 2013

While the urban tunnel system operations score increased from a C in 2012 to a B- in 2013, it still missed the target of B. This asset measures its LOS by the number of times the urban tunnels are closed to vehicles carrying flammable cargo. The total closures for 2013 equalled nine, missing the target due to one unplanned closure. Unplanned closures are triggered when the control center is not able to operate the systems from the remote location because of network or computer problems.

Structural bridge repair missed its target of C, and achieved a LOS score of D in 2013, the same as in 2012. The measurement for this activity is the number of "priority one" repairs completed each year. These repairs vary significantly in cost and scope. In 2013, WSDOT was unable to complete some of the "priority one" work, and therefore missed the target.

A WSDOT maintenance technician operates a jack hammer along a state route to stabilize slopes.

Despite having generally good LOS ratings, both slope repair and ditch maintenance activities missed their targets, which were increased for the current biennium. The target for slope repair was an A, an A- was achieved. The target for ditch maintenance was a B+, a B was achieved. New, increased targets for these activities were assigned in April 2013, which was during the last quarter of the 2011-2013 biennium. This left little time to complete the work required to increase the LOS scores on those targets. WSDOT reassessed the work plans early in the current biennium to assist in meeting the new targets and will continue work toward the achievement of these new targets.

While the pavement striping maintenance score increased from C to C+, it still missed the target of B-. Some funds intended for striping had to be shifted to address critical bridge washing needs.

WSDOT maintenance backlog expected to increase

WSDOT estimates a current maintenance backlog of $72 million. This estimate is expected to increase with a projected 52 percent or higher decrease in preservation funding in the next four years and the addition of transportation systems. Fewer preservation projects means that maintenance will be taking care of assets longer, while the assets age and require more care.

The estimated maintenance budget is $200 million per year which does not incorporate the impact of new projects, inflation or reduced preservation funding. Given all of these factors, WSDOT may experience:

- Slower removal of snow and ice on secondary roads;
- More potholes and rougher roads;
- An increase in WSDOT vehicle and equipment failures, impacting the ability to complete work;
- More mountain pass closures;
- Closure of SeaTac and Silver Lake Rest Areas;
- Increased backlog for raised pavement markers, resulting in poor visibility of traveled lanes; and
- Lower Maintenance Accountability Process (MAP) scores and task completion.

Contributors include Rico Baroga, Anna Zaharris and Todd Lamphere

52 Travel Time Trends Semi-Annual Report

Notable results

- ***Puget Sound area travel patterns stabilized in 2013, following the introduction of tolling on the State Route 520 bridge which began in December 2011***
- ***In 2013, employment levels improved 5.2 percent compared to 2012, contributing to growth in Seattle area traffic volume and congestion***

Economy contributes to highway congestion

Puget Sound-area traffic experienced significant changes in the region's travel patterns in 2012 compared to the travel patterns that existed before tolling started on State Route 520 in December 2011. The 2012 patterns continued into 2013, indicating that the region now has established new travel patterns.

This travel time trends analysis looks at traffic conditions for the first six months (January through June) of 2013 and changes relative to the same time period in 2012. Some key observations include:

- Economic growth caused employment levels to increase by 5.2 percent between June 2012 and June 2013 in the Seattle-Bellevue-Everett metropolitan statistical area.
- Daily traffic volumes in 2013 are up by 2 to 3 percent, and peak period (Monday-Friday, 5 to 10 a.m. and 2 to 8 p.m.) traffic grew between 2 and 4 percent, although growth in traffic volume varied from corridor to corridor.
- Similarly, changes in travel time (the amount of time it took for commuters to reach their destination) varied widely, ranging from a seven-minute increase in travel time on Interstate 5 (I-5) during the Everett to Seattle morning commute to a three-minute reduction on the State Route (SR) 520 evening commute from Bellevue to Seattle.

Puget Sound area travel trends stabilize after bridge tolling

When tolling began on SR 520, travelers weighed the cost of a toll against the benefit of a shorter commute time. The result is a new standard for Puget Sound area travel patterns, including:

- Reduced traffic on SR 520, as drivers unwilling to pay the toll opted to use I-90 to cross Lake Washington. Some drove SR 522 along the north end of the lake, or modified their trips in other ways.
- Some bridge users chose to take advantage of improved transit service, funded by the Seattle (Lake Washington) Urban Partnership program (see gray box on p. 16 for more details), rather than drive across the lake.
- Other drivers altered travel plans to avoid crossing Lake Washington altogether.
- The shift in cross-lake traffic from SR 520 to I-90 subsequently led to increased traffic volumes on both I-405 through downtown Bellevue and I-5 in downtown Seattle. The increased congestion led to longer travel times for all commuters using those highways, including those who didn't cross Lake Washington daily.

The traffic pattern established in 2012 did not go away, instead traffic patterns in the first six months of 2013 increased modestly from the same time period in 2012. With few exceptions, daily traffic volumes on most routes went up about 2 percent between 2012 and 2013. Peak period traffic volumes varied more significantly than daily volumes, even when comparing the same route. Similarly, while congestion generally increased, performance on some roadway sections actually improved. This improvement was due to the completion of WSDOT projects, and also because as bottlenecks upstream of roadway sections worsened, the road downstream saw less congestion.

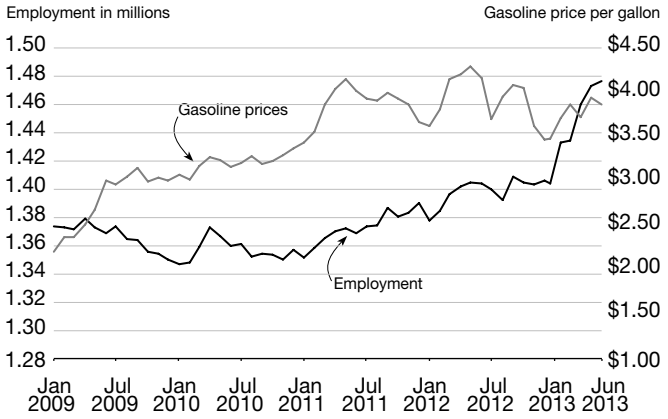
Interstate 5 rush hour traffic traveling southbound near Ship Canal Bridge.

Employment levels on the rise, so is traffic congestion

Rising employment puts more drivers on the road

The increased traffic congestion experienced in 2013 was likely due to the growth in economic activity in the central Puget Sound region. Employment levels began increasing in the region in mid-2011 with a 5.2 percent increase between June 2012 (1,403,913 total jobs) and June 2013 (1,476,977 total jobs). Gas prices typically influence fluctuations in traffic levels. However, during the past two years this has not been the case, as gas prices are relatively stable, as illustrated in the chart below.

Washington employment rises, gas prices stabilize
January 2009 through June 2013; Seattle-Bellevue-Everett Metropolitan Statistical Area



Data source: Bureau of Labor Statistics – Local Area Unemployment Statistics; U.S. Department of Energy – Energy Information Administration.
Note: Inflation adjusted using Consumer Price Index.

Cross-lake traffic volume increases

Between 2012 and 2013, SR 520 traffic volume grew between 1 and 4 percent during the peak period (see p. 14), depending on the direction of travel and the time of day. The morning peak period, westbound traffic volume on I-90 increased 2 percent, while the return trip eastbound in the evening grew 4 percent. The traffic volumes on I-90 reverse commutes also increased: eastbound in the morning was up 5 percent and westbound in the evening grew 4 percent.

SR 520 travel time changes were mixed in 2013 compared to 2012. The 10-mile Bellevue to Seattle evening commute experienced three-minute faster daily travel times, from 27 minutes in 2012 to 24 minutes in 2013. On the other hand, Seattle to Bellevue morning and afternoon commutes on SR 520 saw an increase in daily travel time by two minutes. Similarly, the 11-mile commute on I-90 from Seattle to Bellevue experienced a two-minute improvement in travel time, from 19 minutes in 2012 down to 17 minutes in 2013. The 10-mile Bellevue to Seattle evening commute saw a minute increase in travel time in 2013 (27 minutes) compared to 2012 (26 minutes).

North-south corridors experience longer travel times in 2013

As with SR 520 and I-90, traffic volumes on the major north-south corridors of I-5 and I-405 saw modest increases in 2013. Sections of both I-5 and I-405 through the central Puget Sound area are operating at capacity, to the point that even a modest increase in vehicles can result in substantially worsened congestion and commute travel times. Just as adding a few drops of water to a glass already filled to the brim can cause an overflow, highway segments can only operate efficiently at certain capacity. Anything beyond this can exponentially deteriorate traffic flow and lead to traffic jams.

I-5 corridor (2013 vs. 2012): Traffic volumes on I-5 grew between 1 and 3 percent both in terms of peak period volumes and total daily volumes. This resulted in increased travel times by up to seven minutes daily based on the commute.

Commutes between Seattle and Everett: The 24-mile morning trip from Everett to Seattle, which at 60 mph should take approximately 24 minutes, instead took about 47 minutes in 2013. This is seven minutes longer than the 40-minute travel time experienced in 2012. In 2013, this trip included three distinct bottlenecks where congestion grew substantially: one at the I-5/I-405 interchange near Lynnwood, a second on I-5 near the King/Snohomish County line, and the third on a section of I-5 from Northgate to the Ship Canal Bridge. Conversely, modest congestion relief occurred south of the SR 520 interchange. The evening trip from Everett to Seattle saw no change in travel time in 2013. This was due to an increase in travel delay from Northgate to SR 520 that was balanced out by improvements from SR 520 to downtown Seattle.

In the other direction, the morning trip from Seattle to Everett saw no change in commute performance, while the evening commute saw a three-minute increase in travel time due to increased congestion from downtown Seattle to Northgate.

Traffic volume increase affects I-5 and I-405 performance

Commutes between Seattle and Federal Way: The 22-mile commute between Federal Way and Seattle takes 22 minutes when traveled at posted speed. However, the morning commute from Federal Way to Seattle took 45 minutes in 2013, more than doubling the travel time experienced during other times of the day. This commute saw a 2 percent increase in traffic volume along with a two-minute increase in travel time compared to 2012. The extra 23 minutes in travel time experienced on this trip in 2013 were due to two routinely congested locations: one extending from Federal Way to Des Moines and the other spanning from the north end of Boeing Field to downtown Seattle.

The southbound evening commute from Seattle to Federal Way saw a 2 percent increase in traffic volume with no notable change in commute travel time. This trip did not experience any significant amount of congestion.

I-405 corridor (2013 vs. 2012): Similar to I-5, I-405 serves several major commute destinations within the central Puget Sound area. The four largest and most congested commute trips on the I-405 corridor (listed below) experienced growing congestion in 2013:

- Tukwila to Bellevue (13 miles) – morning
- Bellevue to Tukwila (13 miles) – evening
- Everett to Bellevue (24 miles) – morning
- Bellevue to Everett (23 miles) – evening

Commutes between Bellevue and Tukwila: Based on the trip length, commutes between Bellevue and Tukwila should have a travel time of 13 minutes. However, due to congestion on I-405 it took 34 minutes in 2013 and 32 minutes in 2012, which is almost three times the travel time experienced at the posted speed. Traffic volumes on the Tukwila to Bellevue route in the morning and the Bellevue to Tukwila route in the evening grew 3 and 1 percent, respectively. These commutes experience routinely congested spots: in the morning, between the SR 167 interchange and Kennydale Hill, and in the evening between downtown Bellevue and the I-90 interchange, and in Renton approaching the SR 167 interchange.

Commutes between Bellevue and Everett: The 24-mile morning commute on I-405 from Everett to Bellevue took drivers 53 minutes to complete in 2013 and 50 minutes in 2012: a three-minute increase in travel time with minor growth in traffic volume. This is in part due to construction activity for the I-405 Express Toll Lanes project.

Similarly, the 23-mile Bellevue to Everett evening commute travel time increased five minutes, from 37 minutes in 2012 to 42 minutes in 2013, despite a 4 percent decrease in peak period traffic volumes during the same time. This trip experienced slower traffic conditions during the afternoon peak period extending from the SR 520/I-405 interchange north to the SR 522/I-405 interchange – a distance of more than eight miles. Congested conditions were also experienced approaching the I-5/I-405 interchange in Lynnwood.

SR 167 corridor (2013 vs. 2012): SR 167 did not experience significant changes in traffic conditions between 2012 and 2013. Traffic volumes along the 10-mile Auburn to Renton morning commute route dropped by 4 percent, thereby improving daily travel times by one minute, from 18 minutes in 2012 to 17 minutes in 2013. Half of the drop in general purpose lane volume is because of increased use of the adjacent high-occupancy toll lane. The 10-mile Renton to Auburn evening commute saw no measurable change in traffic volume. The travel times in 2012 and 2013 remained steady at 16 minutes.

A list of 19 sampled high demand Puget Sound area commute travel time and volume changes during the first six months of 2013 can be accessed at http://wsdot.wa.gov/publications/fulltext/graynotebook/GNB52_Extra/2013_FirstSemi-AnnualTravelTimes.pdf.

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

Partnership aims to relieve congestion

The Federal Highway Administration's Urban Partnership Program was instituted to aggressively use four strategies to relieve urban congestion: tolling, transit, telecommuting, and technology. Seattle (Lake Washington) area local partners include King County, Puget Sound Regional Council, and the Washington State Department of Transportation. More information on the Seattle (Lake Washington) Urban Partnership Agreement can be found at www.upa.dot.gov/agreements/seattle.htm.

Incident Response Quarterly Update

52

Notable results

- *WSDOT teams helped clear 9,906 incidents this quarter, providing an estimated $15.8 million in economic benefit*
- *An extraordinary incident on I-5 near DuPont was one of the more complicated incident scenes faced by first responders in the state*

Incident Response teams help at 9,906 incidents

WSDOT's Incident Response (IR) teams responded to 9,906 incidents in the fourth quarter of 2013 (October through December). This averages to a WSDOT IR team assisting at an incident every 13.4 minutes during the quarter. Incident Response teams cleared incidents in an average of 12.8 minutes. Teams responded to 785 — about 7.3 percent — fewer incidents during the fourth quarter of 2013 compared to the same quarter in 2012. At the same time, the average incident clearance time was about 36 seconds faster.

In general, WSDOT's IR program goal is to clear incidents as quickly and safely as possible, as this means less incident-induced delay and less chance for secondary collisions to occur. Secondary collisions are crashes that occur in traffic after another incident and may be caused by distracted driving, unexpected slowdowns in traffic, or debris in the roadway. Teams work to alert drivers and clear the roadway to reduce the probability of new incidents. A table summarizing the IR program's performance and benefits for the quarter is on p. 18.

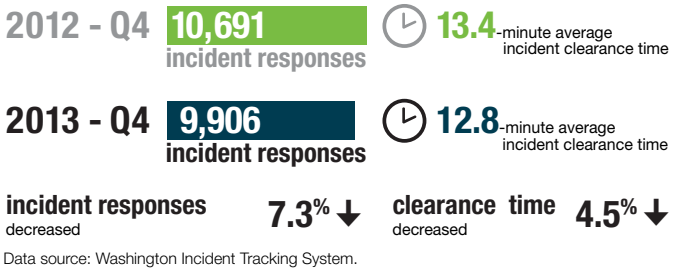
WSDOT's assistance at incident scenes provided an estimated $15.8 million in economic benefits. The benefits are provided in two ways. First, by clearing incidents quickly, WSDOT reduces the time motorists waste in incident-induced traffic delay. About $8.8 million of IR's estimated economic benefit for the quarter is from reduced traffic delay. Second, by proactively managing traffic at incident scenes, WSDOT helps prevent secondary collisions. About $7 million of IR's economic benefit is from preventing an estimated 1,901 secondary collisions. For every dollar spent on the IR program this quarter, WSDOT prevented an estimated $14 in incident-related costs.

$ 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.

Incident-induced delay costs more than $35 million in fourth quarter

Traffic delay that occurred due to incidents on state highways cost motorists $35.3 million in wasted time and fuel during the fourth quarter of 2013. This is about $4.2 million less than in the same quarter of 2012. Without WSDOT's assistance, this cost would have been $44.1 million ($8.8 million in prevented delay plus $35.3 million in actual delay). For more information on how WSDOT calculates these costs, see the Incident Response Phase 3 research from the Washington State Transportation Research Center (TRAC) at the University of Washington at http://www.wsdot.wa.gov/Research/Reports/700/761.1.htm.

WSDOT Incident Response clearance times faster while total number of responses down
Fourth quarters (October through December) 2012 and 2013



Data source: Washington Incident Tracking System.

Notes: Figures only account for incidents to which an Incident Response unit responded. Figures reported for the current quarter (Q4 2013) are considered preliminary. In *Gray Notebook* 48 WSDOT reported that IR teams responded to 10,691 incidents in the fourth quarter of 2012. In the third quarter of 2013, WSDOT responded to 12,002 incidents, clearing them in an average of 12.9 minutes. These figures have been confirmed and are now finalized.

WSDOT works hard to clear extraordinary incidents

WSDOT's Incident Response prevents $15.8 million in delay and secondary collisions
October through December 2013; Incidents by duration; Time in minutes; Costs and benefits in 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	7,557	14.9%	5.2	4.7	$9.9 million	$4.6 million
Between 15 and 90 minutes	2,229	46.2%	30.1	25.2	$18.9 million	$8.4 million
Over 90 minutes	120	74.2%	169.3	162.9	$6.5 million	$2.8 million
Total	**9,906**	**22.7%**	**12.8**	20.8	**$35.3 million**	**$15.8 million**
Percent change from fourth quarter 2012	↓ **7.3%**	↑ **1.8%**	↓ **4.5%**	↓ **5.9%**	↓ **10.7%**	↓ **10.8%**

Data source: Washington Incident Tracking System.
Notes: 1 Teams were unable to locate 400 of the 9,906 incidents. These incidents are included in the total count but are not factored into other 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 the IR team's first awareness of an incident 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 *Gray Notebook* 43, p. 21, and the 2012 *Congestion Report*, p. 72, for WSDOT's benefits calculation methods from reduced delay and prevented secondary incidents, respectively.

Incident Response units deployed to six extraordinary incidents statewide

WSDOT IR units were deployed to six incidents lasting more than six hours, called "extraordinary incidents," during the fourth quarter of 2013. The six incidents in 2013 took an average of 536 minutes to clear, or close to nine hours. Three of the incidents involved fatalities, one collision involved injuries, one involved a semitruck rollover, and one had a disabled vehicle. WSDOT teams provided traffic management in order to keep drivers moving and emergency responders safe.

If these extraordinary incidents are excluded, WSDOT's average clearance time for over-90-minute incidents statewide would have been about 151 minutes or roughly 18 minutes faster than the 169.3 minutes experienced statewide. Together, the six incidents accounted for 16.7 percent of delay costs caused by over-90-minute incidents.

Figures reported here are from WSDOT's Washington Incident Tracking System, which tracks only incidents to which a WSDOT IR team responded.

Extraordinary incident snarls I-5 traffic at Mounts Road near DuPont

The December 16 collision near Mounts Road (at MP 116.6 near DuPont) on I-5 southbound resulted in loss of life and was one of the more difficult and complicated incident scenes faced by first responders in the state ever.

Loss of life, serious injuries and property damage were the immediate results of the collision, but the effects of this complicated scene challenged Incident Response teams, the Washington State Patrol and other first responders. With debris strewn across the road and multiple fires burning, it was necessary to close southbound I-5. It was more than 10 hours before they could completely clear the incident along one of the busiest sections of I-5 in the South Puget Sound area.

Thousands of motorists were caught in miles-long backups, and residents of surrounding communities were affected as they experienced heavy traffic trying to bypass the clogged highway. A complete account of this extraordinary incident can be read on WSDOT's blog at http://wsdotblog.blogspot.com/2013/12/anatomy-of-response-i-5-at-mounts-rd.html?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+TheWsdotBlog+%28The+WSDOT+Blog%29.

Contributors include Paula Connelley, Vince Fairhurst, Ida van Schalkwyk and Sreenath Gangula

Customer feedback: Incident Response keeps highways safe and moving in 2013

WSDOT IR teams hand out comment cards to drivers who receive assistance. Below are sample comments from people who received help during the fourth quarter of 2013:

- *We were trying to change our tire with four kids on a small shoulder and Thank God John showed up to help. Thank you so much.*
- *Kim arrived in record time to assist my wife and infant daughter – Thank you. Excellent program and excellent employees.*

WSDOT Ferries Division Quarterly Update

52

Notable results

- *WSDOT Ferries Division exceeds annual goals for both on-time performance and reliability*
- *Ferries' $34.8 million farebox revenues were the most ever for the fall quarter, which runs from October through December*

Ferries' farebox revenues at highest level for quarter

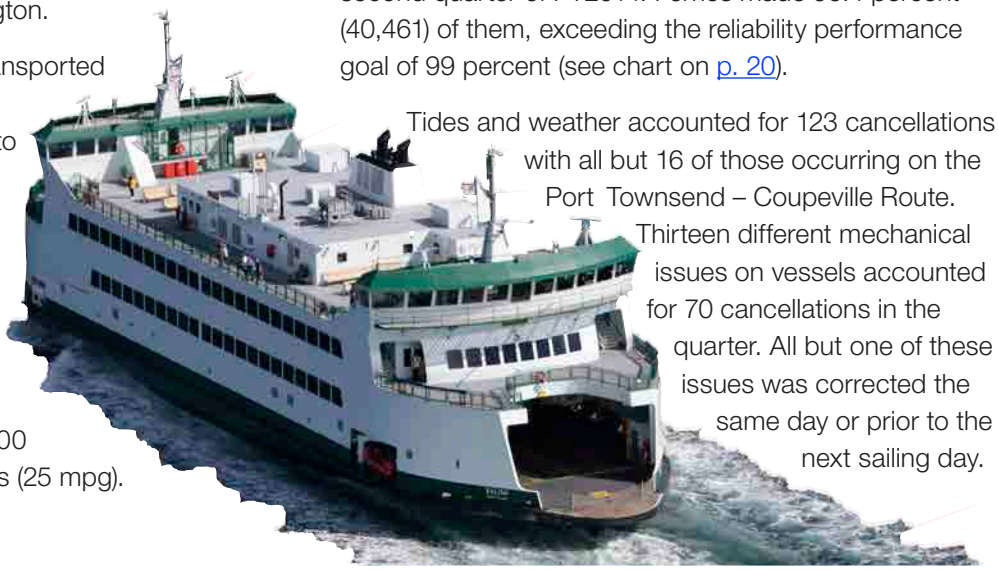
WSDOT Ferries Division's (Ferries) farebox revenues came in at $34.8 million for the second quarter of fiscal year (FY) 2014, the highest yet for the fall quarter (October through December). Farebox revenues were $770,000 (1.4 percent) higher than the second quarter of FY2013, and $1.5 million (2.9 percent) more than projected.

Ridership continues to increase

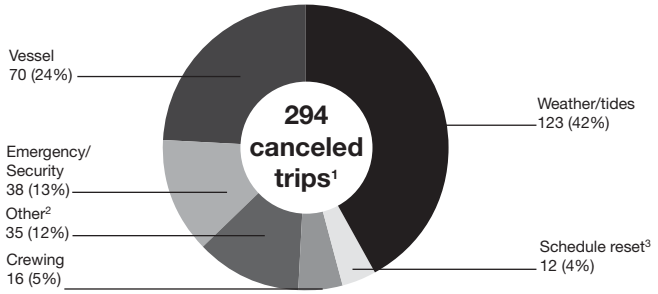
Riders took more than five million trips on ferries during the second quarter of FY2014 (roughly equal to every resident of Seattle riding the ferries eight times). This is about 75,000 (1.5 percent) less than projected. At the same time, ridership was 81,000 more (1.6 percent) than the same quarter in FY2013, putting it at levels that have not been seen on Ferries' runs in the second quarter since FY2010.

There were more than 2.36 million vehicle trips on ferries this quarter, providing drivers direct cross-water routes between communities and reducing the number of vehicles on already busy state highways. If 2.36 million vehicles lined up, they would fill more than one-third of all state highway lanes in Washington.

The Seattle – Bremerton route transported approximately 148,000 vehicles during the quarter, an alternative to a 66-mile road trip between King County and the Kitsap Peninsula that reduces congestion on Interstate 5 and State Routes 3 and 16. The ferry route saved its riders from driving a cumulative 9.6 million highway miles, which would have required about 384,000 gallons of gas for average vehicles (25 mpg).



WSDOT canceled ferry trips decrease[4]
Second quarter (October through December), fiscal year 2014



Data source: WSDOT Ferries Division.

Notes: 1 Of the 294 canceled trips, Ferries replaced 66. 2 "Other" includes events like disabled vehicles, issues at terminals or non-Ferries' related incidents that can impact operations. 3 A schedule reset typically occurs when a vessel (or vessels) can no longer stay on its sailing schedule due to mechanical problems, heavy volumes, crewing issues or weather. 4 Decrease is compared to same quarter in fiscal year 2013.

Ferries tops annual reliability goal

Ferries missed 40 fewer trips in the second quarter of FY2014 than during the same period in FY2013, 228 as compared to 268. Ferries canceled 294 trips and was able to replace 66 of them, which resulted in the 228 net missed trips for the quarter.

There were 40,689 regularly scheduled trips during the second quarter of FY2014. Ferries made 99.4 percent (40,461) of them, exceeding the reliability performance goal of 99 percent (see chart on p. 20).

Tides and weather accounted for 123 cancellations with all but 16 of those occurring on the Port Townsend – Coupeville Route. Thirteen different mechanical issues on vessels accounted for 70 cancellations in the quarter. All but one of these issues was corrected the same day or prior to the next sailing day.

On-time performance improves on four of nine routes

On-time performance improved slightly (0.3 percent) from the same quarter in FY2013 to 96.6 percent for the second quarter of FY2014. This increase put Ferries' performance above the annual on-time performance goal of 95 percent.

On average, 15 out of 442 daily trips did not leave the terminal within 10 minutes of the scheduled departure time in the second quarter of FY2014. On-time performance improved on four routes, worsened on four others, and remained unchanged on one route compared to the same quarter in FY2013 (see table below). The largest quarterly improvement in on-time performance was the Port Townsend – Coupeville route, up 3.3 percent to 95.2 percent compared to the same quarter in FY2013. The improvement was due in part to the completion of construction work on the main slip at Port Townsend. Active construction adversely impacted performance in the second quarter of FY2013.

The largest decrease in on-time performance was on the Anacortes/Friday Harbor – Sidney, B.C. route, which dropped 1.4 percent from the same quarter in FY2013 to 90.2 percent. The high number of poor visibility days was the primary reason for this drop.

Rider complaints decrease

Ferries received 332 complaints and 37 compliments during the second quarter of FY2014. This is a significant decrease from the 543 complaints and the 57 compliments from the same quarter in FY2013. The largest category decrease in complaints was "crewing," which fell from 129 to 15. Other notable decreases in complaints included those associated with vessel downsizing and vendors.

There were increases in only six of the 27 complaint categories with no increases larger than 15 as compared to the same quarter one year ago. Information services (which includes website, email and terminal notification systems), ticketing issues, and advertising were notable categories that had some increase.

Contributors include Matt Hanbey, Kynan Patterson and Joe Irwin

Employee compassion appreciated

I was on the Seattle to Bainbridge boat (normal commute) and saw one of your employees show a great deal of customer service and compassion. I was sitting one seat over from lady (with) her daughter. The lady had just had surgery and was in considerable discomfort with nausea… Without being asked, your employee, tended to her with a damp towel, a plastic bag and a (soda) to help calm her stomach… The ferry service probably gets a fair number of complaints, but you should know that many of your people are fantastic.

Ferries' on-time performance and trip reliability improve for the second quarter of fiscal year 2014

Second quarter (October through December), FY2013 and FY2014; Annual on-time goal = 95 percent; Annual reliability goal = 99 percent

	On-time performance				Trip reliability			
Route	**FY2013**	**FY2014**	**Status**	**Trend**	**FY2013**	**FY2014**	**Status**	**Trend**
San Juan Domestic	93.3%	93.6%	+0.3%	↑	99.8%	99.6%	-0.2%	↓
Anacortes/Friday Harbor – Sidney, B.C.	91.6%	90.2%	-1.4%	↓	100.0%	100.0%	0.0%	↔
Edmonds – Kingston	99.6%	99.6%	0.0%	↔	100.0%	99.7%	-0.3%	↓
Fauntleroy – Vashon – Southworth	94.6%	95.7%	+1.1%	↑	98.7%	99.6%	+0.9%	↑
Port Townsend – Coupeville	91.9%	95.2%	+3.3%	↑	96.7%	94.8%	-1.9%	↓
Mukilteo – Clinton	98.7%	98.8%	+0.1%	↑	99.7%	99.8%	+0.1%	↑
Point Defiance – Tahlequah	99.7%	99.4%	-0.3%	↓	99.8%	99.5%	-0.3%	↓
Seattle – Bainbridge Island	97.4%	96.5%	-0.9%	↓	100.0%	100.0%	0.0%	↔
Seattle – Bremerton	96.5%	96.0%	-0.5%	↓	99.1%	99.5%	+0.4%	↑
Total	**96.3%**	**96.6%**	**+0.3%**	↑	**99.3%**	**99.4%**	**+0.1%**	↑

Data source: WSDOT Ferries Division.

Note: A trip is considered delayed when a vessel does not leave the terminal within 10 minutes of the scheduled departure time.

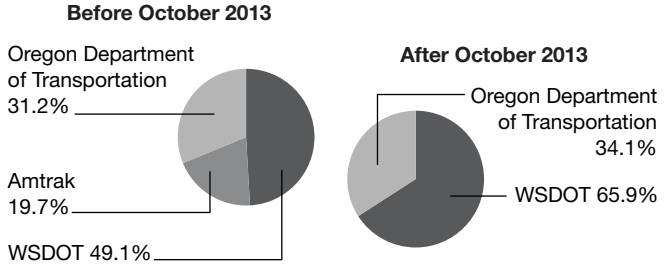
Notable results

- *WSDOT's share of operating costs for Amtrak Cascades increased from 49% to 66%*
- *Ticket revenue covered approximately 60% of operating costs for state-supported trains*

Washington, Oregon take over Amtrak funding

As of October 2013, the federal government shifted full responsibility for funding Amtrak Cascades services to Washington and Oregon, as required by the Passenger Rail Investment and Improvement Act (PRIIA) of 2008. Previously, the states jointly funded about 80 percent of Amtrak Cascades' operating costs. While this increases costs to the states, it also allows the states to take a more active role in managing the service to control costs.

WSDOT's Amtrak Cascades funding increases
Share of funding by entity before and after the Passenger Rail Investment and Improvement Act took effect in October 2013



Data source: WSDOT Rail Division.

Overall in 2013, the Amtrak Cascades service saw a decrease in ridership and revenue when compared to 2012. This was due to several factors:

- Train schedules were adjusted to accommodate construction, which increased travel times.
- Winter weather-related service disruptions increased in the first quarter 2013 compared to the first quarter 2012; however, 2013 was still significantly lower than first quarter 2011.
- Lower fuel prices and reduced costs for other travel modes such as the bus.

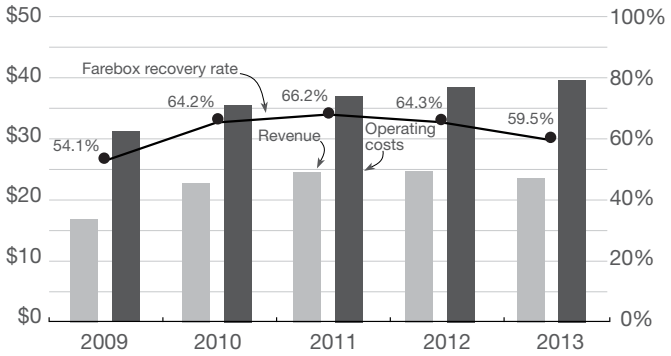
Ridership on state-supported routes increased in the fourth quarter of 2013 compared to 2012 from 122,215 to 153,245 (25.4 percent) because WSDOT was primarily responsible for funding one additional daily round trip between Portland and Seattle (this round trip was funded by Amtrak prior to October 1, 2013). The increase in state-supported ridership was accompanied by an increase in Washington's share of costs to operate the service.

WSDOT works to reduce costs

WSDOT continues working with the Oregon Department of Transportation, Amtrak and the other service partners to manage costs while providing a safe and reliable service. WSDOT is identifying opportunities to reduce costs and develop priorities based on what will generate the best value relative to the resources required.

Ticket revenue of $23.6 million covered 59.5 percent of Amtrak Cascades' operating costs of $39.6 million in federal fiscal year 2013 (October 2012 through September 2013). Maintaining current revenue levels is key to minimizing the financial impact to the state. WSDOT continues to work with service partners and other stakeholders to raise awareness about the service to increase ridership. This is expected to be challenging until the rail construction program is complete in 2017 because the projects can require longer travel times, making rail travel less appealing to potential passengers. When the construction program is complete, passengers will benefit from additional daily round trips, shorter travel times and increased on-time reliability.

Farebox recovery rate falls to 59.5 percent
Federal fiscal years 2009 through 2013; Dollars in millions



Data source: WSDOT Rail Division - Based on financial billing data from Amtrak.
Note: Farebox recovery rate is calculated as the annual revenue divided by total operating costs for a given year. The above revenues, operating costs and farebox recovery rates are for Washington-funded trains only.

Three rail projects complete, seven under construction

WSDOT sells out Thanksgiving train service

Amtrak Cascades provides additional trains each year during the busy Thanksgiving holiday. This year, WSDOT worked with Amtrak to determine the busiest days and times in order to meet the demand while minimizing the need for state subsidies. WSDOT sponsored four Thanksgiving holiday trains, down from 11 in 2012. WSDOT sold out regular service and moved more than 1,400 riders on these additional trains, exceeding the agency's service goals. Revenue exceeded the cost of the four trains, and will be used to offset WSDOT's regular operating subsidies.

Rail projects move forward

Ten of WSDOT's 20 federally funded rail improvement projects were under construction or complete as of December 2013. Work includes purchasing new locomotives, adding tracks to handle increased train traffic, and upgrading tracks, signals and stations. These projects, which are on schedule for completion in 2017, will result in two additional daily round trips between Portland and Seattle and an anticipated on-time performance of 88 percent for Portland to Seattle and Seattle to Vancouver, B.C. More than 96 percent of the $795 million in federal funding for these projects comes from the American Recovery and Reinvestment Act of 2009.

Design and construction continues on slide management project

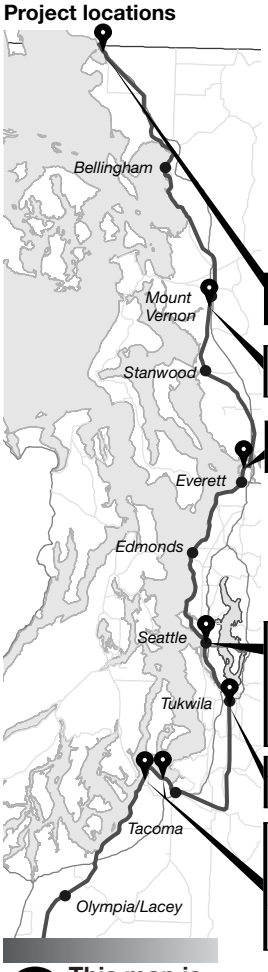
In January 2014, BNSF Railway finished construction work on the first two of three locations south of Everett for the $16.1 million Corridor Reliability – Slide Management project. Improvements include retaining walls, drainage systems and erosion control. This project is expected to reduce train disruptions due to landslides and increase on-time performance for Amtrak Cascades trains travelling between Vancouver, Wash. and the U.S./Canadian border.

Design and engineering work continues for a third location where the frequency of landslides affecting train operations has increased in the past few years. Since 2001, 29 landslides have been recorded at this location, with more than 89 percent of the landslide events blocking one or both main tracks. During the 2012 and 2013 winter season, 12 slide events were recorded and 11 of those blocked one or both tracks. One of the landslides in 2012 involved a debris avalanche that derailed a westbound freight train.

Contributors include Teresa Graham, John Romero, Gayla Reese Walsh, Kerri Woehler and Alison Wallingford

WSDOT makes progress on $795 million in rail projects

Project progress as of December 2013; Federal funding in millions of dollars



This map is interactive online! Click on the symbols or project titles to open up project web pages.

Project locations	Project name	Project progress: Design	Project progress: Construction	Grant
	Program Management and Contingency[1,2]	N/A	N/A	$75.7
Bellingham	Integrated State Rail Plan[1,2,3]	N/A	N/A	$0.4
	Advanced Wayside Signaling System[1]	95%	40%	$57.4
Mount Vernon	Blaine – Swift Customs Facility[4]	70%	0%	$4.6
Stanwood	Mount Vernon – Siding Extension[3,4]	80%	0%	$3.3
Everett	Everett – Storage Tracks	Complete		$3.5
Everett	Corridor Reliabiity – Slide Management Projects[1]	70%	45%	$16.1
Edmonds	Corridor Reliability Upgrades – North[1]	30%	5%	$54.0
Seattle	King Street Station – Tracks	10%	0%	$50.4
Tukwila	King Street Station – Seismic Retrofit[3,4]	Complete		$16.7
Tukwila	Tukwila Station[3,4]	95%	60%	$7.9
Tacoma	Tacoma – D to M St. Connection[4]	Complete		$21.3
Tacoma	Tacoma – Point Defiance Bypass	60%	0%	$89.1
	New Trainset or Passenger Rail Cars[1,5]	45%	0%	$23.5
	New Locomotives[1,5]	50%	0%	$46.7
Olympia/Lacey	Corridor Reliability Upgrades – South[1]	55%	35%	$86.6
Kelso/Longview	Kelso Martin's Bluff – Kelso to Longview Junction	50%	0%	$117.8
Kelso/Longview	Kelso Martin's Bluff – Toteff Siding Extension	65%	0%	$34.9
Kelso/Longview	Kelso Martin's Bluff – New Siding	50%	0%	$33.2
Vancouver	Vancouver – Rail Yard Bypass	85%	25%	$27.1
Vancouver	Vancouver – New Middle Lead	85%	0%	$9.6
Vancouver	Vancouver – Freight Access[4]	95%	45%	$15.0

Data source: WSDOT Rail Division.

Notes: Some projects progress in stages with portions moving into construction while others are still in design. 1 Project not shown on the map. 2 Not a capital project. 3 These four projects are funded by Federal Rail Administration (FRA) non-American Recovery and Reinvestment Act (ARRA) grants and the remaining 16 are funded by ARRA. 4 Six projects are partially funded from non-FRA sources. 5 The construction stage for these projects consists of manufacturing and delivering train components.

Fish Passage Barriers Annual Report

52

Notable results

- *WSDOT completed 15 fish passage projects in 2013, restoring migratory fish access to 66 miles of potential habitat*
- *WSDOT's Butler Creek project on U.S. 97 enhanced fish passage and provided a safe crossing for wildlife underneath the highway*

WSDOT restores access to potential fish habitat

WSDOT finished 15 fish barrier corrections in 2013. These projects restored access to 66 miles of potential upstream habitat. WSDOT also worked on seven fish passage projects that will either take two seasons to complete or are part of multi-year transportation projects.

WSDOT has nine fish passage projects scheduled for completion in 2014. This includes five of the seven projects not completed in 2013. These projects are expected to restore access to 56 miles of potential upstream habitat for migratory fish. WSDOT replaces undersized or malfunctioning state-owned culverts that block or hinder fish passage with culverts that will aid in the recovery of Washington's migratory fish populations.

Correcting fish passage barriers contributes to Gov. Inslee's statewide goals for recovering Pacific salmon as part of his Results Washington effort (see p. viii). WSDOT has been working cooperatively with the Washington Department of Fish and Wildlife (Fish and Wildlife) since 1991 to identify and correct fish passage barriers that occur where highways intersect streams. WSDOT has completed 285 fish passage barrier corrections, restoring fish access to approximately 971 miles of potential habitat statewide. This is roughly the equivalent of a round trip drive between Seattle and Missoula, Mont. along Interstate 90.

Court requires expediting corrections

A U.S. District Court injunction issued in March 2013 requires the state to correct hundreds of culverts blocking fish passage in western Washington by 2030. WSDOT is required to provide fish passage access to at least 90 percent of the habitat in the area covered by the injunction. WSDOT estimates this will mean correcting an average of 30 to 40 culverts each fiscal year, which is twice as many as completed in 2013.

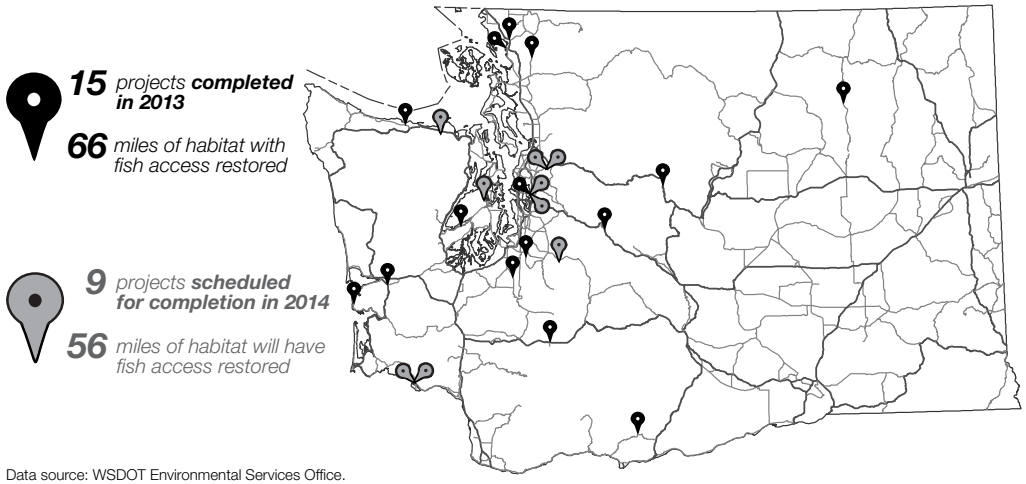
In response, WSDOT has developed four specialized teams to design fish passage projects in the area subject to the injunction. The teams are designing 34 barrier correction projects for advertisement in the 2015-2017 biennium. WSDOT is also working with partner agencies such as Fish and Wildlife and the Washington State Department of Ecology to gain efficiencies in project design and permitting.

Barrier corrections help threatened fish

The purpose of fish passage projects is to restore access to historic spawning habitat for migratory fish such as salmon and steelhead. There are 10 populations of salmon and six populations of steelhead that have the potential to reside in Washington state and are listed as threatened or endangered under the federal Endangered Species Act.

WSDOT completes 15 fish passage projects in 2013, nine scheduled for 2014

Sites of completed 2013 projects and projects scheduled for completion in 2014



Data source: WSDOT Environmental Services Office.

Note: For more information on completed fish passage projects see WSDOT's Fish Passages Annual Report at http://www.wsdot.wa.gov/Environment/Biology/FP/fishpassage.htm#reports.

Culvert correction on U.S. 97 also improving safety

This 20-foot culvert on State Route 106 was completed in fall 2013, replacing a 4-foot culvert that blocked fish passage. The new culvert restored access to more than two miles of habitat on Twanoh Falls Creek just east of Twanoh State Park on the Hood Canal.

WSDOT has recommended to the state Legislature a funding level of $200 million per biennium for the next 10 years to meet the requirements of the injunction. Additional funding will be required after this time period to complete remaining barrier corrections. For more information on the injunction, see WSDOT's "Accelerating Fish Barrier Correction" folio at http://www.wsdot.wa.gov/NR/rdonlyres/11D6A32A-E036-4FF1-9501-8535DFFEA769/0/Folio_FishPassageLeg.pdf.

WSDOT's wildlife cameras at the completed fish passage project on U.S. 97 at Butler Creek record animal crossings like this one from October 2013. These photos help determine the project's safety benefits.

Butler Creek sees early success

WSDOT completed in-water work on a fish passage project on U.S. 97 at Butler Creek in fall 2013 (the project was operationally complete in April 2013). In addition to restoring access to 10 miles of potential habitat for migratory fish, the new bridge is expected to help reduce vehicle collisions with deer in the area. The section of U.S. 97 in the vicinity of Butler Creek has one of the higher rates of vehicle/deer collisions in the state.

The new bridge is designed with a large opening that allows wildlife to cross underneath the highway. Approximately 1.2 miles of 8-foot tall fencing was constructed along U.S. 97 to encourage wildlife to use the new crossing under the bridge and prevent them from wandering onto the road. Six "jump-downs" were built into the fencing which allow animals that do somehow get on the highway to escape.

While it is too early to tell if the long-term collision rate will decline in the area, deer and other wildlife have been documented passing underneath the new bridge. WSDOT installed motion-triggered wildlife cameras upstream and downstream of the structure. Early data, starting in June 2013, shows deer crossing under the new bridge daily. The cameras have also captured images of bobcat, raccoon and even a great blue heron crossing under the new bridge. To see a video of images captured by WSDOT's wildlife cameras go to http://media.wsdot.wa.gov/media/Environment/US97ButlerCreek.wmv.

Contributors include Jon Peterson and Bradley Bobbitt

WSDOT improving fish passage for two decades

WSDOT and the Washington Department of Fish and Wildlife formed a cooperative program in 1991 to inventory and assess WSDOT-owned culverts and other barriers that block passage of migratory fish where highways intersect fish-bearing streams. In 2007, WSDOT and Fish and Wildlife completed an inventory of all fish passage barriers in the state and identified approximately 1,500 barriers that offer potential for significant habitat gain if corrected. WSDOT corrects barriers with bridges or new culverts that mimic natural conditions within the footprint of larger transportation projects, as stand-alone projects for high-priority barriers, or as part of maintenance activities when only limited work is needed. More information on fish passage and project design can be found at http://www.wsdot.wa.gov/Environment/Biology/FP/fishpassage.

$ The 2013-2015 biennial budget for the fish passage program is about $36 million. This funds stand-alone culvert corrections and program administration. WSDOT also corrects fish passage barriers that are located within the footprint of other transportation projects.

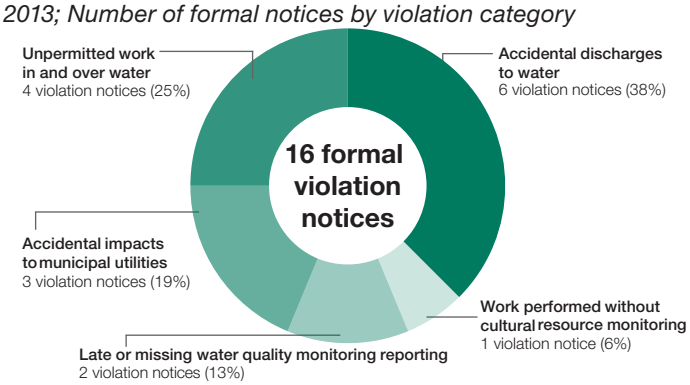
Notable results

- *Out of nearly 439,000 work activities WSDOT conducted in 2013, the agency received 16 formal environmental violation notices*
- *WSDOT was issued five monetary penalties for environmental violations totaling $44,500 in 2013*

Compliance is a priority for all WSDOT activities

WSDOT received 16 formal violation notices in 2013, one less than in 2012. Of 160,000 ferry sailings, the agency recorded one formal violation in 2013. For 278,000 maintenance activities conducted, WSDOT had no formal violations. The agency received 15 formal violations among 734 active construction projects. Formal violations occur when a regulatory agency such as the Washington State Department of Ecology (Ecology), sends WSDOT a written notification that the agency violated a permit condition or requirement. This article focuses only on formal violations. The agency does track other informal violations to use in proactively monitoring and correcting issues before they become formal violations. Non-formal violations are no longer reported in the *Gray Notebook* because they do not result in a formal violations or penalties. WSDOT and its contractors work to ensure environmental compliance for all agency activities.

WSDOT receives 16 environmental violation notices
2013; Number of formal notices by violation category



Data source: WSDOT Environmental Services Office.

Compliance occurs throughout project delivery

From the start of a project, WSDOT works to protect environmental and cultural resources by following federal and state processes and collecting input from agencies, the public and tribes. WSDOT also investigates project sites for sensitive features to minimize environmental impacts and avoid project delay.

WSDOT obtains permits to comply with federal, state and local laws. To ensure the permit terms are met, WSDOT includes them in contracts, uses a commitment tracking database and prepares project-specific compliance resource books for staff. For the construction phase, WSDOT provides training for construction staff focused on prevention. WSDOT also holds pre-construction briefings with contractors to review potential issues and establish expectations.

When transportation improvements do impact sensitive resources such as wetlands, WSDOT is obligated to mitigate those impacts and monitor mitigation efforts. WSDOT installs and maintains facilities such as stormwater treatment features or wetland mitigation sites to meet long-term compliance requirements. For more information on compliance at WSDOT go to http://www.wsdot.wa.gov/Environment/Compliance.

The most common event or activity that resulted in a formal violation notice in 2013 was "accidental discharges to water," which accounted for six of the 16 notices. These included spills into state waters of hydraulic fluid, wash water with petroleum products, concrete mix or sediment. One spill was at a ferry terminal and the rest were at project sites. When accidental spills occur, WSDOT takes immediate action to clean up the site, report the incident to the appropriate agency and adapt site management practices to prevent similar issues going forward.

WSDOT received five penalties in 2013

WSDOT's formal violations resulted in five monetary penalties totaling $44,500 in 2013. Of that, $10,500 (about 24 percent) was assessed to project contractors. The largest penalty issued to the agency was a $30,000 fine for failing to report water quality monitoring data to Ecology. As part of an agreement between WSDOT and Ecology, $20,000 of the penalty funded on-the-ground environmental improvements. For more, see Ecology's press release at http://www.ecy.wa.gov/news/2013/202.html.

Contributors include Christina Martinez and Bradley Bobbitt

52 Transportation: Economic Update

Notable results

- *Construction sector employment increased 2.8% in 2013, more than the total employment growth rate of 2.0%*
- *Vehicle registrations in Washington grew 2.5% between 2012 and 2013, the largest annual increase since 2004*

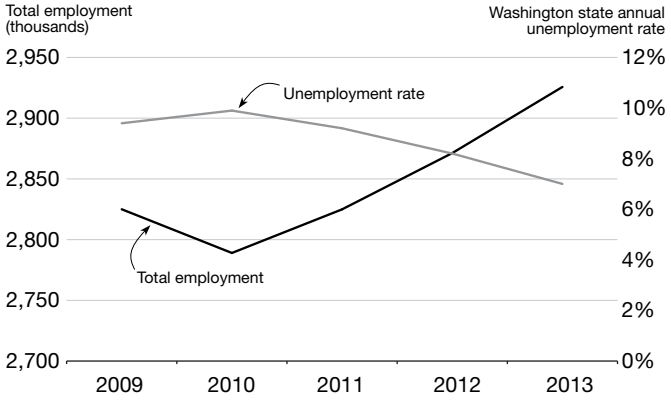
State economy continues to improve slowly in 2013

Employment in Washington state grew 2 percent in 2013, while the unemployment rate declined from 8.2 percent to 7.0 percent between 2012 and 2013. These positive trends indicate that in 2013, the state economy continued its slow but steady recovery from the recession (as defined by negative economic growth) that ended in 2009.

The unemployment rate fell for the third year in a row from its peak of 9.9 percent in 2010. Washington state's annual unemployment rate of 7.0 percent in 2013 was slightly lower than the national rate of 7.4 percent, but it still remains above the 2007 pre-recession rate of 4.6 percent.

The improvement in the unemployment rate was partially offset by a decrease in the labor force participation rate. This rate measures the percentage of the state's population that is part of the labor force (employed plus unemployed workers). The labor force participation rate fell from 51.1 percent to 50.5 percent between 2012 and 2013, while population increased by nearly 1 percent. This suggests that part of the decline in the unemployment rate is being caused by workers dropping out of the labor force.

Employment continues to increase in 2013
2009 through 2013



Data sources: Bureau of Labor Statistics Current Employment Statistics and Local Area Unemployment Statistics.
Note: Total employment reported for all nonfarm employment.

While employment in Washington state increased, average weekly hours worked for all private sector employees dropped from 34.6 hours to 34.3 hours between 2012 and 2013. This indicates that even though more people were employed, many of these workers were taking part-time jobs. Average hourly earnings for private sector workers increased in 2013 by a nickel to $27.70 (a 0.2 percent increase), after declining for two consecutive years.

Construction employment expands

Employment growth in the construction sector increased 2.8 percent in 2013, exceeding the growth rate in total employment. Washington's construction sector was particularly hard hit by the recession; construction employment fell by 31.6 percent to 142,400 workers in 2013 from the pre-recession level of 208,200 workers in 2007. Employment for the civil engineering and heavy construction sector increased by 1.8 percent in 2013.

Contract data for new nonresidential construction projects, which provide an indication of the level of construction activity roughly six months in the future, improved after hitting an all time low in 2012. Nonresidential contracts jumped in summer 2013, and achieved the strongest three-month average level since November 2008.

Vehicle registrations up; gas prices fall

More than seven million vehicles were registered in Washington during 2013. This represents a 2.5 percent increase from 2012 levels, which is the most substantial annual increase since 2004. This rise in vehicle registrations is partially driven by an increase in new car purchases, signifying that consumer confidence is recovering. Vehicle licenses, permits and fees are the second largest source of state-collected revenues for transportation in the 2013-2015 biennium (following the motor vehicle fuel tax), accounting for 21.9 percent of transportation revenues. Growth in vehicle registrations increased the amount of revenue available for transportation system projects.

WSDOT wraps up highway stimulus projects

For the first time in four years, motorists had some relief from rising fuel prices. Average annual gasoline prices in Washington declined from $3.90 per gallon in 2012 to $3.64 per gallon in 2013, a drop of 6.6 percent. Adjusted for inflation, 2012 gasoline prices in Washington were the highest on record since 2003.

Stimulus funds support infrastructure and jobs

In February 2009, President Barack Obama signed into law the American Recovery and Reinvestment Act (ARRA) in an effort to jumpstart the economy and save millions of jobs. In Washington state, ARRA provided nearly $1.6 billion in funding for transportation projects. WSDOT considered several factors when prioritizing projects for ARRA funding. It selected those that would otherwise have been delayed due to funding shortfalls, would address high priority preservation needs, could be completed within three years, and were in communities most affected by the recession.

Stimulus-funded highway projects provide $231 million in payroll

Of the $555 million that was awarded for Washington highway projects in 2009, $373 million went to state highways and $182 million went to local highway projects managed by city or county governments. WSDOT has spent more than 99 percent of this funding as of November 2013. The only highway project not operationally complete is the South Lake Union Mercer Corridor Improvements, which is funded by a 2010 Transportation Investment Generating Economic Recovery (TIGER) grant.

About 75 percent ($415 million) of the ARRA highway funding went toward projects located in economically distressed counties. A county was defined as "economically distressed" if it had a per capita income of 80 percent or less than the national average, an unemployment rate 1 percent greater than the national average for 24 months as of February 2011, or economic "special needs" as determined by the U.S. Secretary of Commerce. Of Washington state's 39 counties, 28 were designated as economically distressed.

Cable median barriers are installed as part of the I-5 Marysville to Stillaguamish River project, which was funded by the American Recovery and Reinvestment Act.

Between February 2009 and November 2013, WSDOT highway projects funded in part or in full by stimulus dollars have created or supported nearly 5.8 million hours of work and $231 million in payroll. Highway construction jobs supported by the stimulus peaked in October 2009, at 1,727 full-time equivalent jobs. These job creation estimates do not account for the entire economic impact of ARRA funding because they only count direct jobs. They exclude indirect jobs (those created or supported in industries supporting the direct jobs) and induced jobs (those created or supported by the re-spending of worker income on consumer goods or services). For example, the cable median barrier retrofit projects that were funded by ARRA provided jobs to construction workers who installed the cables (direct jobs), supported workers who manufactured the cables (indirect jobs), and supported the jobs of food service workers in restaurants visited by the construction workers (induced jobs).

WSDOT's stimulus-funded highway projects support jobs
2009-2013; Average monthly payroll and full-time equivalent (FTE) jobs

Year	Monthly payroll	Monthly FTEs
2009	$4,985,072	758
2010	$8,018,275	1,162
2011	$3,983,588	554
2012	$2,167,639	308
2013	$581,575	80

Data source: Recovery Act Data System.
Note: A monthly FTE is equivalent to 173 hours of work. An FTE does not always represent one full-time employee. Excludes tribal and private sector data.

$ Of the $1.6 billion in ARRA transportation funds that were awarded to Washington, nearly half ($767 million) is being invested in high-speed passenger rail (see p. 21 for more information on the delivery and progress of the rail projects). The Federal Highway Administration awarded WSDOT $490 million for 219 highway projects, all of which are operationally complete. In addition, WSDOT received $65 million for two highway projects funded by competitive TIGER grants. Washington airports were awarded $44 million and transit providers received $179 million.

Contributor Alison Wallingford

52 Construction Cost Trends Annual Report

Notable results

- *WSDOT's Construction Cost Index decreased by about the same amount in 2013 that it increased in 2012*
- *The price of hot mix asphalt, a key material for highway preservation and construction projects, dropped 11% in 2013*

Construction costs decline with hot mix asphalt prices

The Construction Cost Index (CCI) WSDOT uses to track price changes in common construction activities decreased 5.8 percent during 2013, following a 5.3 percent increase in 2012. This was less than the estimated 2.7 percent inflation rate that WSDOT used to adjust the engineer's estimates of project costs in 2013.

A decline in the CCI like the one in 2013 benefits taxpayers because when the price of construction materials goes down, funds go further. In contrast, construction cost inflation results in taxpayer dollars not going as far as they used to and the public seeing fewer preservation and improvement projects completed for the same amount of money. WSDOT's CCI is based on low bid prices since 1990 for seven work activities common to highway construction (see gray box below). The resulting index provides an inflation rate for WSDOT's construction program as a whole.

Although the CCI's 5.8 percent decrease during 2013 balanced out the 5.3 percent increase from 2012, costs remain much higher than 10 years ago. The CCI increased 68 percent between 2003 and 2013. As a result, an item that cost WSDOT $1.00 in 2003 cost the agency $1.68 in 2013. Inflation on this scale erodes WSDOT's buying power, and makes budgeting for future projects very difficult.

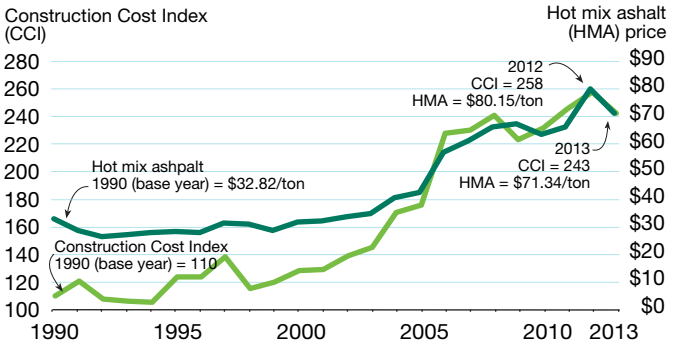
How WSDOT uses low bid prices to figure its Construction Cost Index

WSDOT's CCI is based on low bid prices for seven work activities common to most highway construction projects:

- Roadway excavation (grading)
- Crushed surfacing (placing crushed rock)
- Hot mix asphalt (asphalt paving)
- Concrete pavement (concrete paving)
- Steel rebar (placing rebar to construct bridges)
- Structural steel (placing steel forms to construct bridges)
- Structural concrete (placing concrete to construct bridges)

WSDOT's Construction Cost Index declines 5.8 percent in 2013

1990 through 2013; Costs of construction materials and activities relative to 1990 levels



Data source: WSDOT Construction Office.

The decrease in the Construction Cost Index was mainly the result of lower prices for hot mix asphalt (HMA), which experienced a 11 percent drop during 2013. This material is essential for both roadway preservation and new construction, and is the largest factor influencing the CCI — about half of the CCI is based on the price of hot mix asphalt.

Despite its price decreasing in 2013, hot mix asphalt prices have more than doubled in the past 10 years, diminishing the purchasing power of already declining fuel tax revenues. The price of HMA is highly dependent on the price of crude oil — price increases for crude oil translate to price increases for HMA and higher costs for WSDOT projects. High crude oil prices also lead to higher costs for gasoline, which can result in reductions in driving and the revenues generated by per gallon fuel taxes.

Contributors include Jenna Fettig and Alison Wallingford

Notable results

- *WSDOT launched two new Lean projects this quarter, bringing the total to 17 projects initiated in the past 18 months*
- *WSDOT used Lean methods to develop an online tool to streamline certifications for disadvantaged business enterprises*

Lean partnership benefits two state agencies

A WSDOT Lean process in partnership with the Office of Minority and Women's Business Enterprises (OMWBE) has resulted in a ten-fold increase in processing speed for disadvantaged business enterprise (DBE) applications. Another effort redesigned OMWBE's document management system, reducing application processing time for businesses to become certified within the federal timeline of 90 days or less. The two agencies partnered starting in January 2012 to address issues that affect both agencies. WSDOT and OMWBE have each taken on process improvement efforts that benefit customers and state agency partners. This partnership helps both agencies better meet state and federal DBE requirements, while improving the experience of customers.

In June 2012, the agencies focused on eliminating a backlog of 1,828 applications that were not certified within the 90 days established by the federal government. OMWBE processes these applications on WSDOT's behalf. The backlog was equal to about two years' of work at the "normal" pace. OMWBE in collaboration with WSDOT used a Lean process that addressed about 1,600 backlogged files in less than five months. In the same time frame, all of the new federal applications received were processed in less than the 90 days allowed. Due to the Lean improvements, the team continues to process more than 10 times as many applications each week using the new process.

WSDOT's Information Technology division developed a system to replace OMWBE's old paper-based application management system with a more efficient online process. The system benefits OMWBE staff because they can make notes directly in the system when working on the business's file. External customers have responded positively to automatic emails alerting them to milestones in the DBE application review process.

WSDOT has initiated 17 Lean projects since August 2012 (see *Gray Notebook* 51, pp. 42-43) to improve the effectiveness of processes and better meet customers' needs. WSDOT has been learning about the Lean process and what it has to offer to address identified issues and improve the way the agency does business. This quarter's progress and benefits of seven projects are presented here. Five additional Lean projects are also underway; results will be reported when they are available.

Project, program and description	Results achieved this quarter
COMPLETED: Reduce WSDOT's fish passage project design timeline *Environmental Services Office (Development Division)* Increase collaboration efficiencies between WSDOT and the Washington Department of Fish and Wildlife (WDFW) during fish passage barrier correction project scoping and design.	■ Revised fish passage project design process to include members of WSDOT and WDFW teams. This team structure eliminated delays associated with interagency coordination, reduced handoff queue time and consolidated process steps. ■ Interagency teams have accelerated their design delivery, with 34 fish passage projects in the pipeline for construction in the 2015-2017 biennium, and an additional 75 to be designed in that time frame.
Standardize Ferries' digital schedule updating *Ferries Division* Streamline the process for publishing and maintaining the semi-annual vessel sailing schedule.	■ The team conducted a Lean Value Stream Map workshop in October 2013 to document the process flow and develop process improvement ideas. ■ Testing the new process to publish ferry vessel sailing schedules is ongoing. The new process is expected to reduce the time to deliver the schedule updates from 40 hours down to 24 hours each quarter.

Table continued on p. 30

Leaner processes deliver what customers need

Table continued from p. 29

Project, program and description	Results achieved this quarter
Improve government contracts process in Research Office *Office of Research and Library Services (Multimodal Planning Division)* Reduce the time needed to develop and execute new and revised governmental agency contracts.	■ Contract processing time improved from 135 days to an average of 56 days for new contracts, and 37 days for contract modifications. This represents a 59% time savings for new contracts.
Reduce collision data backlog *Statewide Travel and Collision Data Office (Multimodal Planning Division)* Supply customers with complete, accurate and timely collision data by streamlining collision data processing and reducing the data backlog.	■ The time until a fully analyzed collision record becomes available to customers has been reduced from 8.5 months in June 2012 (when the Lean project was launched), to less than one month at the end of December 2013, saving an additional three weeks from the previous quarter. ■ WSDOT worked with law enforcement agencies to deliver preliminary collision data for emphasis patrols within 48 hours. This collaborative enforcement project includes three phases: 1 Establish a separate data store for law enforcement personnel (complete). 2 Move data entry of the paper collision reports to Washington State Patrol (complete). 3 Develop a query tool for law enforcement personnel to use when analyzing preliminary collision data for emphasis patrols (underway).
Streamline traffic count delivery process *Statewide Travel and Analysis Branch (Multimodal Planning Division)* Provide reports and data to meet customers' needs for electronic records, saving money and time by eliminating paper records.	■ One process step change eliminated repetitive copying, reducing staff processing time by approximately four hours each month, and saving paper.
NEW: Overhaul the Professional Membership Tracking System (PMTS) *Records and Information Services Office (Enterprise Risk Management Division)* Revise process to request and approve professional memberships to reduce time from request to approval, provide for consistency across the agency, and ensure the appropriate level of approval for different membership types.	■ Conducted a Value Stream Map workshop in November 2013. Team identified about 79 minutes of value-added work during a process that takes up to 12 weeks to complete. ■ Eliminated the outdated electronic PMTS (in FileMaker Pro software); interim solution is to manually route paperwork (estimated to reduce approval time by four weeks for each application). ■ The team is working to develop a different electronic system to manage the requests and approvals for professional memberships.
NEW: Improve Public Disclosure Request response process *Records and Information Services Office (Enterprise Risk Management Division)* Streamline public disclosure process to produce a high-quality response in accordance with the intent of public records laws.	■ Eliminated steps from several internal processes, resulting in saved time, paper and supplies, plus: 1 Improved Public Disclosure Request Acknowledgement process to eliminate unnecessary second acknowledgement letters that would go to about 50-100 external customers annually. 2 Switched from printed to electronic correspondence records (eliminated 20 steps). 3 Moved to electronic signatures for denial letters to requestors (eliminated five steps). ■ Standardized work for employees and customers by: 1 Creating reference material for all staff and using a common place to share documents. 2 Developing customer service standards as a first step to becoming customer-focused. 3 Creating an internal supplier contact list and developing other methods for maintaining internal contacts.

Data source: Office of Minority and Women's Business Enterprises; WSDOT Office of Equal Opportunity; Development, Ferries, Multimodal Planning and Enterprise Risk Management divisions.

Contributors include Lori Beebe, Dave Bushnell, Tim Carlile, Jean Denslow, Mark Finch, Nadine Jobe, Debbie McVicker, John Milton, Brenda Nnambi, Leni Oman, Sayee Vaitheesvaran, Paul Wagner, Megan White and Anna St. Martin

Notable results

- *More than 80% of tolls were paid through Good To Go! accounts in fiscal year 2013, on par with tolling industry peers*
- *An average of 40,000 vehicles cross the eastbound Tacoma Narrows bridge each weekday, a number that held steady between 2012 and 2013*
- *State Route 520 bridge tolls generated $55.4 million in fiscal year 2013 and will help fund a new State Route 520 bridge*
- *State Route 167 High Occupancy Toll lane trips have more than tripled since the lane opened in 2008*

Revenue of $115.2 million helps pay for toll projects

WSDOT collected $115.2 million from three toll facilities through 35 million transactions in fiscal year (FY) 2013, from July 2012 through June 2013. Revenue is up 62 percent compared to $71.2 million in FY2012, while transactions have increased 62.8 percent in the same period. Tolling on the State Route (SR) 520 bridge began midway through FY2012, the main reason for the large increase.

- After a nearly two decade hiatus, WSDOT reintroduced tolling to Washington state in 2007 to help pay for and maintain the new eastbound span of the Tacoma Narrows Bridge.
- WSDOT is on track to raise $1 billion from tolls toward the cost of a new SR 520 bridge, scheduled to open in 2016. For an example of how tolling revenues are used, see the graph on p. 32.
- The SR 167 High Occupancy Toll (HOT) lanes opened to traffic as a pilot project in May 2008.

Toll facilities generate 35.0 million transactions
July 2012 through June 2013; Transactions in millions

Facility	FY 2012	FY 2013	Percent change	Trend
Tacoma Narrows Bridge	14.0	13.8	-1.4%	↓
State Route 520 Bridge	6.8	20.2	+197.1%[1]	↑
State Route 167 High Occupancy Toll (HOT) lanes	1.0	1.0	0.0%	↔
Total	**21.8**	**35.0**	**+60.6%**	↑

Data source: WSDOT Toll Division.
Note: 1 Tolling began in December 2011, midway through FY2012. FY2012 numbers show six months of transactions; FY2013 numbers show 12 months of transactions for the State Route 520 Bridge.

The Washington State Legislature authorizes tolls while the Washington State Transportation Commission sets toll rates. In addition to collecting tolls, WSDOT plans, builds, analyzes and operates toll collection facilities. WSDOT uses tolling as a strategic tool to help finance capital improvement projects, manage congestion, enhance mobility and generate revenue for ongoing maintenance and operations.

TOLLING BY THE NUMBERS fiscal year 2013 (July 2012 through June 2013)

6 years
Tacoma Narrows Bridge **tolling**

5 years
State Route 167 **HOT lanes**

2 years
State Route 520 Bridge **tolling**

35.0
million total toll transactions

13.8 million
Tacoma Narrows Bridge

1.0 million
SR 167 HOT Lanes

20.2 million
SR 520 Bridge

$1 billion
State Route 520 bridge tolling is on track to generate funds to help build a new bridge

114,000
visits to three *Good To Go!* Customer Service Centers

8
The average number of minutes saved during the peak hour by drivers using *SR 167 HOT Lanes* for an average toll of $2

425,000
drivers had *Good To Go!* accounts

423,000
calls to *Good To Go!* **Customer Service Center**

$115.2
million total toll revenue

$58.7 million
Tacoma Narrows Bridge

$1.1 million
SR 167 HOT Lanes

$55.4 million
SR 520 Bridge

Data source: WSDOT Toll Division.

Good To Go! pass system benefits toll payers

Good To Go! is the state's all-electronic tolling system and the least expensive way to pay a toll. Of the 20.2 million total gross toll transactions on the SR 520 bridge in FY2013, approximately 84 percent were made by *Good To Go!* account holders.

WSDOT collected approximately $55.4 million in toll revenue on the SR 520 bridge in FY2013. In December 2011, tolling began on the existing SR 520 bridge to manage congestion and provide funding for a replacement bridge. The $4.1 billion SR 520 Bridge Replacement and High Occupancy Vehicle (HOV) Program is building 12.8 miles of improvements to address safety and congestion, from I-5 in Seattle to SR 202 in Redmond.

SR 520 bridge congestion improves

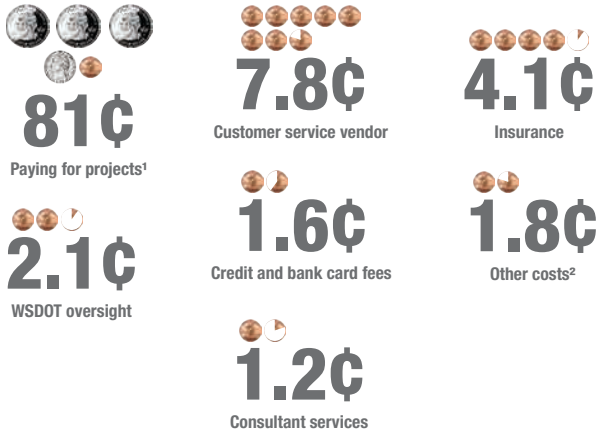
WSDOT is meeting its goal to manage congestion on SR 520. Travel times for drivers using the SR 520 bridge are faster than pre-tolling travel times. An average of 34 percent fewer vehicles crossed the SR 520 bridge on weekdays in FY2013 compared to 2011 pre-toll levels. This is a smaller drop in traffic than the 48 percent reduction forecast for the first year of tolling. For related information, see the Travel Time Trends article on pp. 14-16.

New payment methods preferred

In December 2011, WSDOT introduced two new payment options on the Tacoma Narrows Bridge, Pay By Plate and Pay By Mail. Previously, there were two options for drivers to pay the toll on the bridge, stopping at the toll booth or using a *Good To Go!* pass. Drivers who crossed the bridge without using either payment option received an infraction notice. Now drivers can either register their license plate on a *Good To Go!* account to Pay By Plate or receive a toll bill in the mail. The registered owner receives a bill in the mail at a higher toll rate. Drivers who don't pay within 80 days receive a $40 civil penalty.

Since the introduction of the new payment methods, the percent of transactions being paid by *Good To Go!* passes or at the toll booths has decreased. This shows that a growing number of drivers prefer the convenience of paying by plate or mail, even if it costs more. WSDOT continues to closely monitor this trend and evaluate potential cost savings of converting to the Tacoma Narrows Bridge to all-electronic tolling.

Where the toll dollar goes — majority tolls collected for State Route 520 pay for replacement bridge
Fiscal year 2013 (July 2012 through June 2013)



Data source: WSDOT Toll Division.
Notes: 1 Net revenue pays debt service and capital outlays. 2 Other costs include transponder costs, cost of investment activity, and roadway toll collection vendor.

Narrows bridge traffic remains steady

WSDOT collected approximately $58.7 million in toll revenue on the Tacoma Narrows Bridge in FY2013, slightly below WSDOT's forecast of $61 million. Tacoma Narrows Bridge traffic dropped marginally with approximately 13.8 million toll transactions in FY2013, compared to 14 million in FY2012.

An average of 40,000 vehicles cross the eastbound Tacoma Narrows Bridge each weekday, and more than 70 percent of tolls were paid with a *Good To Go!* pass in FY2013. The Tacoma Narrows Bridge, unlike the SR 520 bridge, allows drivers to pay at a tollbooth.

Cost to collect tolls varies by facility and method
Fiscal year 2013; Per transaction costs

	Tacoma Narrows Bridge		State Route 520 Bridge	
Payment Method	**Toll¹**	**Cost**	**Toll²**	**Cost**
Good To Go! Pass	$4.25	$0.30	$3.70	$0.29
Pay By Plate	$4.50	$0.40	$3.95	$0.37
Pay By Mail	$6.25	$1.07	$5.50	$0.94
Tollbooths	$5.25	$1.05	N/A	N/A
Percent cost to collect toll per average transaction		12%		13%

Data source: WSDOT Toll Division.
Notes: 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.

High Occupancy Toll lanes improve travel times

Usage and revenue for the SR 167 HOT lanes continue to increase as more drivers than ever choose to use them. The SR 167 HOT lanes generated $1.1 million in toll revenue in FY2013, up from $975,705 in FY2012. With HOT lanes, solo drivers can choose to pay a toll and use the carpool lane while carpools, vanpools and transit use the lane for free.

State Route 167 High Occupancy Toll (HOT) lanes opened in May 2008 between Renton and Auburn. Toll rates range from 50 cents to $9 depending on congestion.

More drivers choosing HOT lanes

Consistent with regional trends, average daily traffic on the SR 167 corridor increased approximately 2 percent when compared to pre-toll levels. However, the average number of weekday tolled trips in the HOT lanes have more than tripled from 1,050 in 2008 to 4,200 in 2013. The northbound HOT lanes saved weekday drivers about nine minutes during the morning peak hour for an average toll of $2.25. In the afternoon peak hour, the southbound HOT lane saved weekday drivers about six minutes in the car for an average toll of $1.50.

More HOT lane access planned

The No. 1 comment from SR 167 HOT lane drivers concerns access in and out of the HOT lane. Carpoolers, transit, and solo drivers want to enter and exit the lanes at any location and not have to wait until they reach one of 10 designated access points. This summer, WSDOT will remove most access restrictions, allowing drivers to enter and exit the SR 167 HOT lanes at nearly any point. WSDOT will evaluate the changes in 2015.

Express toll lanes coming

Interstate 405 commuters face some of the highest congestion levels in the state — the corridor is highly congested for eight to 10 hours each day. To ease congestion, WSDOT plans to open express toll lanes on I-405 between Bellevue and Lynnwood in 2015. Carpools, vanpools and transit will use the lanes for free. Other drivers will either pay a toll to use the express toll lanes or opt to stay in the general purpose lanes for free. Toll rates will be adjusted up and down to keep traffic in the toll lane moving at 45 mph or faster. This 17-mile phase of I-405 is part of a planned 40-mile system to improve traffic and travel times in the corridor. Future editions of the *Gray Notebook* will report on the performance of these new express toll lanes.

Tunnel tolling slated for 2016

Funding for the $3.1 billion State Route 99 viaduct replacement tunnel beneath downtown Seattle comes from state, federal and local sources including the Port of Seattle, and tolls which are expected to begin in 2016 when the tunnel is scheduled to open to traffic. The 2013 Legislature stated $200 million of the tunnel's cost should come from toll funding. Tolls could also pay for future tunnel operations and maintenance costs, similar to other toll facilities.

Potential tolling projects studied

Three other potential tolling projects have been studied recently, including the I-90 floating bridge, I-5 express lanes (downtown Seattle to Northgate), and the SR 509, I-5 and SR 167 Puget Sound Gateway Project. I-90 is still being studied, but findings of the other studies have been provided to the Legislature.

To read more about these tolling studies and WSDOT's tolling program, visit http://www.wsdot.wa.gov/Tolling/.

Customers satisfied with service

In a recent survey, 88 percent of customers said they were satisfied or very satisfied with the customer service they received from *Good To Go!* In FY2013, *Good To Go!* handled more than 425,000 calls and sent more than 2.6 million emails. The most common reasons for calls are to pay a toll bill or civil penalty or update account information. *Good To Go!* service centers in Bellevue, Gig Harbor and Seattle had nearly 114,000 walk-in customer visits; about two-thirds of those visits are to Gig Harbor.

Contributors include Toll Division Communications and Operations Teams and Yvette Wixson

How tolling pays the bills

Investors lend money for construction, purchasing toll bonds that are repaid with interest from future net toll revenues. Once tolling begins, revenues are first used to pay for facility operations and maintenance, toll collection, and other costs of doing business. After paying for these costs, remaining funds repay bondholders.

52 Capital Project Delivery Programs Quarterly Update

Notable results

- *WSDOT has completed 352 of 421 Nickel and Transportation Partnership Account projects since 2003*
- *Nickel revenues are $83.4 million so far in 2013-2015 biennium, 0.4% more than the $83.1 million revenues projected*

Three Nickel, TPA projects operationally complete

Three Nickel and Transportation Partnership Account (TPA) projects were operationally complete in the second quarter of the 2013-2015 biennium (October through December). Operationally complete means the projects are open to motorists, but not all work (landscaping, lane striping, etc.) may be finished. WSDOT is also reporting on another project that was operationally complete in the 2011-2013 biennium but was not reported then due to an oversight (see p. 44 for details).

Including the four projects completed last quarter, seven projects are now operationally complete so far in the 2013-2015 biennium (June 2013 through July 2015). Of these seven, 71 percent were on time and 71 percent were on budget. The projects' current cost at completion is about $143 million, which is 11.1 percent less than the baseline estimates of $161 million.

A total of 352 of 421 Nickel and TPA projects have been completed since July 2003, with 88 percent on time and 91 percent on budget. The 352 projects' current cost at completion is $5.7 billion, about $100 million (1.6 percent) less than the $5.8 billion baseline cost at completion originally projected by WSDOT.

Goal is 90%

352 projects complete **88** % on time **91** % on budget

Data source: WSDOT Capital Program Development and Management.
Notes: Projects complete are cumulative since 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 final costs are within 5 percent of the last approved budget. The goal for both measures is 90 percent or higher.

WSDOT completes 352 Nickel and TPA projects
July 2003 through December 2013; Dollars in thousands

Project status	Number of projects	Value in thousands
Projects completed in earlier biennia that are *not* included in the current transportation budget	131	$732,902
Projects completed that *are* included in the current transportation budget	221	$5,039,781
Completed projects subtotal:	**352**	**$5,772,683**
Projects included in the current transportation budget that are not yet complete	69	$10,562,036
Total:	**421**	**$16,334,719**

Data source: WSDOT Capital Program Development and Management.

Nickel, TPA funding falling short

The 2003 Nickel transportation package was originally developed as a 10-year plan, with revenues forecasted to total $1.92 billion from 2003 through 2013. Fuel tax revenues generated during this period came in $195 million (10.2 percent) less than the original projections. Due to timing issues and the revenue shortfall, four Nickel projects have been deferred indefinitely while several other projects will continue past the original 10-year time period.

Nickel gas tax revenues are used to pay the debt on the bonds sold to finance the projects. The Nickel tax is intended to be fully leveraged, meaning that once all the bonds are sold, all of the revenues collected will be used to pay the debt. In the governor's 2014 supplemental budget proposal, Nickel bonds are projected to be sold through the 2019-2021 biennium. Nickel gas tax revenues during the next 10 years are projected to be $1.5 billion. So far in the 2013-2015 biennium, WSDOT's Nickel projections are right on the money, with $83.1 million forecast and approximately $83.4 million in revenues (a 0.4 percent difference).

The 16-year revenue projection for the TPA is 21.1 percent below the 2005 cumulative baseline total. If this continues, there will be more than a $1 billion difference between the $4.94 billion in anticipated gas tax revenues estimated in 2005, and the $3.90 billion forecast through November 2021. To date, this shortfall has caused nine TPA projects to be deferred indefinitely.

The state's gas taxes that fund Nickel and TPA projects are fixed per gallon and do not change with the price of gasoline. As a result, reduced consumption results in reduced revenue.

Contributors include Mike Ellis, Mitzi Frick, Penny Haeger, Heather Jones, Claudia Lindahl, Firas Makhlouf, Theresa Scott, Dean Walker and Joe Irwin

WSDOT workforce numbers decline

As of December 31, 2013; Compared to December 31, 2012

6496 **Agency permanent full-time employees** — **3%** **less** than the 6,677 employed one year ago

1853 **Highway construction program workforce** — **9%** **less** than the 2,045 employed one year ago

Data sources: Department of Enterprise Services DOP Data Warehouse, Human Resource Management System, WSDOT and Ferries Division payroll and Capital Program Development and Management.
Note: The number of highway construction employees changes due to seasonal fluctuations; winter represents the annual low point for the employee level, and the summer construction season is the annual high. The Legislature directed WSDOT to reduce the size of its highway construction workforce to a level of 2,000 full-time equivalent employees by June 30, 2015.

Current Legislative Evaluation and Accountability Program (LEAP)

WSDOT's Nickel and TPA to-do list down to 69 projects

Highway construction performance summary shows more than $5.6 billion in projects completed

As of December 31, 2013; Dollars in thousands

Combined Nickel and TPA programs	Number of projects	Value of program
Subtotal of completed projects	**352**	**$5,772,683**
Projects completed in earlier bienniums that are not included in the current transportation budget	*131*	*$732,902*
Projects completed that are included in the current transportation budget	*221*	*$5,039,781*
Projects included in the current transportation budget but not yet complete	69	$10,562,036
Total number of projects[1] in improvement and preservation budget	**421**	**$16,334,719**

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[2]
Number of projects completed	7	221	352
Percent completed early or on time[3]	71%	86%	88%
Percent completed under or on budget[3]	71%	93%	91%
Baseline cost at completion	$160,575	$5,039,781	$5,772,683
Current cost at completion	$142,714	$4,946,923	$5,677,498
Percent of total program over or under budget	11.1% under	1.8% under	1.6% under

Advertisement record: Results of projects entering into the construction phase or under construction are detailed on pp. 38-39.	Combined Nickel & TPA
Total current number of projects in construction phase as of December 31, 2013	23
Percent advertised early or on time	83%
Total number of projects advertised for construction in 2013-2015 biennium to date (July 1, 2013 through December 31, 2013)	3
Percent advertised early or on time	33%

Projects to be advertised: Results of projects now being advertised for construction or planned to be advertised, detailed on p. 43.	Combined Nickel & TPA
Total projects being advertised for construction bids January 1, 2014 through June 30, 2014	6
Percent on-target for advertisement on schedule or early	67%

Budget status for the 2013-2015 biennium:	WSDOT biennial budget
Budget amount for 2013-2015 biennium	$3,037,686
Actual expenditures to date 2013-2015 biennium (July 1, 2013 through June 30, 2015)	$531,252
Total 2003 Transportation Funding Package (Nickel) expenditure	*$42,675*
Total 2005 Transportation Partnership Account (TPA) expenditure	*$247,419*
Total Pre-existing Funds (PEF) expenditures[4]	*$241,158*

Data source: WSDOT Capital Program Development and Management.
Notes: 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 Cumulative projects completed from 2003 to December 31, 2013. 3 On-time and on-budget is no longer tracked as a single performance measure in the *Gray Notebook*. 4 For full details of the Pre-existing Funds program, see pp. 45-46.

No new Nickel, TPA rail or ferries projects this quarter

WSDOT did not complete any new Nickel and Transportation Partnership Account (TPA) rail or ferries projects this quarter. Cumulatively, WSDOT has completed 18 rail projects and 20 WSDOT Ferries Division projects since 2003. Nickel and TPA funding supported approximately $103.3 million in rail projects and another $269.2 million in ferries projects to date. Four Nickel- and TPA-funded rail projects, with awards amounting to $158 million, are under construction or entering the construction phase. Two Nickel and TPA Ferries projects, with awards amounting to $224.7 million, are also under construction or entering the construction phase.

WSDOT finishes 18 rail construction projects since 2003
As of December 31, 2013; Dollars in thousands

	Nickel (2003)	TPA (2005)	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed projects			
Cumulative to date (July 1, 2003 through December 31, 2013)	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	$62,380	$40,965	$103,345
Current cost at completion	$62,380	$40,965	$103,345
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, 2013)			
Total advertised	2	2	4
Percent advertised early or on time	100%	100%	100%
Total award amounts to date	$130,878	$27,081	$157,959

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).

WSDOT finishes 20 Ferries' construction projects since 2003
As of December 31, 2013; Dollars in thousands

	Nickel (2003)	TPA (2005)	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed projects[1]			
Cumulative to date (July 1, 2003 through December 31, 2013)	11	9	20
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	$59,851	$209,343	$269,194
Current cost at completion	$59,851	$209,343	$269,194
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, 2013)	1	1	2
Percent advertised early or on time[2]	100%	100%	100%
Total award amounts to date	$109,400	$115,345	$224,745

Data source: WSDOT Capital Program Development and Management.
Notes: 1 Ferries completed projects record includes three 64-car vessels, the Motor/Vessel (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 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). The data above is unchanged from the previous quarter because no additional Ferries projects were completed.

WSDOT finishes seven projects in current biennium

Biennial summary: WSDOT relying more on Transportation Partnership Account funds for capital projects
Nickel and Transportation Partnership Account (TPA) projects; Costs estimated at completion; Dollars in thousands

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 This information is updated quarterly throughout the biennium.	1 Nickel 6 TPA	4 on time 3 late	5 on time 2 late	7	$160,575	$142,714	5 on budget 2 over budget
Earlier reporting on capital project delivery							
2011-2013 biennium summary See *Gray Notebook* 50, p. 31, for project listing.	5 Nickel 36[1] TPA	31[1] on time 10 late	32[1] on time 9 late	41[1]	$1,485,449[1]	$1,459,555[1]	37[1] on budget 4 over budget
Notes: 1 Numbers have been updated since *Gray Notebook* 51 to reflect the addition of a completed project that was reported after the biennium.							
2009-2011 biennium summary See *Gray Notebook* 42, p. 45, for project listing.	16 Nickel 74 TPA	73 on time 17 late	80 on time 10 late	90	$1,641,605	$1,596,970	85 on budget 5 over budget
Notes: In editions of the *Gray Notebook* 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.							
2007-2009 biennium summary See *Gray Notebook* 34, p. 58, for project listing.	42 Nickel 69 TPA	91 on time 20 late	96 on time 15 late	111	$1,685,749	$1,685,219	102 on budget 9 over budget
2005-2007 biennium summary See *Gray Notebook* 26, p. 5, for project listing.	52 Nickel 24 TPA	71 on time 5 late	68 on time 8 late	76	$673,858	$668,778	67 on budget 9 over budget
2003-2005 biennium summary See *Gray Notebook* 19, p. 5, for project listing.	27 Nickel	25 on time 2 late	27 on time 0 late	27	$124,580	$124,409	25 on budget 2 over budget

Data source: WSDOT Capital Program Development and Management.
Note: Prior *Gray Notebooks* may be accessed at http://www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm.

WSDOT reporting change orders online

WSDOT approved approximately $49 million in change orders for the SR 520 project during the quarter ending December 31, 2013. Most of these recent change orders — about $37 million worth — addressed the re-design work on the final four pontoon construction cycles. In January 2014, WSDOT announced these recent change orders, and explained that they had also reached agreement with the SR 520 floating bridge contractor for $77.5 million related to the late delivery of pontoons for bridge construction. All of the fourth quarter change orders from 2013 are posted online. The change order for $77.5 million will be posted when all language has been finalized and the parties have executed the agreement, expected early in 2014.

After an extensive review, involving subject matter experts, contract specialists, and sometimes permit agencies or other outside stakeholders, WSDOT sometimes must 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://www.wsdot.wa.gov/Business/Construction/ConstructionChangeOrders.htm.

Advertisement record

Nickel and TPA project advertisements show progress

Twenty-three WSDOT projects in construction phase as of December 31, 2013

Nickel and Transportation Partnership Account (TPA) projects; Costs estimated at completion; Dollars in thousands

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	$9,875
I-5/Northeast 134th Street Interchange (I-5/I-205) – Rebuild Interchange – Stage 2 (Clark)	Nickel	√	Apr-2012	Max J. Kuney	Dec-2014	$54,878
SR 99/Spokane Street Bridge – Replace Bridge Approach (King)	TPA	√	Oct-2012	MidMountain Contractors	Oct-2014	$9,213
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	$17,040
• 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	$4,902 $114,569
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 Additional sign-bridges have some elements that were not initially planned. Additional environmental right of way work and review was needed.	TPA	√	Nov-2009	Signal Electric	Nov-2010	$2,409
• SR 99/South King Street Vicinity to Roy Street – Viaduct Replacement	Nickel/ TPA	√	May-2010	Seattle Tunnel Partners	Dec-2015	$1,089,700
U.S. 395/North Spokane Corridor (NSC) – Design and Right of Way – New Alignment (Spokane) The U.S. 395/North Spokane Corridor project is ongoing and several phases still require funding.	Nickel/ TPA					
• U.S. 395/NSC – Francis Avenue Improvements	Nickel	√	Apr-2012	Graham Construction	Nov-2013	$14,046
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	$19,731
• I-5/Mellen Street to Blakeslee Junction – Add Lanes, Interchange Improvements The operationally complete date was delayed due to schedule adjustments needed for complex traffic revisions, demolitions, repairs and painting of nearby bridges.	TPA	√	Mar-2012	Cascade Bridge	Dec-2015	$21,596
• I-5/Mellen Street Interchange – Interchange Improvements	TPA	√	Combined with project above for construction efficiencies.			
I-5/Chehalis River – Flood Control (Lewis) The operationally complete date was delayed to allow additional time for environmental and geotechnical analysis and to finalize designs for drainage and intersections.	Nickel	√	Mar-2012	Cascade Bridge	Dec-2014	$21,596
SR 502/I-5 to Battle Ground – Add Lanes – Stage 2 (Clark)	TPA	√	Jan-2014	Pending	Oct-2015	Pending
SR 105/North River Bridge – Replace Bridge (Pacific)	TPA	√	Jun-2012	Scarsella Bros.	Sep-2014	$23,009
SR 105/Smith Creek Bridge – Replace Bridge (Pacific)	TPA	√	Combined with the SR 105/North River Bridge project (above) for efficiency.			
U.S. 101/Middle Nemah River Bridge – Replace Bridge (Pacific)	TPA	√	Jun-2012	SB Structures	Aug-2014	$3,253
SR 9/Pilchuck Creek – Replace Bridge (Snohomish) The advertisement date was pushed back due to a delay in the hydraulic report, which then postponed the shoreline permit.	TPA	Late	Jul-2012	Granite Construction	Jul-2014	$8,900
SR 522/Snohomish River Bridge to U.S. 2 – Add Lanes (Snohomish)	Nickel	√	Apr-2010	Scarsella Bros.	Nov-2014	$88,653
SR 11/Padden Creek – Fish Barrier Removal (Whatcom) The operationally complete date was delayed due to longer than anticipated times needed to pour concrete sidewalks, barrier and roadway.	TPA	√	Feb-2013	Ram Construction	Mar-2014	$1,761

Table continued on p. 39

Nickel and TPA project advertisements show progress, *continued*

Table continued from p. 38

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	Jul-2014	$367,330
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	Dec-2014	$586,561
• SR 520/Medina to SR 202 Vicinity – Eastside Transit and HOV	TPA	√	May-2010	Eastside Corridor Constructors	Mar-2014	$306,278
SR 6/Willapa River Bridge – Bridge Replacement (Pacific)	TPA	√	Mar-2013	Rotschy	Nov-2014	$7,070
I-5/Tacoma HOV Improvements (Pierce)	Nickel/ TPA					
• I-5/Port of Tacoma Road to King County Line – Add HOV Lanes	Nickel	Late	Jun-2009	Tri-State Construction	May-2011	$31,015
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	$119,925
• I-5/SR 16/Eastbound Nalley Valley – HOV	Nickel/ TPA	√	Jun-2011	Mowat Construction Company	Mar-2014	$74,688
SR 161/24th Street East to Jovita – Add Lanes (Pierce)	Nickel	Late	Feb-2011	Tri-State Construction	May-2014	$11,928
Advertisement date was delayed to coordinate with local agencies. Project operationally-complete date delayed from June 2012 due to an error in the electronic bidding system, which required re-advertisement. Operationally complete date has been delayed from September 2013, marking a change from *Gray Notebook* 50, p. 33.						
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	$10,694
• I-405/Northeast 195th Street to SR 527 – Northbound Widening	TPA	Early	May-2009	Kiewit Pacific	Jun-2010	$19,263
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	$3,298
• I-90/Snoqualmie Pass East, Phase 1B Hyak to Snowshed Vicinity – Add Lanes and Bridges	TPA	√	Nov-2009	Max J. Kuney Company	Oct-2013	$76,699
• I-90/Snowshed to Keechelus Dam Phase 1C – Replace Snowshed and Add Lanes	TPA	Late	Apr-2011	Guy F. Atkinson Construction	Oct-2017	$177,144
Advertisement was delayed to address fire and safety issues with the original snowshed design, resulting in long-term savings.						
SR 9/84th St. Northeast (Gethchell Road) Improve Intersection (Snohomish)	TPA	√	Nov-2013	Pending	Nov-2014	Pending
SR 6/Rock Creek Bridge East – Replace Bridge (Lewis)	TPA	Late	Dec-2013	Pending	Sep-2015	Pending
Advertisement was delayed to address permitting issues with several agencies.						
SR 6/Rock Creek Bridge West – Replace Bridge (Lewis)	TPA	Late	Dec-2013	Pending	Sep-2015	Pending
Advertisement was delayed to address permitting issues with several agencies.						

Data source: WSDOT Capital Program Development and Management.

Original Legislative Evaluation and Accountability Program (LEAP)

WSDOT completes 127 Nickel highways projects

The performance summaries below and those on the following page provide status reports on WSDOT's delivery of the Nickel and Transportation Partnership Account (TPA) programs compared to the original legislative funding package as 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 funding packages were created. As a result, the data listed below and on the next page show the original funding package (LEAP) that differs from the current legislative budgets on pp. 35-36.

The 2003 and 2005 tables feature all budget items including pre-construction and environmental studies that were in the original funding packages. Local program projects, on which cities, counties and tribes collaborate with WSDOT to complete, are not included in the tables.

These tables show the total number of projects and the percentage of projects that are complete, underway, scheduled to start in the future, or affected by a legislatively-approved change of project scope. They also provide 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 update: Original 2003 Transportation Funding Package (Nickel)

As of December 31, 2013

	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	**156**		**127**		**5**		**24**	
Completed projects	118	76%	102	80%	2	40%	14	58%
Total projects underway	29	18%	26	20%	2	40%	1	4%
In pre-construction phase	*16*		*15*		*1*		*0*	
In construction phase	*13*		*10*		*1*		*1*	
Projects scheduled to start	1	1%	0	0%	0	0%	1	4%
Projects deferred or deleted from program	9	6%	0	0%	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 local programs projects. Percents may not equal 100% due to rounding.

WSDOT project budget update: Original 2003 Transportation Funding Package (Nickel)

As of December 31, 2013; Dollars in thousands

	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	**$3,887,483**		**$3,380,124**		**$297,851**		**$209,508**	
Original plan, 2003 through 2011-2013 biennium	$3,887,483	100%	$3,380,124	100%	$297,851	100%	$209,508	100%
Actual expenditures, 2003 through 2011-2013 biennium	$3,700,766	95%	$3,297,724	98%	$271,583	91%	$131,459	63%
Original plan through 2013-2015 biennium	$3,887,483	100%	$3,380,124	100%	$297,851	100%	$209,508	100%
Current plan through 2013-2015 biennium	$4,092,250	105%[1]	$3,542,263	105%[1]	$417,058	140%[1]	$132,929	63%
Actual expenditures, 2003 through December 31, 2013	$3,792,818	98%	$3,340,399	99%	$320,635	108%[1]	$131,784	63%

Data source: WSDOT Capital Program Development and Management.
Notes: 1 The state 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 Fiscal Year 2013-2015. These funds put the program above its original funding level and will result in continued over performance by this program. Expenditures are Nickel funds only. Totals do not include local programs projects.

WSDOT completes 175 TPA highways projects

WSDOT project delivery update: Original 2005 Transportation Partnership Account (TPA)

As of December 31, 2013

	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	182	73%	175	76%	0		7	47%
Total projects underway	48	19%	43	19%	1	25%	4	27%
In pre-construction phase	*22*		*21*		*0*		*1*	
In construction phase	*26*		*22*		*1*		*3*	
Projects starting in the future	7	3%	3	1%	1	25%	3	20%
Projects deferred or deleted from program	11	4%	8	3%	2	50%	1	7%
Number of legislatively-approved scope changes	*23*		*23*		*0*		*0*	
Pre-construction starts within six months	*0*		*0*		*0*		*0*	
Construction starts within six months	*5*		*5*		*0*		*0*	

Data source: WSDOT Capital Program Development and Management.
Notes: Totals do not include local programs projects. Percents may not equal 100% due to rounding. Since the Transportation Partnership Account (TPA) program was passed in 2005, the Legislature has approved changes to WSDOT Ferries Division's construction program so that the current budget does not match the original budget. Among the changes, TPA funding was provided for the 64-car ferries.

WSDOT project budget update: Original 2005 Transportation Partnership Account (TPA)

As of December 31, 2013; Dollars in thousands

	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	**$6,982,128**		**$6,678,468**		**$185,410**		**$118,250**	
Original plan, 2005 through 2011-2013 biennium	$4,084,836	59%	$3,886,331	58%	$87,655	47%	$110,850	94%
Actual expenditures, 2005 through 2011-2013 biennium	$3,804,316	54%	$3,656,151	55%	$77,019	42%	$71,146	60%
Original plan through 2013-2015 biennium	$5,641,364	81%	$5,386,836	81%	$136,278	74%	$118,250	100%
Current plan through 2013-2015 biennium	$5,385,199	77%	$5,228,662	78%	$77,019	42%	$79,518	67%
Actual expenditures, 2005 through December 31, 2013	$4,051,734	58%	$3,903,570	58%	$77,019	42%	$71,144	60%

Data source: WSDOT Capital Program Development and Management.
Notes: Expenditures are TPA funds only. Totals do not include local programs projects.

Definitions

Completed projects Projects operationally complete, open to traffic.

Projects underway Funded projects that have begun pre-construction or construction activities.

Projects in pre-construction phase Projects that have been funded and have started active work, such as environmental studies, design work, right of way purchase, preliminary engineering, and other activities that occur before ground-breaking.

Projects in construction Projects that are in construction from ground-breaking to completion.

Projects starting in the future Projects that are funded but not yet in a construction or pre-construction phase.

Projects deferred or deleted Projects that are deferred beyond the 16-year program window or deleted from the program with legislative approval.

Note

The column headed "Percent of program" shows the percentage of each category represented by the raw number. For example, the ferries columns show that of the five projects listed in the Nickel package, two have been completed, representing 40 percent of the total ferries program; two ferries projects are under way, representing 40 percent of the total program; and one ferries project has been deferred or deleted, representing the remaining 20 percent of the total program.

Completed Nickel and Transportation Partnership Account Projects

WSDOT completes three Nickel and TPA projects

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

Work accomplished on these completed projects includes adding lanes to State Route (SR) 9 in Snohomish County, improving bridge approaches on SR 285 in Chelan County and rebuilding an intersection on SR 28 in Douglas County. Another project, which constructed a new bridge on U.S. 97 to improve fish passage, was operationally complete in April 2013 but this wasn't initially included in completed projects due to a reporting error. It has been added to the 2011-2013 biennium schedule and budget summaries (p. 37).

WSDOT also constructed new lanes and bridges on Interstate 90 (I-90) in Kittitas County and replaced a bridge at U.S. 395 in Spokane County, wrapping up portions of larger ongoing mega-projects.

Project delivery performance on completed projects' budgets and schedules is measured against the latest approved budgets in accordance with criteria established by the Legislature. For this quarter, it is the 2013 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. The Nickel and TPA budgets and schedules reset whenever changes are made in the last approved legislative budget. For information on finished 2003 Nickel and 2005 TPA projects, visit http://www.wsdot.wa.gov/projects/completed.

SR 9/212th Street Southeast to 176th Street Southeast, Stage 3 – Add Lanes
Nickel (Snohomish County)

This project widened a two-mile section of SR 9 from a two-lane road to a four-lane divided highway between the city of Bothell and the community of Clearview. Due to population growth, the SR 9 corridor experiences a high volume of traffic, which results in an increase in annual collisions.

Project benefits: This project improves capacity and traffic flow through the construction of two additional lanes. New, raised medians that separate the divided highway eliminate left turns across oncoming traffic at access points on busy roads, reducing the potential for collisions.

Budget performance: This project was completed for $57.1 million, on target with the last approved budget, and approximately $5.2 million less than the original budget of $62.3 million.

Schedule performance: The project was completed in November 2013, three months later than the last legislatively approved schedule and five months later than the original schedule of June 2013.

Highlights/challenges: Weather impacts due to a wet spring season in 2013 created challenges which resulted in the operationally complete date being delayed by three months. The need to provide access to the 110 affected properties required construction staging through three seasons. The $5.2 million in savings will be used on other SR 9 corridor projects.

Crews work to break out the old roadway on 188th Street near Clearview, raise it to the proper height, then repave it and to reopen the intersection to drivers.

SR 285/West End of George Sellar Bridge – Intersection Improvements
TPA (Chelan County)

This project improved the approaches to the SR 285 Senator George Sellar Bridge from the west side of the bridge, and to Bridge Street on SR 285/ Mission Street and local streets in Wenatchee.

Project benefits: This project modified the intersection of SR 285 and Mission Street, a major traffic bottleneck at the west end of the George Sellar Bridge. The project increased traffic flow through the intersection, and reduced travel time and congestion-related collisions on SR 285 and the local road network.

Budget performance: This project was completed for $18 million, on target with the last legislatively

Mega-project construction work below budget

approved budget and $8.6 million more than the original 2005 budget of $9.4 million.

Schedule performance: The project was operationally complete in October 2013, on target with the last legislatively approved schedule and one and a half years later than the original schedule of May 2012.

Highlights/challenges: Initial costs of the project increased as WSDOT took over the project from the city of Chelan, which did not include several design elements that had to be added by WSDOT to bring the project to current standards. Higher than anticipated right of way costs and a risk analysis study increased project costs by $3.8 million. Prior to advertisement, the project's construction estimate decreased $3.7 million due to design changes. The accepted construction bid was 4 percent below the engineer's estimate, reducing the project cost estimate by approximately $395,000.

Interstate 90/Hyak to Snowshed Vicinity Phase 1B – Add Lanes and Bridges

TPA (Kittitas County)

This project constructed new lanes and bridges on a three-mile section of I-90 from Hyak heading east along Lake Keechelus. This project is part of the larger Interstate 90 – Snoqualmie Pass East – Hyak to Keechelus Dam Corridor Improvement project.

Project benefits: This four-year project constructed two additional lanes and rebuilt bridges at Gold and Dry Run creeks to reduce congestion and improve traffic flow on this key east-west mountainous interstate route. The project also lengthened westbound chain-up capacity and enhanced connections for wildlife and habitat across the interstate roadway.

Budget performance: This improvement was operationally complete for $112.5 million, on target with the last approved budget, and $57.2 million less than the approved 2010 budget of $169.7 million. These savings were redistributed to other projects on the I-90 corridor.

Schedule performance: The project was operationally complete in October 2013, on target with the last approved schedule and the original schedule.

Highlights/challenges: Challenges on this project included a limited construction window due to heavy snows and winter weather, additional slope protection work, the need to balance construction progress while minimizing traffic impacts, and the risk of environmental violations due to the proximity of Lake Keechelus. The project was awarded at 31 percent below the engineer's estimate.

U.S. 395/North Spokane Corridor – Francis Avenue Improvements

Nickel (Spokane County)

This project, part of the larger North Spokane Corridor project, replaced the previous 160-foot long Francis Avenue Bridge with a 455-foot long structure. It also added intersection improvements, including signal system and configuration changes, at Freya and Market streets in Spokane.

Projects to be advertised

Six projects in the six-month delivery pipeline for January through June 2014

Transportation Partnership Account (TPA) projects planned to be advertised; Dollars in thousands

Project description (County)	Fund type	Baseline planned ad date	Current planned ad date	On schedule	Baseline estimated cost at completion	Current estimated cost at completion
SR 167/SR 18 Interchange West-North Ramp and North-East Ramp Overcrossing – Seismic Retrofit (King)	TPA	Nov-2014	May-2014	√	$309	$309
SR 3/Belfair Area – Widening and Safety Improvements (Mason)	TPA	Jun-2013	Feb-2014		$18,153	$19,258
U.S. 101/Hoh River (Site No. 2) – Stabilize Slopes (Jefferson)	TPA	Dec-2014	Apr-2014	√	$9,616	$9,617
SR 302/Key Peninsula Highway to Purdy Vicinity –Safety & Congestion (Pierce)	TPA	Oct-2013	Mar-2014		$6,538	$5,022
I-205/Mill Plain Interchange to Northeast 18th Street – Build Interchange – Stage 2 (Clark)	TPA	Apr-2014	May-2014	√	$94,175	$65,695
SR 167/8th Street East Vicinity to South 277th Street Vicinity – Southbound Managed Lane (King, Pierce)	TPA	May-2014	May-2014	√	$84,010	$82,005

Data source: Capital Project Delivery Programs.

WSDOT reports on previously completed project

Project benefits: The previous bridge crossed over the BNSF railway tracks, and the new structure provides room for the train tracks and the future new freeway to pass under Francis Avenue.

Budget performance: The project was operationally complete for $30.8 million, on target with the last legislatively-approved budget and approximately $6.7 million less than the original budget of $37.5 million.

Schedule performance: The project was operationally complete in November 2013, on target with the last legislatively-approved schedule as well as the original schedule.

Highlights/challenges: The accepted construction bid was approximately 17 percent below the engineer's estimate, reducing costs by more than $1.9 million. The original estimate included numerous risk factors associated with the coordination of work with the BNSF Railway. These risks were minimized through a cooperative effort by BNSF and WSDOT and the resulting $6.7 million in cost savings were used on another project on this corridor.

SR 28/Junction U.S. 2 and U.S. 97 to 9th Street – Stage 1 – New Alignment

Nickel/TPA (Douglas)

The project rebuilt an intersection to accommodate the extension of Eastmont Avenue, relieving traffic congestion on Sunset Highway south to 9th Street in East Wenatchee. This project also replaced asphalt with concrete to support heavier loads.

Project benefits: The project reduced commute times and traffic congestion on Sunset Highway. Concrete provides stronger, longer lasting pavement at the intersection, with lower long-term maintenance costs.

Project budget: The project was completed for $40.6 million, approximately $14 million less than the last approved budget of $54.6 million and about $6.7 million less than the original budget of $47.3 million.

Project schedule: This project was completed in November 2013, six months later than the last approved schedule of May 2013 and two years later than the original schedule of December 2011. The project was mainly delayed to align with the county's revised schedule and further delayed due to contractor issues.

Highlights/challenges: This project included seven contracts, Douglas County was the lead agency on five of these contracts, and WSDOT was the lead agency on two. The original project budget increased from $47.3 million to $54.6 million due to inflation as a result of material cost increases. However, the project was completed for $40.6 million due to favorable bids.

Due to an oversight, WSDOT is reporting on a project this quarter that was actually operationally complete in an earlier biennium.

U.S. 97/North of Goldendale – Wildlife Habitat Connectivity

TPA (Klickitat)

This project built a new bridge on U.S. 97 over Butler Creek, nine miles north of Goldendale, and installed 8-foot fences to help guide wildlife to cross underneath the highway instead of running through traffic on U.S. 97.

Project benefits: The project reduced the probability for wildlife/vehicle collisions. Wildlife also now have safer access to habitat on either side of U.S. 97, and fish have unrestricted access to upstream habitat. See related article on fish passage barriers on pp. 23-24.

Project budget: The project was completed for approximately $3.6 million, on target with the last approved budget and the original budget.

Project schedule: This project was complete in April 2013, on target with the last approved schedule and a year and a half ahead of the originally approved schedule of October 2014.

Highlights/challenges: Project change orders due to the location of the work site increased construction engineering costs by $160,000. Right of way expenditures were less than planned because the bridge design changed and also what was going to be a temporary construction permit from a private property owner turned into a more formal construction easement, which required additional work on the engineering phase. This decreased right of way expenditures from $196,000 to $25,000, reducing the project cost by $171,000.

Contributors include Mitzi Frick, Penny Haeger, Theresa Scott and Joe Irwin

WSDOT advertises 58 Pre-existing Funds projects

WSDOT advertised 58 Pre-existing Funds (PEF) projects in the second quarter of the 2013-2015 biennium (October through December). Of these projects, 53 were on time and five were emergent, or previously unfunded. Nine additional projects were delayed (see *Gray Notebook* 51, p. 38 for definitions of PEF terms).

The current cost to complete the 58 PEF projects advertised this quarter is approximately $100.4 million, about $33.6 million (25 percent) less than the original value of $134 million. The primary reason for the reduced cost was that several of the higher-cost projects were awarded below the engineer's estimate.

Since the beginning of the 2013-2015 biennium there have been 81 advertisements. The current cost to complete them is approximately $149.7 million, about $33.4 million (19 percent) less than the original value of $183.1 million. The cost reduction is due to competitive bids and resulting savings on projects. In total, WSDOT has 258 PEF advertisements planned during the 2013-2015 biennium. The current estimated cost to complete them is $582.7 million, about $8.2 million (1.5 percent) more than the original value of $574.5 million.

Unlike Nickel and Transportation Partnership Account (TPA) projects, which come from a fixed list of projects set by the Legislature and funded with line item budgets, PEF projects are primarily funded at the program level through federal, state and local sources. This gives WSDOT flexibility to tackle a variety of projects, such as pavement preservation, bridge rehabilitation and fish passage improvements on its own timetable.

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

	Number of projects	Original value	Current cost to complete
Total PEF advertisements planned 2013-2015 biennium	258	$574.5	$582.7
Planned advertisements through December 31, 2013	80	$161.6	$115.7
Actual advertisements through December 31, 2013	81	$183.1	$149.7

Data source: WSDOT Capital Program Development and Management.

WSDOT completes 91 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 advertised on time	53	76
Emergent projects advertised	5	5
Total projects advertised	**58**	**81**
Projects delayed within the biennium	9	9

Data source: WSDOT Capital Program Development and Management.
Notes: 1 The quarter refers to October through December 2013
2 Cumulative refers to July through December 2013. July 1, 2013 marked the beginning of the 2013-2015 biennium.

Improvement, preservation spending less than planned

Actual expenditures for the PEF improvement program were 29 percent lower than planned during the second quarter of the biennium. WSDOT planned to spend $413 million on improvement projects, but spent $118 million less ($295 million) during the quarter. This 29 percent reduction was due to continued project savings and bids coming in below the engineer's estimate.

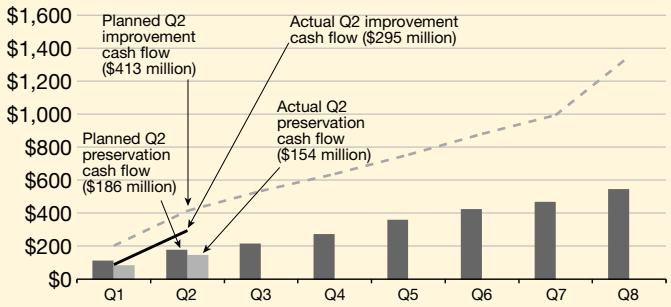
The PEF improvement program funds projects that optimize highway capacity to move more vehicles, enhance roadway safety, and reduce the environmental impact of highway construction projects.

Preservation expenditures for PEF during the second quarter of the 2013-2015 biennium were also less than WSDOT planned to spend, $154 million instead of $186 million. The 26 percent reduction, which amounts to about $32 million, was due to favorable bids, projects being delayed to future quarters and design element changes that resulted in overall project savings.

The preservation program includes projects that maintain the structural integrity of the existing highway system including pavement, highway safety features, bridges, and other structures and facilities.

Contributors include Dean Walker and Joe Irwin

WSDOT Pre-existing Funds preservation and improvement cash flows lower than planned
2013-2015 biennium; Quarter ending December 31, 2013; Planned vs. actual expenditures; Dollars in millions



Data source: WSDOT Capital Program Development and Management.
Note: Q2 refers to the second quarter (October through December) of the 2013-2015 biennium.

Pre-existing Funds

Pavement work makes up majority of WSDOT's advertised projects

WSDOT advertises 53 Pre-existing Funds projects on time this quarter

October through December 2013

On time (53)	
SR 9 and SR 539 Advanced Traveler Information System	U.S. 12/Howell Grade Rd. Vicinity to Alpowa Creek Bridge – Chip Seal
I-90/Westbound East Channel Bridge – Expansion Joint Replacement	SR 22/SR 223 Intersection to Mabton – Chip Seal
U.S. 101/West of Steamboat Island Rd. to Black Lake Blvd. – Paving	SR 24/7.4 Miles West of SR 241 to SR 241 – Chip Seal
SR 108/Wildcat Creek Bridge – Scour Repair	I-82/Badger Rd. Interchange – Chip Seal
I-90/Lincoln County Line to Salnave Rd. – Paving	I-82/Locust Grove Rd. Interchange – Chip Seal
SR 904/Betz Rd. to I-90 – Paving	I-82/Gibbon Rd. Interchange – Chip Seal
U.S. 97A/Entiat to Chelan – Seal	I-82/Yakitat Rd. Interchange – Chip Seal
SR 9/32nd St. Southeast – Intersection Improvements	I-82/Dallas Rd. Interchange – Chip Seal
I-90/West of George – Paving	I-82/Coffin Rd. Interchange – Chip Seal
U.S. 2/Coulee City Eastward – 2012 Seal	U.S. 97/Lower Green Canyon Rd. to SR 970 – Chip Seal
SR 17/Bridgeport Area – Seal	SR 128/Snake River Bridge to Idaho State Line – Chip Seal
SR 20/SR 153 to Malott Rd. – Seal	SR 193/SR 128 Intersection to Wawawai Rd. – Chip Seal
SR 20/Tonasket East – Seal	SR 224/SR 225 to Meyers St. – Chip Seal
SR 24/South of Othello – Seal	SR 241/Rosa Canal Bridge to 2.7 Miles South of Wautoma Rd. – Chip Seal
SR 26/Othello East – Seal	SR 241/SR 22 to I-82 – Chip Seal
U.S. 97/Tonasket to South of Oroville – Seal	SR 241/Sunnyside Vicinity – Chip Seal
U.S. 97/Chelan Falls to South of Pateros – Seal	SR 241/Wautoma Rd. Vicinity to SR 24 – Chip Seal
U.S. 97/Fort Okanogan to Okanogan – Seal	SR 241/I-82 to Factory Rd. – Paving
North Central Region 2013-2015 Low Cost Pavement Repair and Crack Sealing	I-90/Snoqualmie Summit to Hyak Eastbound – Dowel Bar Retrofit/ Concrete Rehabilitation
U.S. 97A /North of Chelan – Seal	I-90/Snoqualmie Pass Vicinity – Improve Delineation
SR 150/Chelan to Chelan Falls – Seal	I-5/Military Rd. to SR 516 – Seismic Retrofit
SR 155/Grand Coulee Area – Chip Seal and Paving	I-5/Orilla Rd. to Military Rd. – Seismic Retrofit
SR 155/Electric City Southward – 2012 Seal	US 2/Westwood Rd. to Pend Oreille County Line – Paving
SR 172 /West of Mansfield to SR 17 – Seal	SR 155/Omak Area – Paving
SR 174/Grand Coulee Area – Chip Seal and Paving	SR 215/Omak Area – Paving
SR 174/SR 17 to Grand Coulee – Seal	I-90/Vicinity Liberty Park to Havana St. – Illumination Rebuild
U.S. 12/Alpowa Creek to Clarkston – Chip Seal	
Emergent (5)	
U.S. 12/East of Clear Creek Falls Viewpoint – Road Washout Repair	SR 6/Rock Creek Bridge East – Replace Bridge
SR 9/84th St. Northeast (Getchell Road) – Improve Intersection	SR 6/Rock Creek Bridge West – Replace Bridge
I-90/Yellowstone Rd. to Hyak Phase 1D – Stormwater Retrofit	
Delayed (9)	
SR 282/Ephrata – Safety Project delayed to allow funding of higher priority projects.	SR 410/Scatter Creek Bridge – Seismic Project delayed to ensure environmental permit specifications were met.
I-5/Silver Lake Southbound RV Dump Station Rehabilitation Project delayed to allow funding of higher priority projects.	SR 539/Lynden-Aldergrove Port of Entry Improvements Project delayed to allow time for right of way acquisitions.
I-82/Prosser RV Dump Station Rehabilitation Project delayed to allow funding of higher priority projects.	SR 243/Mattawa – Intersection Improvements Project delayed to accommodate workload schedule of design office.
I-90/Sprague Lake Eastbound RV Dump Station Rehabilitation Project delayed to allow funding of higher priority projects.	SR 16/Olympic Drive Northwest Bridge – Special Repair Project delayed for design of additional sign structures.
SR 410/Watson Street – Signal Project delayed to combine with another project for efficiencies.	

Data source: WSDOT Capital Program Development and Management.

WSDOT adds 18 projects to the Watch List

WSDOT added 18 projects to its Watch List from October through December 2013. During the same period, four projects were removed. This brings the total number of projects on the Watch List to 21.

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

The Watch List helps WSDOT track these projects, providing status reports and 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, and updated if new issues arise or old issues persist. See *Gray Notebook* 51, p. 40 for a list of common issues that might land a project on the Watch List. The table below and on the next page provides brief overviews of how these issues are affecting specific projects throughout the state.

Comprehensive Watch List available online

WSDOT's Capital Program Development and Management office provides monthly updates on Watch List projects online in the Delivery Progress Reports. The reports provide a more comprehensive look at the Watch List as well as information on advertised and operationally complete Nickel and Transportation Partnership Account projects, which can be found at http://www.wsdot.wa.gov/Projects/Reports/.

WSDOT's Watch List projects with schedule or budget concerns
Quarter ending December 31, 2013

Project (County)	Date added	Date removed	Watch List issue
I-5/SR 16/Eastbound Nalley Valley – HOV (Pierce)	Dec-2013		Adverse weather reduced the number of workable days in the schedule and delayed the operationally complete date.
SR 99/South King St. Vicinity to Roy St. – Viaduct Replacement (King)	Dec-2013		The tunnel boring machine encountered an obstacle, and progress has been halted since December 2013. Several mechanical issues have since prevented digging. No timeline has been provided for resuming work.
SR 162/Puyallup River Bridge – Replace Bridge (Pierce)	Dec-2013		The schedule was delayed due to permitting issues that delayed the project's advertisement.
SR 8/Wildcat Creek – Fish Barrier Removal (Grays Harbor)	Dec-2013	Dec-2013	A redesign on this project has increased the cost and delayed the schedule. These changes have been incorporated into the project. This project has been removed from the Watch List.
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 Holgate Street to South King St. – Viaduct Replacement (King)	Dec-2013	Dec-2013	The schedule has been delayed due to the lack of available times for road closures. This delay has been accepted and this project has been removed from the Watch List.
SR 99/George Washington Bridge – Painting (King)	Dec-2013		The schedule is delayed to allow WSDOT to examine the bridge to determine whether additional repairs are required.
U.S. 101/Siebert Creek – Remove Fish Barrier (Clallam)	Dec-2013		The cost has increased and the schedule was delayed due to redesigning this project to eliminate restrictions to fish passage.
SR 520/I-5 to Medina – Evergreen Point Floating Bridge and Landings (King)	Dec-2013		Additional funding is required to complete this project. WSDOT and the contractor are negotiating to resolve issues related to funding which arose due to delays and repairs on SR 520 pontoon construction.
SR 520 Pontoon Construction (Grays Harbor, King)	Dec-2013		Construction materials problems have delayed the schedule. Repair work on the pontoons has delayed the schedule for this project and the related project (above) to allow time for the repairs.
SR 520/Medina to SR 202 Vicinity – Eastside Transit and HOV (King)	Dec-2013		Contractor delays due to pontoon construction repairs continue to delay the project.
SR 167/8th St. East Vicinity to South 277th St. Vicinity – Southbound Managed Lane (King, Pierce)	Nov-2013	Dec-2013	The design of this project has changed to address three culvert improvements in the SR 167 vicinity. The change was approved and the project has been removed from the Watch List.

Table continued on p. 48

Watch List keeps an eye on WSDOT's projects

Table continued from p. 47

Project (County)	Date added	Date removed	Watch List issue
I-5/Portland Ave. to Port of Tacoma Rd. – Southbound HOV (Pierce)	Oct-2013		The advertisement was delayed due to the cancellation of the bid opening for the related I-5/Portland Ave. to Port of Tacoma Rd. – Northbound HOV project.
U.S. 12/East of Clear Creek Falls Viewpoint – Road Washout Repair (Yakima)	Oct-2013	Oct-2013	Emergency repairs to reopen a section of U.S. 12 that was closed due to slope failure came in above estimates due to geotechnical cost increases. The cost increase was approved and the project has been removed from the Watch List.
SR 16/Anderson Creek Tributary to Sinclair Inlet – Fish Barrier Removal (Kitsap)	Oct-2013		Cultural resource work following the discovery of shell midden and additional work zone traffic control are resulting in schedule and cost increases. The project is being deferred for approximately two years.
SR 307/Dogfish Creek – Fish Barrier Removal (Kitsap)	Oct-2013		This project has been delayed until additional funding is acquired. The project is being deferred for approximately two years.
SR 507/Lacamas Creek Tributary to Muck Creek – Fish Barrier Removal (Pierce)	Oct-2013		This 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.
SR 542/Hedrick Creek – Fish Barrier Removal (Whatcom)	Oct-2013		This project has been delayed until additional funding is acquired. Construction was deferred to accelerate scoping and design on other projects.
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. Also delaying the project is slower-than-expected progress on construction of a wall supporting the westbound lanes due to unanticipated voids in the existing embankment.
SR 302/Key Peninsula Highway to Purdy Vicinity – Safety & Congestion (Pierce)	Sep-2013		The advertisement date may be delayed to complete right of way acquisition and utility relocation work. This may also delay the completion date.
I-5/M St. to Portland Ave. – HOV (Pierce)	Jul-2013		The cost has increased and there is increased construction work due to a bridge demolition and shaft obstructions.
SR 16/Tacoma Narrows Bridge – Replace Maintenance Traveler (Pierce)	Jul-2013		The budget and schedule are at risk. Design revisions due to issues with the rail the maintenance traveler moves along have increased costs on this project and may delay the schedule.
SR 532/Davis Slough Bridge Replacement – Widening for Flood Prevention (Island, Snohomish)	Apr-2013		Design work due to ongoing environmental permitting issues delayed the schedule.
I-5/Portland Ave. to Port of Tacoma Rd. – Northbound HOV (Pierce)	Feb-2013		Coordination with tribal concerns puts the schedule at risk. Ongoing negotiations with the Puyallup Tribe of Indians on project impacts delayed the schedule and the bid opening was canceled.
SR 3/Belfair Area – Widening and Safety Improvements (Mason)	Feb-2013		The schedule at risk due to a complex right of way acquisition.

Data source: Capital Program Development and Management, WSDOT Regions.

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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)

Subject index and acronym list are online

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

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Scan the image on the left to download WSDOT's Android application. Scan the image on the right to download the iPhone application.

Android **iPhone**

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