

The Gray Notebook

WSDOT's quarterly performance report on transportation systems, programs, and department management
Quarter ending March 31, 2013 • Published May 30, 2013
Lynn Peterson, Secretary of Transportation

On the right track

Amtrak Cascades makes headway in 2012
to improve programs and performance

p. 24

A photograph of an Amtrak Cascades train, led by locomotive 469, traveling on tracks. The train is white with green and red accents. The locomotive has "Amtrak" and "469" written on it. The train is moving towards the viewer. In the background, there are green trees and a snow-capped mountain under a blue sky with light clouds.

Making Washington move

Annual report keys in on how much freight travels through
state's highways, railroads, ports and airports

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Keeping ferries and docks in ship shape

WSDOT working hard to preserve vessels and terminals in the
Puget Sound, San Juan Islands and Strait of Juan de Fuca

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Lynn Peterson brings new vision to WSDOT

The Washington State Department of Transportation welcomed new Secretary Lynn Peterson earlier this year. As WSDOT's new leader, she has quickly immersed herself in this state's highways, ferries, transit, trains, bicycle and pedestrian programs and projects.

Peterson is an advocate for smart land use and creating healthy, livable communities. The former highway engineer and transportation planner is currently working with Governor Jay Inslee and WSDOT staff to develop a strategic plan for the state.

"The innovations for transportation in the future will only come from understanding the complexity of the system that we live in now," she said.

Before joining WSDOT, Peterson served as the Sustainable Communities and Transportation policy advisor to Governor John Kitzhaber of Oregon. She also served as the chair of the Clackamas County Commissioners, and is a nationally-recognized transportation and land-use integration expert.



The *Gray Notebook* begins its 13th year of publication

WSDOT's quarterly performance report, the *Gray Notebook* promotes accountability and transparency throughout the agency while digging deep to explain the underlying reasons behind its successes and challenges.

Efforts to further improve content, design and overall readability continue as the *Gray Notebook*'s evolution progresses. This edition marks the publication's 13th year and includes annual reports on WSDOT's highway system safety program, ferries vessel and terminal preservation, trucks, goods and freight, and more. A new feature called "notable results" introduces each article, giving readers the opportunity to know the bottom line up front. The following pages present information on WSDOT's performance for the quarter ending March 31, 2013. Highlights from this edition include:

- The number of workdays lost due to workplace injuries or illnesses decreased 39 percent for the first quarter of 2013 compared to the same quarter in 2012. (pp. 2-3)
- WSDOT's 45 safety projects constructed with Nickel and Transportation Partnership Account gas tax funding resulted in a reduction of serious injury and fatal collisions by 32.5 percent in the six-year period after they were constructed. (pp. 4-6)
- An estimated 22.3 million travelers visited WSDOT rest areas in 2012. (pp. 7-8)
- Electric vehicle charging stations were installed at two rest areas on Interstate 5 in 2012. (pp. 10-11)
- Approximately 87 percent of state ferry terminals are in fair or better condition. (pp. 12-16)
- Tolling resulted in a reduction of more than 14,000 vehicles on State Route 520 (SR 520) during commute hours. Slightly more than half of the traffic from SR 520 diverted to Interstate 90. (pp. 18-23)
- WSDOT is investing \$16.1 million in slope stabilization improvements along rail tracks commonly impacted by mudslides. pp. 24-25)
- WSDOT's Incident Response program responded to 9,396 incidents in the first quarter of 2013, clearing scenes in an average of 13 minutes. (pp. 26-28)
- Washington State Ferries exceeded its 95 percent on-time performance goal with 97.8 percent of trips on time in the third quarter of fiscal year 2013, January 1 through March 31. (pp. 29-31)
- WSDOT achieved nearly 3,000 "likes" on Facebook and gained nearly 9,000 followers of the agency's Twitter feed in 2012. (p. 32)
- WSDOT has constructed and monitored 220 wetlands and stream mitigation sites on 1,047 acres since 1988. (pp. 34-36)

See additional highlights on the next page

Introduction

Gray Notebook begins its 13th year of publication, *continued*

- Forty-four percent of Washington's workforce is in freight-dependent industries, such as agriculture and retail. (pp. 38-44)
- Commercial Vehicle Information Systems and Networks program weigh station bypasses saved an estimated 101,000 hours of travel time and \$12.4 million in operating expenses for the trucking industry operating on Washington highways. (pp. 45-46)
- WSDOT completed three Nickel and Transportation Partnership Account funded projects between January 1 and March 31. (pp. 48-66)
- As of March 31, 2013, WSDOT has completed two of 21 federally-funded passenger rail projects. (p. 67)
- WSDOT has 6,620 permanent full-time employees as of March 31, 2013, 2 percent fewer than one year ago. (pp. 70-71)
- Thirteen WSDOT employees have received training in Lean, which provides tools for creating a more efficient workplace. (pp. 76-78)



On this quarter's cover:

An Amtrak Cascades train cruises down the rails near Puyallup on a perfect Northwest day. Photo by WSDOT photographer Bruce Ikenberry.

Where is the Contributor's List page?

The work of several people goes into the writing, editing and production of the Gray Notebook. The efforts of data analysts, engineers, project leads, and many more individuals who collaborate behind the scenes are reflected on these pages.

In the interest of continuing toward a leaner profile, while not diminishing the collaboration of those who produce the Gray Notebook, this edition lists the individual contributors at the end of each article.

The Gray Notebook performance analysis team includes Bradley Bobbitt, Sreenath Gangula, Joe Irwin, Todd Lamphere, Sarah

Lowry, Anna St. Martin, Alison Wallingford, Joanne Wearley and Yvette Wixson.

The graphics team includes Jinger Hendricks, Diana Lessard, Jessie Lin, Fauziya Mohamedali and Steve Riddle.

The publishing and distribution team includes Jordan Hansen, Linda Pasta, Trudi Phillips and Deb Webb.

Information is presented on a preliminary basis as appropriate and available for internal management use; it is subject to correction and clarification. Online versions of this publication are available at <http://www.wsdot.wa.gov/accountability/>.

Linking Performance Measures to Strategic Goals

This table illustrates the alignment of WSDOT's performance measures with the six statewide transportation policy goals and the WSDOT strategic business plan, *Business Directions*. For more information on navigating the WSDOT information stream, see p. 81.

State policy goal: Safety To provide for and improve the safety and security of transportation customers and the transportation system.

WSDOT business direction Vigilantly reduce risks and improve safety on all state-owned transportation modes; reduce fatalities and serious injuries; assist local communities in identifying effective strategies to transportation safety needs.

Key WSDOT performance measures	Reporting cycle	Most recent GNB report
Number of traffic fatalities	annual	GNB 46, p. 4
Rate of traffic fatalities per 100 million miles traveled	annual	GNB 46, p. 4
Percent reduction in collisions before and after state highway improvements	annual	GNB 45, p. 5
Number of recordable workplace injuries and illnesses	quarterly	GNB 49, p. 3

State policy goal: Preservation To maintain, preserve and extend the life and utility of prior investments in transportation systems and services.

WSDOT business direction Catch up with all necessary maintenance and preservation needs on existing highways, bridges, facilities, ferry vessels and terminals, airports, and equipment, while keeping pace with new system additions.

Key WSDOT performance measures	Reporting cycle	Most recent GNB report
Percent of state highway pavement in fair or better condition	annual	GNB 48, p. 10
Percent of state bridges in fair or better condition	annual	GNB 46, p. 8
Percent of targets achieved for state highway maintenance activities	annual	GNB 48, p. 18
Number of ferry vessel life-cycle preservation activities completed	annual	GNB 45, p. 16
Percent of ferry terminals in fair or better condition	annual	GNB 49, p. 13

State policy goal: Environment To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities and protect the environment.

WSDOT business direction Protect and restore the environment while improving and maintaining Washington's transportation system.

Key WSDOT performance measures	Reporting cycle	Most recent GNB report
Conformance of WSDOT projects and programs with environmental legal requirements	annual	GNB 47, pp. 31-40
Number of fish passage barriers fixed and miles of stream habitat opened up	annual	GNB 48, p. 34
Number of WSDOT stormwater treatment facilities constructed or retrofitted	annual	GNB 45, p. 34
Number of vehicle miles traveled	annual	GNB 46, p. 17
Transportation-related greenhouse gas emissions (measure to be developed)		

State policy goal: Mobility (Congestion Relief) To provide for the predictable movement of goods and people throughout the state.

WSDOT business direction Move people, goods, and services reliably, safely and efficiently, by adding infrastructure capacity strategically, operating transportation systems efficiently, and managing demand effectively.

Key WSDOT performance measures	Reporting cycle	Most recent GNB report
Travel times and hours of delay on state highways	annual	GNB 46, p. 17
Reliable travel times on the most congested state highways around Puget Sound area	annual	GNB 49, p. 19
Percentage of commute trips while driving alone	annual	GNB 38, p. 32
Average length of time to clear major incidents lasting more than 90 minutes on key highway segments	quarterly	GNB 49, p. 27
Ferry ridership	quarterly	GNB 49, p. 31
Ferry trip reliability	quarterly	GNB 49, p. 30
Percent of ferry trips on time	quarterly	GNB 49, p. 29
Amtrak Cascades ridership	quarterly	GNB 49, p. 24
Percent of Amtrak Cascades trips on time	quarterly	GNB 49, p. 24

State policy goal: Stewardship To continuously improve the quality, effectiveness and efficiency of the transportation system.

WSDOT business direction Enhance WSDOT's management and accountability processes and systems to support making the right decisions, delivering the right projects, and operating the system efficiently and effectively in order to achieve the greatest benefit from the resources entrusted to us by the public.

Key WSDOT performance measures	Reporting cycle	Most recent GNB report
Capital project delivery: on time and within budget	quarterly	GNB 49, p. 48
Recovery Act-funded project reporting (Rail)	quarterly	GNB 49, p. 67

State policy goal: Economic Vitality To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy.

WSDOT business direction Provide and operate a strong and reliable transportation system that efficiently connects people with jobs and their communities, moves freight, builds partnerships with the private sector, and supports a diverse and vibrant economy.

Key WSDOT performance measures	Reporting cycle	Most recent GNB report
Gray Notebook report on Freight	annual	GNB 49, p. 38
Gray Notebook report on Rail Freight	semi-annual	GNB 49, p. 43
Gray Notebook report on Transportation Economic Indicators	quarterly	GNB 48, p. 40

WSDOT's Performance Dashboard



Goal has been met.



Performance is trending in a favorable direction.



Trend is holding.



Performance is trending in an unfavorable direction.

Policy goal/Performance measure	Previous reporting period	Current reporting period	Goal	Goal met	Progress	Comments
Safety						
Rate of traffic fatalities per 100 million vehicle miles traveled (VMT) statewide (Annual measure: calendar years 2010 & 2011)	0.80	0.80	1.00			The rate of highway fatalities held steady (a lower rate is better). But the total is the lowest since 1954.
Rates of recordable incidents and days away, restricted or transferred for every 100 WSDOT workers ¹ (Cumulative year to date 2012 & 2013)	4.6/ 2.2	4.2/ 1.3	5.0/ N/A	 N/A		Both the rate of worker injuries and the incident rate requiring days away from work improved.
Preservation						
Percentage of state highway pavement in fair or better condition (Annual measure: calendar years 2010 & 2011)	92.0%	90.5%	90.0%			A 1.5 percent decrease from previous year. Pavement condition has been declining since 2008.
Percentage of state bridges in fair or better condition ⁷ (Annual measure: fiscal years 2011 & 2012)	95.0%	95.0%	97.0%	—		Structural condition ratings criteria continue to be a challenge.
Mobility (Congestion Relief)						
Highways: annual (weekday) vehicle hours of delay statewide at maximum throughput speeds ² (Annual measure: calendar years 2009 & 2011)	28.1 million	32.5 million	N/A	N/A		Increase of 16 percent from 2009 to 2011, with 2009 being the least congested year in past five years.
Highways: Average clearance times for major (90+ minute) incidents on nine key western Washington corridors (Calendar quarterly measure: Q4 2012 & Q1 2013)	161 minutes	143 minutes	155 minutes			Average clearance time decreased for the quarter, and met the goal of 155 minutes.
Ferries: Percentage of trips departing on time ³ (Fiscal quarterly measure: year to year: Q3 FY2012 & Q3 FY2013)	96.3%	97.8%	95%			Performance is higher than the same quarter a year ago and exceeds the goal.
Rail: Percentage of Amtrak Cascades trips arriving on time ⁴ (Calendar quarterly measure: year to year Q1 2012 & Q1 2013)	68%	71%	80%	—		On-time performance improved over the same quarter last year and did not meet the goal.
Environment						
Cumulative number of WSDOT stormwater management facilities constructed or retrofitted ⁵ since 1995 (Annual measure: calendar years 2010 & 2011)	Over 800	Over 1,037	N/A	N/A		Stormwater facilities will now be constructed under a new permit, with new requirements.
Cumulative number of WSDOT fish passage barrier improvements constructed since 1990 (Annual measure: calendar years 2011 & 2012)	257	269	N/A	N/A		Past reporting period number was corrected from 258 to 257.
Stewardship						
Cumulative number of Nickel and TPA projects completed, and percentage on time ⁶ (Calendar quarterly measure: Q4 2012 and Q1 2013)	341/ 88%	344/ 88%	90% on time	—		Performance remained the same this quarter and did not meet goal by a small margin.
Cumulative number of Nickel and TPA projects completed and percentage on budget ⁶ (Calendar quarterly measure: Q4 2012 and Q1 2013)	341/ 91%	344/ 91%	90% on budget			Performance improved over last quarter and continued to meet the goal.
Variance of total project costs compared to budget expectations ⁶ (Calendar quarterly measure: Q4 2012 and Q1 2013)	under budget by 1.3%	under budget by 1.4%	on budget			Total Nickel and TPA construction program costs are within 1.4 percent of budget.

Notes: N/A means not available: new reporting cycle data not available or goal has not been set. Dash (—) means goal was not met in the reporting period.

1 Recordable incident rate reported as the number of incidents for every 100 full-time employees; the days away, restricted or transfer (DART) rate is a subset of the recordable incident rate (RIR), and reports the number of incidents requiring time off or affecting on-the-job duties for every 100 full-time employees.

2 Compares actual travel time to travel time associated with "maximum throughput" speeds, where the greatest number of vehicles occupy the highway system at the same time (defined as 70 to 85 percent of the posted speeds).

3 "On-time" departures for Washington State Ferries includes any trip recorded by the automated tracking system as leaving the terminal within 10 minutes or less of the scheduled time.

4 "On-time" arrivals for Amtrak Cascades are any trips that arrive at their destination within 10 minutes or less of the scheduled time. See page 24.

5 Number of estimated facilities in permitted counties: Clark, King, Pierce, and Snohomish.

6 Budget and schedule expectations are defined in the last approved State Transportation Budget. See page 49 for more information on capital projects in the current 2012 Legislative Transportation Budget.

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

New federal legislation mandates performance-based management

On July 6, 2012, President Barack Obama signed the Moving Ahead for Progress in the 21st Century Act (MAP-21). This federal legislation funds transportation investments for federal fiscal years 2013 and 2014 (October 1, 2012 through September 30, 2014). The cornerstone of this law is the transition to a performance and outcome-based federal aid program. The *Gray Notebook* is an example of how WSDOT conducts performance reporting.

The primary objectives of MAP-21 are to increase the transparency and accountability of states for their investment of taxpayer dollars into transportation infrastructure and services nationwide, and to ensure that states invest money in transportation projects that collectively make progress toward the achievement of these national goals:

- Improve safety
- Maintain and improve infrastructure condition
- Reduce congestion
- Improve system reliability
- Support freight movement and economic vitality
- Ensure environmental sustainability
- Reduce project delivery delays

This is the first time that all state departments of transportation (DOTs) and Metropolitan Planning Organizations (MPOs) are required to track and report performance data using a national framework of consistent performance measures. The new measures are applied within four program areas: the Highway Safety Improvement Program, the National Highway Performance Program, the Congestion Mitigation and Air Quality (CMAQ) Program and the National Freight Movement Program.

State DOTs and MPOs are expected to coordinate to set targets for national measures in these program areas. MAP-21 legislation includes some penalties in terms of restrictions to a state's federal funds if the state does not meet its targets in a given time period.

USDOT will establish new performance measures

The U.S. Department of Transportation (USDOT) is going through a process called "rule-making" through which it will develop the details that control

the implementation of performance measurement and reporting. WSDOT continues to provide input into this rule-making process and evaluate any of its policies affected by the implementation of MAP-21 rules.

The projected timing for USDOT to issue rules for the performance goals is shown in the table below.

Staged rule-making schedule for MAP-21

Single effective date of rule package
spring 2015

Measures	Safety	Infrastructure	System Performance, Freight, CMAQ ¹
Oct - Dec 2012	Consultation / Notice of proposed rule-making		
Jan - Mar 2013			
Apr - Jun 2013			
Jul - Sep 2013			
Oct - Dec 2013	Comments		
Jan - Mar 2014	Final rule	Comments	
Apr - Jun 2014		Final rule	Comments
Jul - Sep 2014			Final rule
Oct - Dec 2014			
Jan - Mar 2015			

Data source: Jeffrey F. Paniati, P.E., Federal Highway Administration, January 13, 2013.
Note: 1 Congestion Mitigation and Air Quality (CMAQ).

Challenges and opportunities ahead

During these times of severe fiscal constraints, it is important to demonstrate the benefits of transportation investments. This applies to the local, state, and national levels and hits home with taxpayers nationwide. It is clear that this new process will provide both challenges and opportunities for state DOTs and MPOs.

- Following publication of the final rules, state DOTs, in partnership with their MPOs, will have 12 months to develop performance targets for each of the new nationally-established performance measures. The partnership is to ensure consistency.
- MPOs must establish their performance measures six months after state DOTs, in partnership with state DOTs and local providers of public transportation to ensure consistency.
- MAP-21 performance measures apply to the National Highway System, which in Washington state was expanded by 37 percent in 2012 to include an additional 3,986 lane-miles. The baseline condition data for some of the local roads added to the system is not yet available.

MAP-21 federal performance reporting requirements dashboard

MAP-21 program areas by goal	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 ⁶	Yes	Traffic fatality rates using the NHTSA ⁴ methodology. <i>Gray Notebook 50</i> (to be published August 2013) is expected to include an update on MAP-21 fatality rate implications
Rate of traffic serious injuries per million vehicle miles traveled (VMT) on all public roads	No	TBD	Yes	Serious injury rates using the NHTSA ⁴ methodology. <i>Gray Notebook 50</i> (to be published August 2013) is expected to include an update on MAP-21 serious injury rate implications
Number of traffic fatalities statewide	No	TBD	Yes	Traffic fatalities using the NHTSA ⁴ methodology. <i>Gray Notebook 50</i> (to be published August 2013) is expected to include an update on MAP-21 fatality rate implications.
Number of traffic serious injuries on all public roads	No	TBD	Yes	Serious injuries using the NHTSA ⁴ methodology.
Rate of per capita traffic fatalities for drivers and pedestrians 65 or more years of age	No	TBD	No	Traffic fatalities for pedestrians 65 or more years of age. See <i>Gray Notebook 48</i> , 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	To be determined	TBD	Yes	Pavement structural and functional condition. See <i>Gray Notebook 48</i> , 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 ⁵ bridges	TBD	Yes	Several measures of bridge condition including good/fair/poor condition rating and structural deficiency (SD) rating. <i>Gray Notebook 50</i> (to be published August 2013) is expected to include an update on MAP-21 bridge condition implications
Measures to be determined through federal rule-making	No	TBD	No	<i>Congestion Report</i> detailing 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 p. 41 of this issue 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	<i>Congestion Report</i> detailing 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 Strategic Assessment Office.

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 NHTSA = National Highway Traffic Safety Administration. 5 SD = structurally deficient. 6 TBD = To be determined. 7 NEPA= National Environmental Policy Act.



Safety at a glance

Worker Safety Quarterly Update

2

- *WSDOT's agency-wide rate of employee injuries that require days away, restricted duty, or job transfer improved 41 percent in the first quarter of 2013 compared to the same period in 2012*
- *The number of workdays lost due to workplace injuries or illnesses decreased 39 percent from the first quarter of 2012 to 2013*

Highway System Safety Program Quarterly Focus

4

- *WSDOT's safety projects resulted in a reduction of serious injury and fatal collisions by 32.5 percent from 2004 to 2011*
- *WSDOT provided \$26.7 million for 54 selected safety projects through the 2013 Quick Response Safety Program*

Safety Rest Areas Annual Safety Report

7

- *An estimated 22.3 million travelers visited WSDOT rest areas in 2012, about 9 percent more than in 2011*

State policy goal

To provide and improve the safety and security of transportation customers and the transportation system.

WSDOT's business direction

Vigilantly reduce risks to improve safety on all state-owned transportation modes; reduce fatalities and serious injuries; assist local communities in identifying effective solutions to transportation safety needs.

Notable results

- **WSDOT saw a 13 percent decrease in the number of recordable incidents which is a 9 percent improvement from the same quarter in 2012**
- **Days away due to workplace injuries and illnesses dropped 39 percent in the first quarter of 2013, compared to the same quarter a year ago**

New goals set to continue reducing on-the-job injuries at WSDOT

WSDOT reported 13 percent fewer Occupational Safety and Health Administration (OSHA) recordable incidents, with 63 in the first quarter of 2013 (January 1 to March 31), compared to 72 in first quarter of 2012. WSDOT is guided by the core value that every employee should leave work at the end of their shift just as healthy as when they started. Employee safety is a hallmark of WSDOT’s culture; employees are tasked to strive for workplace “safety every day, every action, every employee,” whether they are in an office or at a workzone on a busy interstate.

WSDOT is on track to reduce incident rate

WSDOT’s Safety and Health Champions team challenged each of WSDOT’s six regions, Headquarters, and the Ferries Division to reduce their 2012 recordable incident rate (RIR) by at least half a point in 2013. The agency had a recordable incident rate of 5.5 for every 100 full-time employees at the end of 2012; WSDOT’s agency-wide goal is a rate of 5.0 or less at the end of 2013. WSDOT is on track to meet its goal with a rate of 4.2 for the first quarter of 2013, 9 percent below its rate in the first quarter of 2012.

WSDOT’s Headquarters office led the way by reducing its incident rate from 4.3 in the first quarter of 2012 to 0.3 in the first quarter of 2013 (12 fewer incidents, 93 percent). Headquarters is below its 2013 incident reduction goal. Four WSDOT regions (Northwest, Olympic, South Central and Southwest) are also below their 2013 incident reduction goals.

The recordable incident rates for these regions varied between a 34 percent improvement and a 21 percent worsening between the first quarters of 2012 and 2013. The incident rate for Washington State Ferries worsened by 8 percent, but is still below its 2013 reduction goal. Eastern and North Central regions’ incident rates for the first quarter of 2013 increased and are higher than their goals for 2013. Eastern Region employees sustained four additional

WSDOT’s recordable incident rate¹ improves for 2013

First quarter (Q1) 2012 and 2013; Number of recordable incidents for every 100 full-time employees

	Q1 2012	Goal 2013	Q1 2013	Q1 2012-2013 rate % change ²
Eastern	4.9	8.3	9.5	94%
Headquarters	4.3	2.5	0.3	-93%
North Central	6.0	6.6	10.2	70%
Northwest	4.7	5.2	5.1	9%
Olympic	5.9	5.0	3.9	-34%
South Central	4.7	6.1	5.7	21%
Southwest	4.1	5.6	3.8	-7%
Subtotal	4.8	4.9	4.2	-13%
Ferries Division	3.8	5.0	4.1	8%
Agency-wide	4.6	5.0	4.2	-9%

Data source: WSDOT Office of Human Resources and Safety.

Notes: 1 The recordable incident rate is calculated as the count of recordable incidents multiplied by 200,000 hours (approximate number of hours worked by 100 employees in one year), divided by the total hours worked. 2 Incident rate changes: improved = decrease (-%); worsened = increase (+%).

Metrics track injury frequency, severity

WSDOT focuses on the agency’s overall recordable incident rate (RIR) as the primary measure to gauge employee safety. This cumulative (year to date) rate is the number of OSHA-recordable incidents reported for every 100 full-time employees. “OSHA-recordable incidents” is an industry standard measure that includes all work-related illnesses and injuries.

A second measure for employee safety is the cumulative rate for “days away, restricted, or transferred” (DART). This is a subset of the overall recordable incident rate, and measures the rate of recordable incidents that keep employees away from work, on restricted duty, and/or require a job transfer. The DART rate indicates the relative severity of incidents.

Tracking the incident rate helps the agency better address employee safety, and to identify problem areas and progress in preventing work-related injuries and illnesses. See *Gray Notebook* 47, p. 2, for additional details about the DART and recordable incident rates.

Lost workdays decrease 39 percent; number of incidents trends down

WSDOT's "days away" rate¹ improves for 2013

First quarter (Q1) 2012 and 2013; Rate of recordable incidents involving days away, restricted duty, and/or job transfer (DART)

	Q1 2012 ²	Q1 2013	Q1 2012-2013 rate % change ³
Eastern	0.0	1.1	N/A
Headquarters	0.3	0.0	-100%
North Central	6.0	1.7	-72%
Northwest	2.8	1.4	-50%
Olympic	3.6	0.0	-100%
South Central	2.4	0.8	-67%
Southwest	4.1	1.9	-54%
Subtotal	2.3	0.8	-65%
Ferries Division	1.9	2.7	42%
Agency-wide	2.2	1.3	-41%

Data source: WSDOT Office of Human Resources and Safety, Washington State Ferries (WSF), Washington State Department of Labor and Industries (L&I).

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, and divided by the total hours worked. 2 WSDOT identified a formula calculation error in the 2012 data resulting in 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 previous editions of the *Gray Notebook*. 3 Incident rate changes: improved = decrease (-%); worsened = increase (+%).

injuries this quarter while North Central had only two additional incidents compared to the first quarter of 2012.

The leading contributors to the reduced workplace incidents include the agency's continued focus on worker safety, a milder winter, and increased site visits by safety office staff conducting root-cause analyses and safety training.

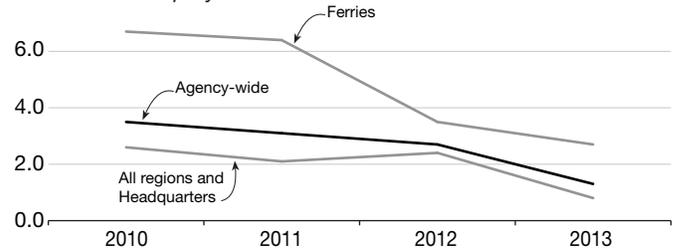
Days away, restricted duty, or job transfer incidents down

WSDOT's agency-wide days away, restricted duty, or job transfer (DART) rate was 1.3 in the first quarter of 2013, 41 percent better than the same period in 2012, when it was 2.2. Similarly, Headquarters and five of WSDOT's regions improved their DART rates during this time, each by at least 50 percent. Headquarters and Olympic Region led the way with a rate of zero for this period, as shown in the table above. The DART rates for the Eastern Region and the ferries division worsened from one year ago.

The graph above right illustrates the longer term trend for DART rates. The agency-wide rate showed a 63 percent improvement, from 3.5 incidents involving days away, restricted duty, and/or job transfer for every 100 full-time employees in 2010, to 1.3 incidents in the first quarter of 2013. WSDOT's regions and Headquarters showed a combined improvement of 69 percent, from

WSDOT "days away" rate¹ trends downward

2010 through 2013; Number of recordable incidents involving days away, restricted duty, and/or job transfer (DART) for every 100 full-time employees



Data source: WSDOT Office of Human Resources and Safety, Washington State Ferries (WSF), Washington State Department of Labor and Industries (L&I).

Note: 1 The "days away" or DART rate is calculated as the count of recordable incidents involving days away, restricted duties, or transfer, multiplied by 200,000 hours and divided by the total hours worked.

2.6 in 2010, to 0.8 in the first quarter of 2013; the ferries division improved 60 percent during the same period.

Lost workdays decrease 39 percent

During the first quarter of 2013, WSDOT employees lost 457 workdays to work-related incidents compared to the same period in 2012, when employees lost 755 workdays. Engineering and administrative staff did not have any workplace-incident-related days away in the first quarter of 2013. While there were close to the same number of days away for ferries and maintenance employees, the average number of days away per incident was almost three times as high for the ferries division employees during the first quarter of 2013.

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OSHA-recordable injuries sustained and workdays lost by category of worker decline from last quarter

January 1 through March 31, 2013, and comparable calendar quarters (Q1 and Q4 2012)

	Number of injuries			Percent of all injuries	Days away from work
	Q1 2012	Q4 2012	Q1 2013		
Highway maintenance	36	44	35	56%	208
Highway engineering	16	7	11	17%	0
Admin. staff	6	1	2	3%	0
Ferry division	14	20	15	24%	249
Total	72	72	63	100%	457

Data source: WSDOT Office of Human Resources and Safety.

Notes: The U.S. Coast Guard requires maritime employees to be 100 percent fit for duty before they may return to work. Some ferry system employees are not able to return to work either part-time or in a limited capacity following an injury. The fourth quarter (Q4) of 2012 is included as a comparable quarter as it was the most recent reporting period.

Notable results

- **There was a 20 percent reduction in all types of officer-reported collisions from 2005-2011**
- **Serious injury and fatal collisions decreased about 24 percent from 2005 to 2011**

Safety investments show benefits

WSDOT's Before and After analysis shows the 45 safety projects constructed as part of the Nickel and Transportation Partnership Account gas tax funding are having sustained safety benefits for drivers. These projects continue to demonstrate improved results six years after completion. The Before and After analysis shows positive changes in all collision types, including those resulting in serious injuries and fatalities. This demonstrates how safety enhancement projects are complementing the state's efforts to achieve Target Zero (to end traffic deaths and serious injuries by 2030), the basis of Washington State's Strategic Highway Safety Plan. See *Gray Notebook* 46, p. 5.

The table below shows improvements in all collision categories. For each collision category involving injuries or fatalities, a reduced number of collisions occurred in the six-year (extended) analysis period compared to the two- or three-year (original) analysis period (see *Gray Notebook* 32, pp. 5-7).

The **All types** of collisions category showed a safety benefit, reversing the increase of 4.7 percent in the first two to three years, to a decrease of 2.1 percent in six years.

WSDOT's Before and After analysis for 45 safety projects shows sustained benefits

2004 through 2011; Average collisions per year for 45 projects; Officer-reported collisions only

	All types	Property damage only	All injury/fatal	Serious injury/fatal
Before period (Three years)	1,816	1,090	726	70
Original After period (Two or three years)	1,900	1,218	682	53
Extended After period (Six years)	1,778	1,183	595	47
Percent change (Original two or three years)	4.7%	11.7%	-6.0%	-23.9%
Percent change (Six years)	-2.1%	8.5%	-18.1%	-32.5%

Data source: WSDOT Statewide Travel and Collision Data Office.

The **Property-damage-only** collisions category indicates an improvement of 3.2 percent in six years, when compared to the original After analysis. Property-damage-only collisions typically increase after installing a barrier within a wide median. Vehicles may have minor collisions with the barrier instead of stopping or redirecting in the median.

The **All injury/fatal** collisions category reflects a 12.1 percent improvement in safety benefit – 18.1 percent (original After period), compared to 6.0 percent (extended After period).

The **Serious injury/fatal** collisions category reflects an 8.6 percent improvement in safety benefit – 32.5 percent (original After period), compared to 23.9 percent (extended After period).

WSDOT has analyzed collision trends statewide from 2004 through 2011, and traffic volume trends specifically associated with the projects. This is to assure study areas were not affected by larger than average changes in traffic volumes, and the decrease in collisions was the result of the projects.

Statewide collisions on highways trend downward

2004 through 2012; Annual average daily vehicle miles traveled (VMT) in millions; Officer-reported collisions only

Year	Collision types by injury severity				Average daily VMT ²
	All types	Property damage only	All injury/fatal	Serious injury/fatal	
2004	114,268	73,438	40,830	2,791	4.85
2005	123,158	79,155	44,003	2,961	4.85
2006	122,171	79,632	42,539	3,054	4.90
2007	118,829	78,593	40,236	2,853	4.95
2008	110,486	73,864	36,622	2,642	4.75
2009	103,006	67,933	35,073	2,712	4.90
2010	101,883	67,787	34,096	2,537	4.90
2011	98,957	65,779	33,178	2,264	4.90
2012 ¹	n/a	n/a	n/a	n/a	4.90

Data source: WSDOT Statewide Travel and Collision Data Office.

Notes: 1 2012 collision data was not available at the time of publication. 2 VMT not available for the SR 16/Wollochet Drive Signal project or part of the SR 512/Eastbound Off Ramp to Pacific Avenue project.

Statewide collisions show downward trend

Statewide collision data: Statewide collisions show a downward trend in all types of officer-reported collisions from 2005 to 2011, a reduction of 20 percent in these seven years (123,158 to 98,957). Similarly, serious injury/fatal collisions decreased about 24 percent (2,961 to 2,264) during the same period. The analysis shows that the 45 safety projects are making a difference – there have been fewer serious injury/fatal collisions on a percentage basis in the project vicinities, compared to the same collision types on all public roads statewide.

Daily vehicle miles traveled: The average annual daily vehicle miles traveled (VMT) table on page 4 shows that the VMT remained relatively stable across all reported years. This indicates the combined collision reductions from these 45 projects were not influenced by changes in the average daily vehicle miles traveled.

Earlier projects provide source for safety analysis *Gray Notebook* 32, pp. 5-7, provided a Before and After analysis on 47 projects that was used as the foundation for the current analysis. The date range for all completed projects reviewed in the study was October 1, 2004, through September 30, 2006. Of the original 47 projects, only 45 could be used for the current study. Two projects were removed: the State Route 18 (SR 18) Westbound to Interstate 5 (I-5) Signing project (due to further ongoing projects in the immediate area), and the SR 542 Coal Creek vicinity to Excelsior Trail (due to difficulty determining the appropriate project boundaries to use for extracting collision records).

In previous *Gray Notebooks*, Before and After project analysis used both officer- and citizen-reported collision reports. However, state law enforcement stopped storing collision reports submitted by citizens in 2009. To ensure a consistent measure, WSDOT used only data from officer-submitted collision reports for this study. As a result, numbers reflected within this study may not match the original numbers published in *Gray Notebook* 32, pp. 5-7.

WSDOT Before and After safety analysis typically uses data from three years before

project construction, and two or three years after the project is complete. In order to analyze the sustained project benefits, this analysis used three years of data Before, and six years of data After, the construction of each project. For more details about these 45 projects, go to <http://www.wsdot.wa.gov/Accountability/Publications/PerformanceDocuments.htm#graynotebook>.

Four-strand cable barrier providing good results

WSDOT's preliminary analysis shows there have been no serious or fatal injury collisions against its 81 miles of four-strand, high-tension cable median barrier since it was first installed in 2009.

The table below shows the performance of four-strand, high-tension cable median barrier from 2009 to 2011. During the three years the system has been in place, the data has shown promising results.

The emphasis for this analysis is on the preliminary results for serious and fatal injury collisions for cross-median collision rates, defined as the number of collisions per 100 million vehicle miles travelled (100 million VMT).

The overall cross-median collision rate for the four-strand, high-tension cable barrier is 0.13 per 100 million VMT. Within the analysis period, there were no fatal cross-median collisions with the four-strand cable barrier system (0.0 per 100 million VMT).

WSDOT's cable median design standard calls for installation of four-strand cable median barriers

In 2009, WSDOT updated the design guidance to install four-strand, high-tension cable median barrier systems in areas receiving new cable median barrier installations. This updated design guidance also specified minimum and maximum heights for the cables: the top cable is to

Four-strand cable median barrier performing well
2009 through 2011; Number of collisions and percent of total for each barrier type

Barrier type	Barrier performance	Collision type					Fatal	Total reported collisions
		Not stated	No injury	Possible injury	Evident injury	Serious injury		
Four-strand high-tension (2009-2011)	Contained in median	0	81 (81.0%)	13 (13.0%)	6 (6.0%)	0	0	100
	Redirected	0	62 (80.5%)	4 (5.2%)	11 (14.3%)	0	0	77
	Cross-median	0	2 (100.0%)	0	0	0	0	2

Source: WSDOT Design Policy and Standards Office.

Highway System Safety Programs

WSDOT grant programs enhance local agency safety efforts

be no more than 35 inches from the ground surface and the bottom cable is to be no more than 19 inches high. WSDOT expects these thresholds will help reduce the potential for vehicles to go over or under the barrier.

WSDOT supports local agency safety efforts

There were 8,491 fatal or serious injury collisions on city and county roads in Washington between 2007 and 2011. Intersection-related collisions (3,307, or 39 percent) and run-off-the-road collisions (2,937, or 35 percent) are identified as priority areas in the state Strategic Highway Safety Plan: Target Zero. WSDOT offers grant programs, such as the 2013 Quick Response Safety Program, and the Corridor Safety Program, to cities and counties to address high-priority crash locations within their jurisdictions. These grants help local agencies reduce fatal and serious injury collisions in order to achieve Target Zero for all roads in Washington state.

Quick Response Safety Program funds 54 projects

WSDOT provided \$26.7 million for 54 selected safety projects through the 2013 Quick Response Safety Program. The project selection process considers crash history and crash risk as mentioned in *Gray Notebook* 45, p. 6. The program funds projects in 25 cities and 14 counties statewide. These selected projects are expected to be advertised for construction by October 2013. In total, more than \$70 million in safety projects is scheduled for construction on local roads in 2013.

Incident Location Tool

WSDOT developed the Incident Location Tool to replace the less productive method of using online map resources to verify collision locations. WSDOT will share the tool with Washington State Patrol and other local law enforcement officers to ensure accurate data collection while in the field. This tool greatly increases WSDOT's efficiency and accuracy in processing the collision records. WSDOT's Incident Location Tool queries map layers and automatically populates several database fields such as city, county, tribal reservation name, roadway name, milepost, and the name, direction and distance to the nearest cross street from where the collision occurred. This tool also captures the latitude and longitude of the collision location to allow collisions that occurred after 2010 can be geocoded to map-based software, such as ArcGIS. It is anticipated that this tool will be available to local agencies by the end of 2013.



A four-strand, high-tension cable median barrier system.

Corridor safety program improves safety in cities

There are 235 miles of state highways (3 percent of the state highway system) that serve as streets in cities with populations greater than 25,000. These routes are another priority area for local agency safety efforts. Between 2007 and 2011, there were 852 fatal or serious injury crashes on these corridors – 17 percent of fatal or serious injury crashes on all state highways.

These segments have a disproportionately high number of collisions. Projects under the Corridor Safety Program use the four E's (Engineering, Enforcement, Education, and Emergency Medical Services) to improve safety and change driver behavior along selected roadways (see *Gray Notebook* 42, p. 4).

Aurora Avenue (SR 99) Corridor Safety Project reduces fatal and serious injury collisions by 28 percent

The Aurora Corridor Safety Project began in 2008 and was completed in 2011. WSDOT collaborated with the city of Seattle, and provided \$250,000 in federal safety funds for engineering improvements that helped reduce fatal and serious injury collisions by 28 percent along this eight-mile corridor.

Targeted driver education and law enforcement combined with many low-cost engineering improvements, such as improved signing and striping, pedestrian crossing upgrades, radar-speed-sign installations, and traffic signal upgrades helped enhance corridor safety. Following the success of this project, WSDOT and local agencies are planning for a corridor safety project along Lake City Way (SR 522) in Seattle.

Contributors include Dan Davis, John Donohue, Matt Enders, Warren Stanley, and Sreenath Gangula

Notable results

- An estimated 22.3 million visitors used WSDOT's safety rest areas in 2012, about 9 percent more than estimated in 2011
- WSDOT has 48 safety rest areas, with 28 located on the interstate system, each approximately 30 to 45 miles apart

Rest areas help improve highway safety

An estimated 22.3 million visitors used WSDOT's safety rest areas in 2012, about 1.8 million more than the 20.5 million visitors estimated in 2011. WSDOT's 48 safety rest areas contribute to improved safety on Washington's highways by providing the traveling public with opportunities to take a break from driving.

Rest area visitor estimates improve in 2012

Visitor data is estimated by tracking water use at facilities. Where numbers are unavailable or unreliable, calculations are based on average daily traffic and the percent of vehicles entering rest areas. Improved procedures and increased accuracy of water use data are contributing factors to the 9 percent increase in visitor estimates between 2011 and 2012. However, for the SeaTac rest area, improved data accuracy resulted in a decrease in the number of visitors estimated between 2011 and 2012, shown in the table on page 8.

No serious fatigue-related collisions in 2012 near WSDOT's newest rest area in Elbe

Preliminary data shows that of the three total fatigue-related collisions in 2012 in the vicinity of the Elbe Safety Rest Area, none were serious fatigue-related collisions. In the three years before the Elbe rest area opened in January 2012, there were three serious fatigue-related collisions, one in 2011, two in 2010 and one in 2009 on the same stretch of highway.

WSDOT analyzes collision data near new rest areas before and after they are built to determine the impact of rest areas on serious fatigue-related collisions. Fatigue-related collisions are defined as collisions in which the driver being "apparently asleep" or "apparently fatigued" are contributing circumstances reported by the responding law enforcement officer. Serious collisions are defined as collisions that resulted in a fatal, serious or evident injuries reported by the responding officer.

No serious fatigue-related collisions near Elbe Safety Rest Area in 2012

Annual total and serious fatigue-related collisions three years before/one year after opening in January 2012

Fatigue-related collisions ¹	Before Elbe Safety Rest Area			After ²
	2009	2010	2011	2012
Serious ³ collisions	1	2	1	0
Other collisions	3	4	0	3
Total collisions	4	6	1	3

Data source: WSDOT Capital Facilities Office.

Notes: 1 Number of fatigue-related collisions on SR 7 within 17 miles in both directions of the rest area. 2 The 2012 data is preliminary as of May 2013. 3 Serious collisions are collisions that result in a fatal, serious, or evident injuries reported by the responding law enforcement officer.

The 17 miles of highway in either direction of the Elbe rest area, located at milepost 17.12 on State Route 7 (SR 7), were analyzed for serious fatigue-related collisions before and after construction of the rest area. Collision data was collected for three years before the rest area was opened and will be collected for three years after opening.

Rest areas provide safety breaks for motorists

WSDOT has 48 safety rest areas, with 28 located on the interstate system, each approximately 30 to 45 miles apart. This is consistent with the Federal Highway Administration's recommended spacing guidelines of a rest area within every 60 minutes of drive time on highways and major arterials.

Another 20 rest areas are located on state routes and are particularly vital due to their more remote locations in areas with limited public services. However, the annual visitor use is much greater at the interstate sites, which are heavily used by commercial truck drivers.

Safety rest areas provide several benefits to the traveling public such as restrooms, traveler information, picnic areas and resting opportunities. All of these benefits contribute to improved highway safety by providing fatigued or distracted motorists a public stopping opportunity that breaks the monotony of uninterrupted highway driving, reducing the potential of motorists falling asleep behind the wheel.

WSDOT pursues sponsorship program for rest area energy efficiency

The Elbe rest area mostly serves travelers heading to and from Mount Rainier and has seasonal hours. The Elbe rest area Before and After study will continue to analyze collision data through 2014.

Previously completed analyses for three of WSDOT's newer rest areas demonstrated an average 47 percent reduction of serious fatigue-related collisions on the same segments of highway before and after each rest area was opened. For more information, see *Gray Notebook* 45, p. 9.

National Adopt-A-Watt program sponsorship may reduce energy costs at Scatter Creek

WSDOT is pursuing an opportunity with the National Adopt-A-Watt Program (NAAWP) to sponsor the replacement of existing site lighting fixtures at the Scatter Creek Safety Rest Area with energy efficient fluorescent induction lighting fixtures. NAAWP will fund this project in exchange for sponsor acknowledgment signs installed at the rest

area. The new fixtures are expected to reduce electricity consumption from the existing fixtures by up to 50 percent.

In addition to the site lighting fixture retrofit, WSDOT is partnering with NAAWP to install up to 24 solar panels that will reduce the rest area's grid-supplied electricity use.

The lighting retrofit and solar panel installation are expected to have modest savings in electrical consumption of up to \$2,000 per year, and reduce the light fixture replacement schedule from every four to five years to every 15 to 20 years. Testing of the fluorescent induction lights begins this spring.

The final sponsorship agreement will be generated in summer or fall 2013 after a feasibility review takes place to verify lighting performance, maintenance and replacement needs, and final acceptance of the agreement conditions.

Contributors include Dennis Tate and Sarah Lowry

Some 22.3 million motorists visit WSDOT's safety rest areas in 2012

Number of estimated visitors to safety rest areas in 2011 and 2012; Change between 2011 and 2012

Safety rest areas ¹	County	2011	2012	Change	Safety rest areas	County	2011	2012	Change
Total visitors statewide					<i>Interstate 90, continued</i>				
					Schrag, EB & WB	Adams	867,330	875,820	8,490
					Sprague Lake, EB & WB	Lincoln	1,292,600	1,404,670	112,070
Interstate 5					U.S. Routes				
Gee Creek, NB ² & SB	Clark	1,663,814	1,661,934	-1,880	U.S. 2 Nason Creek	Chelan	521,163	553,684	32,521
Toutle River, NB & SB	Cowlitz	2,213,445	2,313,659	100,214	U.S. 2 Telford	Lincoln	261,952	312,497	50,545
Scatter Creek, NB	Thurston	1,481,900	1,508,857	26,957	U.S. 195 Horn School	Whitman	266,480	346,368	79,888
Maytown, SB	Thurston	1,507,450	1,868,591	361,141	State Routes				
SeaTac, NB	King	1,743,532	1,528,910	-214,622	SR 7 Elbe ⁴	Pierce	NA	67,391	NA
Silver Lake, SB	Snohomish	313,244	475,739	162,495	SR 8 Elma, EB	Grays Harbor	458,153	484,128	25,975
Smokey Point, NB & SB	Snohomish	1,345,085	1,447,430	102,345	SR 12 Bevin Lake	Lewis	172,435	213,459	41,024
Bow Hill ³ , NB & SB	Skagit	538,560	590,961	52,401	SR 14 Chamberlain Lake ³	Klickitat	277,020	315,092	38,072
Custer, NB & SB	Whatcom	826,180	885,156	58,976	SR 17 Blue Lake ³	Grant	28,550	38,690	10,140
Interstate 82					SR 24 Vernita ³	Benton	189,820	250,618	60,798
Selah Creek, NB & SB	Yakima	602,163	747,145	144,982	SR 26 Hatton Coulee ³	Adams	74,033	83,411	9,378
Prosser ³	Benton	643,860	666,855	22,995	SR 28 Quincy Valley	Grant	132,465	191,033	58,568
Interstate 90					SR 401 Dismal Nitch	Pacific	76,466	133,879	57,413
Indian John Hill ³ , EB & WB	Kittitas	1,721,341	1,811,000	89,659	SR 504 Forest Learning Center ³	Cowlitz	97,400	74,648	-22,752
Ryegrass, EB & WB	Kittitas	591,733	681,914	90,181					
Winchester ³ , EB & WB	Grant	613,200	753,058	139,858					

Data source: WSDOT Capital Facilities Office.

Notes: 1 Visitors are estimated by tracking facility water use for most rest areas. Improved accuracy of water use data contributed to changes in visitor estimates between 2011 and 2012, resulting in increased estimates in most cases. Of WSDOT's 48 rest areas, eight are not included in visitor estimates due to no water use or other reliable method to capture the information. 2 Visitor data is combined for rest areas on either side of the highway or interstate at a similar location and noted as northbound (NB), southbound (SB), eastbound (EB), or westbound (WB). 3 Visitor estimates at these locations use average daily traffic, percent of vehicles that pull into the rest area and metrics detailed in WSDOT's Rest Area Usage Design Criteria Update because water usage is unavailable or unreliable. 4 The Elbe rest area opened in January 2012 and vehicle counts are used to estimate visitors for part of 2012.



Preservation at a glance

Safety Rest Areas Annual Preservation Report **10**

- *The 2012 safety rest area facility condition ratings are a 5 percent improvement in the statewide average condition ratings since 2010*
- *The deficiency backlog for rest area preservation was \$14.4 million in 2012, a slight increase from 2010*

Ferries Vessel and Terminal Preservation Annual Report **12**

- *A new vessel asset management tool identified 7 percent of systems past due for preservation; the backlog is valued at \$52 million*
- *WSDOT maintains 2,573 terminal and vessel systems and invested \$36.4 million in ferry vessel and terminal preservation to date in the 2011-2013 biennium*
- *The terminal condition assessment shows 86.9 percent of ferry terminal systems are in “good or fair” condition, similar to the previous year*
- *Thirteen percent of vehicle transfer spans and passenger-only facilities are in “poor or very poor” condition*

State policy goal

To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services.

WSDOT’s business direction

Catch up with all necessary maintenance and preservation needs on existing highways, bridges, facilities, ferry vessels and terminals, airports, and equipment, while keeping pace with new system additions.

Notable results

- *Rest areas met maintenance goals in 2012 with a “B” rating on a scale from A+ to F-, in line with funded level of service*
- *WSDOT installed electric vehicle charging stations at two Interstate 5 rest areas in 2012, Custer and Gee Creek*

Rest areas continue to meet maintenance goals in 2012

Safety rest areas scored a “B” rating through the 2012 Maintenance Accountability Process (MAP) on a scale of A+ to F-, with A+ being the best. This is the same score as 2011 and a slight increase from 2010, when the program had a “B-” rating. WSDOT measures the outcome of rest area maintenance activities.

Public surveys are conducted periodically throughout the year to rate the condition of rest areas and consider things like cleanliness, litter and garbage disposal, and functionality of hand dryers, faucets and partitions. The “B” rating in 2012 met the target for maintenance goals set at the level of service funded for rest areas. (See *Gray Notebook* 48, p. 18).

No rest areas in poor condition in 2012

The 2012 safety rest area facility condition ratings were a 5 percent improvement in the statewide average condition ratings since 2010. Condition assessments are performed every two years. The 2012 assessment is the most recent and was reported in *Gray Notebook* 45, p. 12. One of the primary goals is to ensure no rest area is in poor condition, which signals a high potential for failure that would likely impact rest area operations. In 2012, WSDOT met this goal with no rest areas in poor condition.

Rest area preservation is highest priority

The highest priority for rest areas is to maintain, operate and preserve existing assets with the goal of extending the useful life of buildings and site components. It is vital that rest areas are preserved and well maintained in order to deliver the services expected by the traveling public, who are more inclined to stop and use rest areas that are safe and well maintained.



Electric vehicle and charging station at the Custer rest area. See the next page for more details.

Preservation backlog increases slightly

The deficiency backlog for rest area preservation was \$14.4 million in 2012, a slight increase from 2010. Facility condition assessments are used to quantify rest area preservation needs. The condition of individual site and building systems is evaluated and documented using industry standards for facility management and design. Evaluation results help identify deficiencies and are used to determine facility replacement priorities and quantify the statewide backlog of preservation work. If a system is found to be deficient, a preliminary repair cost is estimated. The sum of the repair cost estimates define the deficiency backlog.

WSDOT improves sewer and water assessment

WSDOT is working to improve the condition assessment of sewer and water systems, which are critical to rest area operations. These systems are located underground and have not been assessed to the level necessary to fully understand their condition and potential for failure. Sewer and water deficiencies are difficult to identify before system failures occur and require rest area closures for repairs.

For future condition assessments, WSDOT plans to rate individual system components, such as pumps, pressure tanks, transport lines, water reservoirs, and sewage lagoons. This will provide a more detailed analysis of the preservation needs of these critical rest area systems.

Rest area projects are prioritized for safety and preservation

Minor preservation projects prioritize safety first

WSDOT prioritizes minor rest area preservation projects as they are identified in the categories listed below.

- **Occupant** projects have hazardous site or building components that jeopardize the health and safety of staff, the public, the environment, and/or are immediate violations of local, state or federal codes and regulations.
- **Preservation** projects require replacement or repair of frequently failing systems or systems with high risk of failure requiring consistent corrective maintenance.
- **Operational** projects have insufficient building space or site improvements that impact critical operations.

WSDOT funded or completed \$193,000 of occupant projects in the 2011-2013 biennium, addressing Americans with Disabilities Act compliance issues and providing a storage building for cleaning chemicals. In addition, \$240,000 of preservation projects were funded or completed; no operational projects were funded this biennium.

WSDOT installs electric vehicle charging stations at two rest areas on Interstate 5

Electric Vehicle Service Equipment (EVSE), or charging stations, were recently installed as demonstration projects at two border-entry I-5 rest areas: northbound Gee Creek at milepost 11 near Vancouver, Wash. and southbound Custer at milepost 269 near the Canadian border. The project cost of \$64,000 was funded by a grant from the Washington State Department of Commerce, State Energy Office.

Each rest area provides two Level 2 EVSE parking stalls and an information kiosk to promote the West Coast Green Highway Project. Level 2 EVSE uses single phase 240 volt power, which takes two to eight hours to recharge an electric vehicle battery depending on its level of depletion. Use of the electric vehicle chargers has been low, with an average of 4.7 sessions per site per month. Sessions average 37 minutes and use about two kilowatt hours of electricity.

No fees are assessed to users at either rest area. Electrical service meters were installed at each site for the equipment. A sponsorship agreement with Adopt-A-Charger and the Seattle Electric Vehicle Association will cover utility expenses for the duration of the demonstration project, which lasts through October 2014.

Major projects prioritized by multiple deficiencies

Multiple deficiencies at one rest area, or projects that cost greater than \$100,000 are categorized as major projects. These projects often involve building renovations and replacements, and include most water and sewer rehabilitations. Major projects are prioritized separately from minor projects to address multiple deficiencies at one site.

Travelers Rest major renovation completed

Travelers Rest is a rest area located at Snoqualmie Pass on State Route 906 (SR 906) near its junction with I-90. A \$665,000 renovation in 2012 addressed several deficiencies, including upgrades to the heating, ventilation and air conditioning system, insulation upgrades, and improved Americans with Disabilities Act accessibility with a new unisex restroom and building entrance. The project was completed in December 2012 and repaired exterior surfacing, replaced the roof, and improved service doors, lighting, and drainage systems.

Water systems are rehabilitated at two rest areas in 2012

The water system at the Toutle River rest area on I-5 at milepost 54 was improved in 2012. The \$225,000 project replaced the pump system and renovated the water storage reservoir, reducing the likelihood of frequent repairs. A \$93,000 project replaced a 42-year-old water well at the eastbound Sprague Lake rest area on I-90 at milepost 242. The surface seal of the old well was deteriorated beyond repair. This was phase one of a two-part project to rehabilitate the entire water system, improving site operations and minimizing disruption from the deteriorating system.

SeaTac rest area major renovation begins this summer

The SeaTac rest area just north of Fife along northbound I-5 at milepost 140 is heavily used and in need of more capacity according to site users, maintenance staff and Federal Highway Administration design guidelines. Starting this summer, a \$1.3 million project will renovate the existing restroom building, add a second restroom building, replace the recreational vehicle (RV) dump stations, expand the RV staging area to improve site circulation, and address drainage issues. Construction is scheduled to be completed in fall 2013, one year later than reported in *Gray Notebook* 45, p. 13.

Gee Creek rest area major renovation begins this summer

The heavily used southbound Gee Creek rest area, on I-5 north of Vancouver, Wash., is in need of additional capacity. This rest area also has several site deficiencies. The existing

continued on page 79

Notable results

- *Seven percent of vessel systems are past due for preservation; the backlog is valued at \$52 million*
- *Two new 144-car vessels are under construction to replace vessels built in the 1950s*
- *WSDOT invested \$36.4 million in ferry vessel and terminal preservation, reducing needs by 2.6 percent for vessels and 1 percent for terminals*
- *Planned preservation work on three vessels was delayed by 22 emergency projects*

WSDOT delivers 80 percent of terminal projects under budget

The Washington State Ferries terminal condition assessment shows 86.9 percent of ferry terminal systems are in “good or fair” condition, similar to the previous year. The condition assessment of ferry vessels is presented for the first time in this article. This assessment shows 58 percent of ferry vessel systems fall within Condition Category 1, meaning they are not in need of replacement. WSDOT is required to inspect and evaluate ferry terminal and vessel assets at least once every three years.

As of March 31, 2013, WSDOT delivered eight of 10 terminal preservation projects planned for the 2011-2013 biennium. Use of asset management tools resulted in significant savings; expenditures totaled 56 percent of the budget (\$16.9 million of \$30.4 million allocated). Vessel preservation implemented a new asset management program, factoring in risk to service disruption. During the 2011-2013 biennium, vessels required 22 emergency repairs, particularly for the Motor/Vessel (M/V) *Walla Walla*. The emergency repairs impacted planned work due to shipyard capacity constraints. Sixty-two percent of funding budgeted for vessel preservation was spent to date. Additional details regarding the budget and expenditures are on p. 16.

WSDOT owns and maintains 22 ferry vessels. Each vessel has up to 94 systems, for a total of 1,816 systems onboard the ferry fleet. The condition of vessel systems is presented in the tables on p. 15. In the 2013-2015 biennium two new 144-car ferry vessels will be delivered to WSDOT. These vessels will replace two vessels built in the 1950s, which will impact preservation investments.

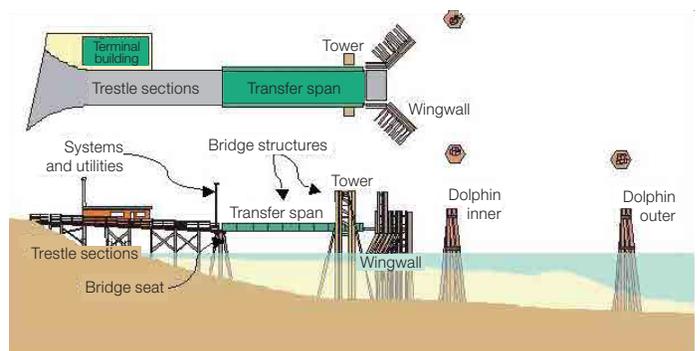
WSDOT is also responsible for the preservation of 19 ferry terminals and a maintenance facility located at Eagle Harbor on Bainbridge Island. These 20 facilities currently have 757 systems that are grouped into seven

types. The tables on the p. 13 show the categories and condition ratings of these terminal systems. The illustration below shows some of the systems at ferry terminals.

Terminal conditions similar to one year ago

In 2012, 86.9 percent of ferry terminal systems were rated in “good or fair” condition – 0.4 percent better than in 2011 (see definitions of condition ratings on p. 13). Systems rated in “poor or very poor” condition improved by 0.5 percent, declining from 13.0 percent in 2011, to 12.5 percent in 2012. Terminal engineers conduct condition assessments of each system as the first step in the preservation decision-making process. The next step is a review of the economic and operational risks to the terminal, resulting in selection of the type of preservation investments to terminals.

The percentage of ferry terminal systems in “good or fair” condition meets or exceeds the system-wide average of 86.9 percent for three of the seven system categories in the first table on p. 13. Similarly, of the 19 ferry terminals, 11 have a percentage of systems in “good or fair” condition, better than the system-wide average, shown in the second table on p. 13. Two terminals and the Eagle Harbor maintenance facility each have approximately 30 percent or more of their systems in “poor or very poor” condition.



Examples of ferry terminal systems.

Ferries terminal systems conditions improve slightly in 2012

Four types of systems each have 13 to 24 percent of their systems in “poor or very poor” condition

Landing aids (wingwalls and dolphins) guide vessels to the docks and protect people and infrastructure from injuries during hard landings (see p. 12 illustration); 24 percent of them are in “poor or very poor” condition. Many of the older landing aids are creosote-soaked wood pilings that are deteriorating from being immersed in saltwater. As funding becomes available, WSDOT plans to replace these timber landing aids with concrete and steel structures to increase their usable life span and to reduce marine contamination caused by creosote.

Passenger-only facilities are terminals designed to serve passenger-only ferries. While Washington State Ferries no longer operates passenger-only service, WSDOT maintains the structures at the Vashon Island and Seattle terminals and at the Eagle Harbor maintenance facility. Thirteen percent of these facilities are in “poor” condition. King County rents WSDOT’s Seattle and Vashon Island passenger-only terminals for its Water Taxi service.

Washington State Ferries tracks structural condition rating for 757 terminal systems

Inspection results for 2012 by terminal

Terminal	Number of systems	Good or fair (70-100)	Poor or very poor (0-69)	Not rated
Anacortes	83	81.9%	15.7%	2.4%
Bainbridge Island	53	94.3%	5.7%	0.0%
Bremerton	45	86.7%	13.3%	0.0%
Clinton	42	100.0%	0.0%	0.0%
Coupeville	17	70.6%	29.4%	0.0%
Eagle Harbor Maintenance facility	76	68.4%	30.3%	1.3%
Edmonds	35	100.0%	0.0%	0.0%
Fauntleroy	24	100.0%	0.0%	0.0%
Friday Harbor	35	82.9%	17.1%	0.0%
Kingston	59	94.9%	5.1%	0.0%
Lopez Island	18	94.4%	5.6%	0.0%
Mukilteo	24	79.2%	16.7%	4.2%
Orcas Island	20	85.0%	15.0%	0.0%
Point Defiance	18	88.9%	11.1%	0.0%
Port Townsend	27	63.0%	37.0%	0.0%
Seattle	82	85.4%	14.6%	0.0%
Shaw Island	17	94.1%	5.9%	0.0%
Southworth	25	100.0%	0.0%	0.0%
Tahlaquah	18	100.0%	0.0%	0.0%
Vashon	39	92.3%	7.7%	0.0%
Total/average 2012	757	86.9%	12.5%	0.5%

Data source: WSDOT Ferries Division.

Note: Percentages may not add to 100 due to rounding.

Pavement conditions at ferry terminals are influenced by their age and their location within the terminal. Pavement at terminals usually last longer than other pavement in the state transportation system because of the slow operating speeds at terminals. Pavement on timber trestles is an exception; it has a very thin asphalt layer, resulting in a shorter life cycle. Fourteen

Washington State Ferries structural condition ratings hold steady for terminal systems

Inspection results for 2012 by category

Type of facility or system	Number of systems	Good or fair (70-100)	Poor or very poor (0-69)	Not rated
Buildings	137	97.8%	0.0%	2.2%
Landing aids ¹	179	76.0%	24.0%	0.0%
Overhead loading systems	66	90.9%	9.1%	0.0%
Passenger-only-ferry facilities	15	86.7%	13.3%	0.0%
Pavement ²	79	84.8%	13.9%	1.3%
Trestle & bulkheads	71	93.0%	7.0%	0.0%
Vehicle transfer spans	210	86.7%	13.3%	0.0%
Total/average 2012	757	86.9%	12.5%	0.5%
Total/average 2011	756	86.5%	13.0%	0.5%

Data source: WSDOT Ferries Division.

Notes: Percentages may not add to 100 due to rounding. 1 Landing aids ensure the ferry vessels are aligned correctly at the terminals, and include wingwalls and dolphins. 2 One section of pavement was added since the 2011 rating reported in *Gray Notebook* 45, p. 14. The condition categories do not indicate whether systems are safe or unsafe, but rather how closely their condition should be monitored prior to spending funds on preservation.

Washington State Ferries define ferry terminal condition ratings from “good” to “very poor”

Category (rating score) Description

Good (90-100)	The structure is performing as designed with all elements functioning as intended.
Fair (70-89)	All primary elements making up the structure are sound but there are some deficiencies in various elements. Examples: areas of rot, crushing, or marine borer activity in timbers; areas of corrosion for steel elements; cracking and spalling in concrete; wearing in mechanical systems; cracking and raveling in pavement systems.
Poor (50-69)	There is moderate deterioration of certain elements as defined under the “fair” condition. These deficiencies may affect the load carrying capacities or the use of the structure and require repair or partial replacement.
Very poor (0-49)	There is advanced deterioration throughout the structure that will require the use of the structure to be restricted. For landing aids, this means the structure will not provide the protection to other structures. For trestles and transfer spans this means there will be load restrictions. For pavement this means the sub-grade, as well as the pavement, will need to be rehabilitated.

Data source: WSDOT Ferries Division.

WSDOT's new vessel condition assessment is based on risk of failure

percent of pavement is in “poor or very poor” condition; preservation is often deferred because these paved areas do not cause delays in vessel sailings.

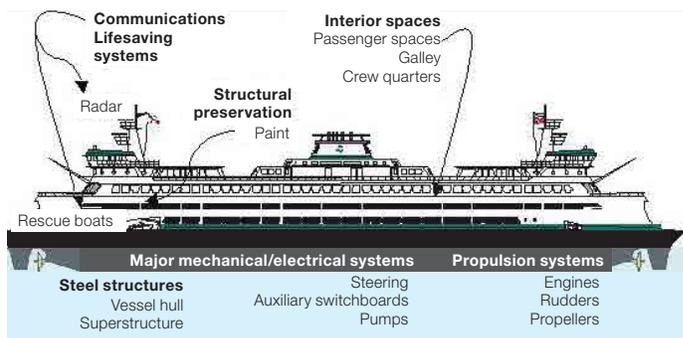
A *vehicle transfer span* is a bridge between the terminal and vessel. Vehicle transfer spans have multiple moving parts to accommodate vessels at high and low tides. The systems require frequent rehabilitation and are functionally obsolete; 13 percent are currently in “poor or very poor” condition. As funding becomes available, WSDOT plans to replace them with improved systems requiring less maintenance.

WSDOT is required by law to inspect and evaluate the condition of terminal assets at least once every three years to determine the remaining service life. WSDOT conducts the assessments on a rolling schedule, completing approximately one-third of the assessments each year. Using this information, WSDOT is continuing to develop and implement asset management tools for ferry terminal preservation in order to identify the optimal approach for protecting assets. Typical trade-offs WSDOT evaluates through the asset management tools include when to provide maintenance versus rehabilitating or replacing a facility or system. For example, WSDOT’s asset analysis showed that the optimal, cost-effective approach was to rehabilitate, rather than replace the Lopez Island ferry terminal wingwall.

WSDOT deploys a new approach for vessel condition assessment in 2012

WSDOT finalized a new approach for assessing the condition of ferry vessel systems in 2011, and finished implementing it throughout the fleet in 2012. Ferry vessel system condition ratings are expressed in terms of a risk category. Risk categories are illustrated in the matrix shown below, which includes a “probability of failure” factor and a “consequence of failure” factor. The probability factor considers the likelihood of a system failing as it ages. The consequence factor considers the impact that failure would

have on a vessel’s ability to operate on its scheduled sailings if the system failed. A system failure may result in the ferry vessel being taken out of service, which would impact customers much more than if the ferry vessel continues to safely operate with the failed system. The illustration below shows some of the systems on a ferry vessel. Vessel crew and engineering staff can adjust a system’s risk assessment to reflect its observed condition during inspections. WSDOT uses the matrix to place a system in one of three condition categories. These categories do not indicate whether systems are safe or unsafe, but rather how closely their condition should be monitored prior to preservation.



Examples of ferry vessel systems.

For example, a vessel steering system and topside vessel paint coating are two systems that are prioritized for preservation using the assessment matrix. If a steering system failed, the vessel would immediately be taken out of service; it could take several months to fix. The steering system is placed in Condition Category 3 because of the increasingly high probability of failure as it nears the end of its life cycle and because of the adverse consequences of a failure (including a potential collision with another vessel or running aground). On the other hand, topside vessel paint coating is placed in Condition Category 2 because the probability of disrupting service is low, even as it passes the end of its useful life. The consequences of failure are also less severe, resulting in unsightly appearance and a slow process of corrosion (rust).

WSDOT uses a new risk assessment guide to prioritize ferry vessel preservation

Based on the likelihood of the system failing combined with the likely consequences of the system’s failure

Percent of life cycle remaining (Probability of failure factor)	Consequence of failure factor				
	Minimal impact: does not affect sailing	Marginal impact: less than 24 hours to repair	Moderate impact: one or more days to repair	Critical impact: one or more weeks to repair	Catastrophic: long-term, unscheduled impacts to sailings during repairs
Beyond life cycle (nearly certain to fail)	Condition Category 2:		Condition Category 3: System is overdue		
0% - 9% (likely to fail)	System is approaching the		for replacement		
10% - 24% (failure possible)	point at which replacement should occur				
25% - 49% (unlikely to fail)	Condition Category 1:			in the current or ensuing biennia	
50% - 100% (very unlikely to fail)	System does not currently need replacement				

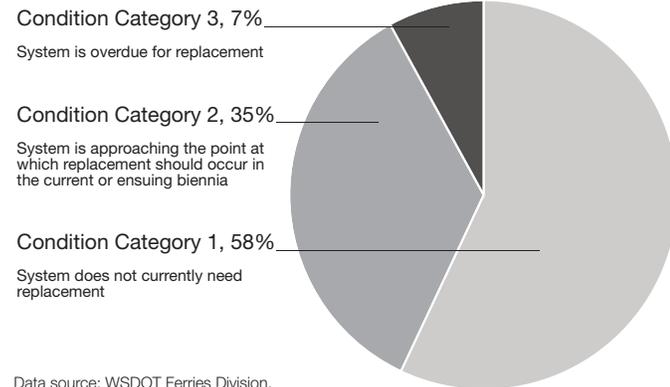
Data source: WSDOT Ferries Division.

Seven percent of vessel systems are past due for replacement

Ferry vessels must meet U.S. Coast Guard requirements to operate. When deciding which systems in Condition Category 3 need to be preserved first, WSDOT gives priority to those required to operate the vessel within Coast Guard regulations.

Seven percent of ferry vessel systems are past due for replacement

Inspection results for 2012



Data source: WSDOT Ferries Division.

The pie chart above shows that as of March 31, 2013, 7 percent of the 1,816 ferry vessel systems were in need of replacement (Condition Category 3); 35 percent are approaching the end of their life cycle (Condition Category 2); and 58 percent do not currently need to be replaced (Condition Category 1). The condition of ferry vessel systems are presented by type of ferry vessel system and by individual ferry vessel (see tables below and right). Four

Fourteen percent of vessel propulsion systems are past due for replacement (Condition Category 3)

Inspection results for 2012 by type of vessel system

Types of ferry vessel systems	Number of systems	Percent of systems in Condition Categories ¹		
		1	2	3
Piping systems	138	50%	33%	17%
Propulsion systems	257	20%	66%	14%
Communication, navigation, lifesaving systems	559	69%	23%	8%
Major mechanical/electrical systems	277	55%	39%	6%
Structural preservation (paint) systems	182	63%	36%	2%
Steel structures	162	66%	33%	1%
Passenger and crew spaces	62	53%	47%	0%
Security systems	100	88%	12%	0%
Total/average 2012²	1,737	58%	35%	7%

Data source: WSDOT Ferries Division.

Notes: Percentages may not add to 100 due to rounding. 1 Systems in Condition Category 1 do not currently need to be replaced; those in category 2 should be monitored for replacement within the next two biennia; those in category 3 are past due for replacement. 2 Excluding the M/V *Evergreen State* that will be replaced in the 2013-2015 biennium.

of the eight types of ferry vessel systems have a higher percent of systems in Condition Category 1 than the system-wide average of 58 percent. However, 17 percent of piping and 14 percent of propulsion systems are past due for replacement. Seven of the 22 vessels have a higher percent of their systems in Condition Category 1 than the system-wide average. The M/V *Hiyu* tops the list of vessels needing preservation, with 32 percent of its systems past due for replacement. This vessel is used as a substitute on some routes when other vessels are taken out of service for maintenance, and no other spare vessels are available.

Ideally, all of the preservation backlog that is feasible to accomplish within the biennium would be funded; in a

WSDOT tracks vessel condition by percent of systems past due for replacement (Condition Category 3)

Inspection results for 2012 by vessel

Ferry vessels	Number of systems	Year built/rebuilt	Percent of systems in Condition Categories ²		
			1	2	3
M/V <i>Hiyu</i>	53	1967	25%	43%	32%
M/V <i>Hyak</i>	86	1967	41%	41%	19%
M/V <i>Klahowya</i> ¹	80	1958/1995	46%	41%	13%
M/V <i>Yakima</i>	86	1967/2005	52%	37%	10%
M/V <i>Tillikum</i> ¹	80	1959/1994	45%	45%	10%
M/V <i>Kaleetan</i>	86	1967/2005	42%	49%	9%
M/V <i>Elwha</i>	84	1967/1991	36%	56%	8%
M/V <i>Walla Walla</i>	89	1973/2005	55%	37%	8%
M/V <i>Chelan</i>	81	1981/2005	53%	40%	7%
M/V <i>Puyallup</i>	94	1999	62%	32%	6%
M/V <i>Wenatchee</i>	94	1998	60%	34%	6%
M/V <i>Kitsap</i>	79	1980/1992	46%	48%	6%
M/V <i>Issaquah</i>	79	1979/1989	56%	39%	5%
M/V <i>Cathlamet</i>	80	1981/1993	56%	39%	5%
M/V <i>Kittitas</i>	80	1980/1990	56%	39%	5%
M/V <i>Spokane</i>	89	1972/2004	60%	36%	4%
M/V <i>Sealth</i>	80	1982	49%	48%	4%
M/V <i>Tacoma</i>	94	1997	60%	38%	2%
M/V <i>Chtzemoka</i>	81	2010	100%	0%	0%
M/V <i>Kennewick</i>	81	2011	100%	0%	0%
M/V <i>Salish</i>	81	2013	100%	0%	0%
Total/average 2012	1,737		58%	35%	7%
M/V <i>Evergreen State</i> ¹	79	1954/1988	38%	33%	29%

Data source: WSDOT Ferries Division.

Notes: Percentages may not add to 100 due to rounding. 1 The two new 144-car vessels under construction are expected to replace the M/V *Evergreen State* and either the M/V *Klahowya* or M/V *Tillikum* by 2015. 2 Systems in Condition Category 1 do not currently need to be replaced; those in category 2 should be monitored for replacement within the next two biennia; those in category 3 are past due for replacement.

Investments in terminals and vessels reduce preservation backlog

fiscally-constrained environment, financial resources should be applied to the systems with the highest risk of disrupting service to the public should the system fail. Two new 144-car vessels are due to WSDOT in the 2013-2015 biennium to replace vessels built in the 1950s: the M/V *Evergreen State* and either the M/V *Klahowya* or the M/V *Tillikum*. Only work necessary to keep the vessel in service is done on vessels planned to be replaced in the near future. This allows for preservation dollars to be invested on vessel systems with a longer term benefit to the fleet.



One of the new 144-car vessels, the M/V Tokitae, is shown here in March 2013 under construction at Vigor Industrial's Seattle shipyard. Delivery is scheduled for 2014. Photograph by Stuart Isett/Vigor.

Progress toward reducing the backlog is monitored by tracking the cost of the backlog over time. The dollar value of the preservation backlog includes all of the items in Condition Category 3 plus items in Category 2 that are beyond their life cycle (top row of matrix on p. 14), totaling \$51,858,052 in Category 3 and \$159,457,764 in Category 2. The backlog value does not include work on the M/V *Evergreen State*. WSDOT tracks the cost of the backlog by comparing the quantity of items due for replacement and their total replacement costs.

Vessel preservation challenges ahead

WSDOT faces challenges in the coming decade regarding vessel preservation, including the aging diesel-electric propulsion systems of seven vessels built in the 1950s and 1960s. Older vessels require significant investments for hull, bilge and structural preservation. The M/V *Puyallup*, M/V *Tacoma*, and M/V *Wenatchee* have propulsion control systems that are no longer supported by the original equipment manufacturer; they are slated for replacement in the 2017-2019 biennium, although funding is not yet confirmed. In addition, the topside paint on 17 vessels (77 percent of the fleet) requires preservation by 2017.

WSDOT invests \$36.4 million in terminal and vessel preservation to reduce backlog of needed work

WSDOT's Life Cycle Cost Model (LCCM) manages the preservation of ferry terminal and vessel systems valued at \$2.5 billion. Preservation need consists of the value of the backlog of needed preservation existing at the start of the biennium plus the additional preservation needed during the biennium. WSDOT uses the LCCM to identify preservation needs and to track planned versus actual reduction in need. Progress during the biennium in reducing the backlog is monitored by comparing actual biennium-to-date reduction in need to the end-of-biennium planned reduction in need.

WSDOT receives funding from the state legislature each biennium to address ferry terminal and vessel preservation needs. In the 2011-2013 biennium (July 2011 through June 2013), the budget was \$30.4 million for terminal preservation and \$31.4 million for vessel preservation. As of March 31, 2013 (the end of the seventh quarter of this biennium), WSDOT spent 56 percent (\$16.9 million) of the funding provided for terminal preservation and 62 percent (\$19.5 million) of the funding provided for vessel preservation. The impacts of these investments on ferry terminal and vessel preservation needs are measured using the preservation need percent. This score is calculated by dividing the value of systems that are beyond their life cycle by the value of all systems.

Terminal preservation need reduced 1 percentage point

WSDOT used the LCCM to estimate that 16.4 percent of the value of terminal systems would be beyond their life cycle by the end of the 2011-2013 biennium unless funds were invested to preserve the systems. Terminal preservation investments completed through March 2013 reduced the percentage of the value of terminal systems beyond their life cycle by 1.0 percentage point to 15.4 percent (compared to the planned reduction of 1.1 percentage point at the end of the biennium). The primary drivers of this reduction were preservation projects at the Seattle, Lopez Island and Edmonds ferry terminals and at the Eagle Harbor ferry maintenance facility.

As of March 2013, 45 percent (\$13.5 million) of the ferry terminal preservation budget remains, due primarily to 11 projects that each have budgets of \$200,000 or more remaining. Three projects at the Anacortes, Lopez Island and Point Defiance terminals are underway and will spend more than \$1 million in the last quarter of the biennium.

continued on page 79



Mobility at a glance

Travel Time Trends Semi-Annual Report 18

- Tolling resulted in travel time reductions of three to six minutes (14 to 28 percent) on State Route 520
- Commuters using Interstate 90 eastbound saw their travel times improve two to three minutes, while westbound traffic worsened by two to three minutes

Rail: Amtrak Cascades Quarterly Update 24

- Amtrak Cascades on-time performance was 71 percent in the first quarter of 2013, a 3 percent increase from the same quarter in 2012
- WSDOT is investing \$16.1 million in slope stabilization improvements along rail tracks impacted by mudslides

Incident Response Quarterly Update 26

- WSDOT's Incident Response program responded to 9,396 incidents and took an average of 13.0 minutes in the first quarter of 2013 to clear incidents statewide, a slight improvement from 13.3 minutes in the first quarter of 2012

Washington State Ferries Quarterly Update 29

- Ferries completed 97.8 percent of its trips on time, marking its second best on-time performance quarter in the past six years
- Ridership for the quarter was 4.69 million (1 percent) lower and farebox revenue was \$31.6 million (0.03 percent) lower than projected

Travel Information Annual Report 32

- In fiscal year (FY) 2012, 1.4 million calls were received by the 511 travel information system, compared to 2.2 million calls in FY2009

State policy goal

To improve the predictable movement of goods and people throughout the state.

WSDOT's business direction

Move people, goods, and services reliably, safely and efficiently, by adding infrastructure capacity strategically, operating transportation systems efficiently, and managing demand effectively.

Notable results

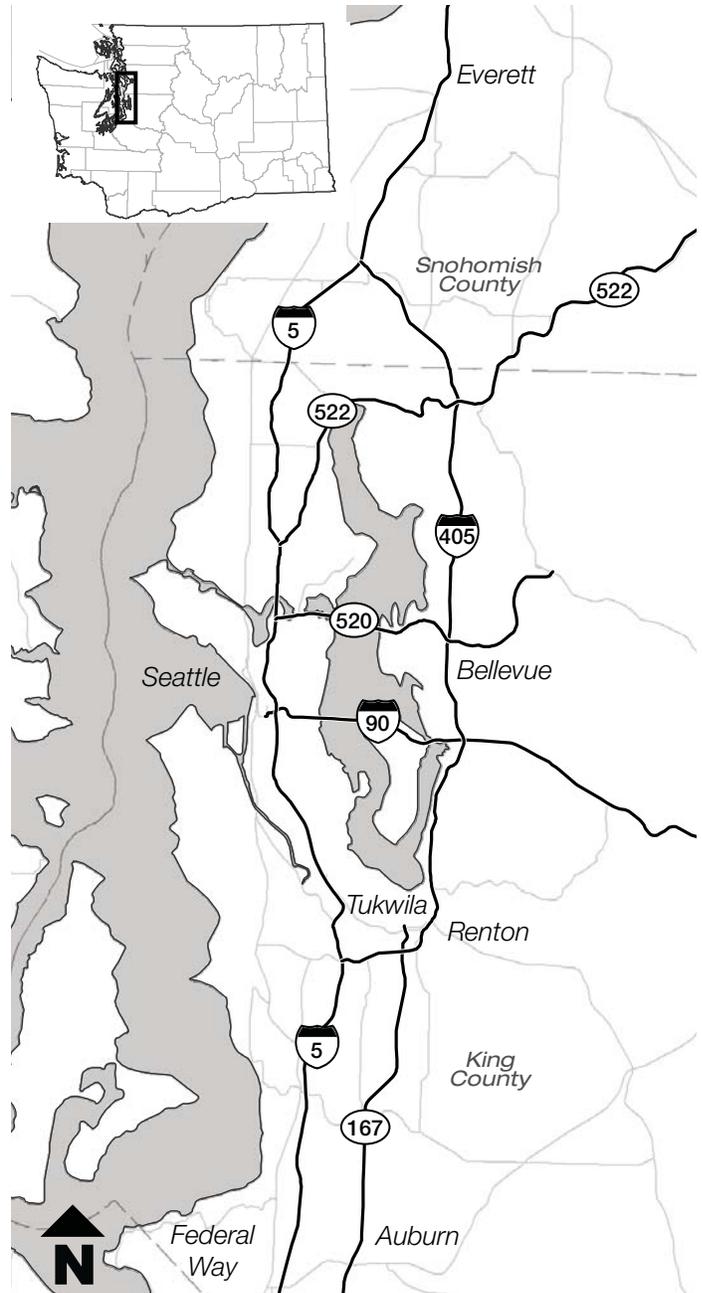
- *Tolling on SR 520 resulted in a reduction of more than 14,000 vehicles and a three- to six-minute improvement in travel times*
- *Commuters on I-90 eastbound saw a two- to three-minute improvement while westbound saw a two- to three-minute decline*

Puget Sound commutes see changes

Tolling on State Route 520 (SR 520) has changed Puget Sound area commute travel trends. Key findings in WSDOT's analysis for the second half of 2012, which compares data to the last six months (July through December) of 2011 and 2010, include:

SR 520 tolling led to decreased overall bridge commuter traffic (2012 vs. 2011)

- Tolling resulted in a reduction of more than 14,000 vehicles on SR 520 during weekday commutes. Slightly more than half of these vehicles diverted to Interstate 90 (I-90), while others chose alternate routes, shifted trip mode to such alternatives as transit, vanpool or carpool or chose a new destination for, or eliminated, discretionary trips.
- Commuters using SR 520 saw a three- to six-minute (14 to 28 percent) improvement in travel times despite being negatively impacted by major construction activities east of the SR 520 floating bridge. These travel time improvements coincide with traffic volume reductions of 18 to 36 percent.
- Commuters using I-90 eastbound saw their travel times improve by two- to three-minutes, despite 10 and 12 percent increases in eastbound commute traffic. This is due in part to WSDOT's completion of a construction project that created an eastbound High Occupancy Vehicle (HOV) lane from Mercer Island to Bellevue.
- Commuters using I-90 westbound experienced travel times worsening by two- to three-minutes, which reflects the 5 and 9 percent increases in westbound commute traffic.



WSDOT's analysis of Puget Sound area travel time trends for the second half of 2012 looks at travel along 18 high demand commute routes in the Seattle area on interstates 5, 405 and 90, as well as state routes 167 and 520.

Charting Puget Sound peak period and daily traffic changes

SR 520 tolling contributed to increased commute travel times on north-south corridors (2012 vs. 2011)

- All 10 non-cross-lake (north-south) routes saw increased travel times while noticeable changes were observed in commute volumes, ranging from decreasing 7 percent to increasing 3 percent.
- WSDOT construction activities and a shift in traffic from SR 520 and I-90 due to tolling, changed where vehicles entered and exited I-5 and I-405. This influenced travel northbound and southbound through downtown Seattle and Bellevue.
- The use of SR 167 High Occupancy Toll (HOT) lane increased by 7 percent, which contributed to overall improved corridor performance.

The table below summarizes the travel time and vehicle

volume changes on the 18 key commute routes in the central Puget Sound region in the second half of 2012, compared to the same periods in 2010 and 2011.

Cross-Lake Washington traffic decreases

Daily volumes: Routes that cross Lake Washington showed significant changes in traffic volumes. On SR 520, comparing

Peak periods defined

WSDOT uses standard peak periods for congestion analysis. For the Puget Sound region, morning peak is from 5 a.m. to 10 a.m. while the afternoon peak is from 2 p.m. to 8 p.m. A notable difference will be seen in an upcoming annual report (to be published in summer 2013) on SR 520 tolling which defines peak toll periods as the times when the largest toll is charged to cross the SR 520 bridge. This difference is due to the variable time-of-day toll structure on SR 520.

Travel time performance from July 1– December 31, 2010–2012, on a sample of 18 high demand commute routes

Morning peak between 5 a.m. and 10 a.m.; Evening peak between 2 p.m. and 8 p.m.; Monday through Friday

Route name (route length in miles)	Direction of travel	Average travel time in minutes during peak period			Peak average travel time change in minutes			Peak volume change		Daily volume change	
		2010	2011	2012	2011 vs. 2010	2012 vs. 2011	2012 vs. 2010	2011 vs. 2010	2012 vs. 2011	2011 vs. 2010	2012 vs. 2011
Morning commutes											
I-5 Federal Way to Seattle (22)	NB	40	44	47	4	3	7	1%	3%	-2%	2%
I-5 Everett to Seattle (24)	SB	47	39	50	-8	11	3	1%	2%	0%	1%
I-5/I-405 Everett to Bellevue (24)	SB	49	48	54	-1	6	5	1%	0%	1%	-1%
I-405 Tukwila to Bellevue (13)	NB	28	29	34	1	5	6	1%	-1%	2%	-1%
SR 167 Auburn to Renton (10)	NB	17	17	18	0	1	1	2%	-7%	4%	-3%
I-405/I-90/I-5 Bellevue – Seattle (10)	SB/WB/NB	14	15	18	1	3	4	2%	9%	1%	10%
I-405/SR 520/I-5 Bellevue – Seattle (10)	NB/WB/SB	19	20	15	1	-5	-4	-3%	-33%	-5%	-31%
I-5/I-90/I-405 Seattle – Bellevue (11)	SB/EB/NB	17	18	15	1	-3	-2	1%	12%	2%	12%
I-5/SR 520/I-405 Seattle – Bellevue (10)	NB/EB/SB	24	22	16	-2	-6	-8	-7%	-21%	-6%	-34%
Evening commutes											
I-5 Seattle to Federal Way (22)	SB	31	30	33	-1	3	2	0%	2%	-2%	3%
I-5 Seattle to Everett (23)	NB	41	37	40	-4	3	-1	2%	-1%	1%	0%
I-405/I-5 Bellevue to Everett (23)	NB	40	38	45	-2	7	5	2%	-3%	3%	-1%
I-405/I-5 Bellevue to Tukwila(13)	SB	31	33	35	2	2	4	1%	-2%	2%	0%
SR 167 Renton to Auburn (10)	SB	17	17	18	0	1	1	2%	-2%	3%	-1%
I-405/I-90/I-5 Bellevue – Seattle (10)	SB/WB/NB	27	27	29	0	2	2	0%	5%	1%	10%
I-405/SR 520/I-5 Bellevue – Seattle (10)	NB/WB/SB	31	31	25	0	-6	-6	-2%	-18%	-5%	-31%
I-5/I-90/I-405 Seattle – Bellevue (11)	SB/EB/NB	19	18	16	-1	-2	-3	1%	10%	2%	12%
I-5/SR 520/I-405 Seattle – Bellevue (10)	NB/EB/SB	24	21	18	-3	-3	-6	-4%	-36%	-6%	-34%

Data source: WSDOT Northwest Region and the Washington State Transportation Center (TRAC) at the University of Washington.

Notes: General purpose lane volumes only; HOV/HOT lane volumes not included. Trips on I-90 and SR 520 are shown for both directions, in both AM and PM periods; daily volumes are duplicates in both the AM and PM routes. A negative change in travel times indicates faster travel times. NB/SB/EB/WB are acronyms for northbound, southbound, eastbound and westbound, respectively. Beginning with the semi-annual report published in February 2012, peak period definitions match the definitions used in the annual *Congestion Report*. Travel time and volume data for older comparison years were adjusted accordingly; therefore, values in this table are not directly comparable to those published in previous semi-annual reports. Analysis methodology for the six-month travel times report is consistent with the annual *Congestion Report*.

State Route 520 tolling impacts cross-Lake Washington commutes

the second halves of 2012 and 2011, daily traffic volumes dropped between 31 percent (westbound) and 34 percent (eastbound). Daily volumes on I-90 increased between 10 percent (westbound) and 12 percent (eastbound). The daily traffic volumes on the sampled routes that do not cross Lake Washington (north-south corridors) changed by up to 3 percent, some increasing and others decreasing.

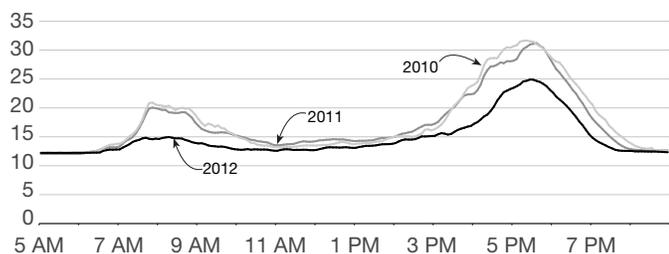
Peak period volumes: The peak period vehicle volume on cross-lake routes along SR 520 decreased between 18 and 36 percent while the peak period volumes on I-90 increased between 5 and 12 percent. Changes in peak period volumes on north-south corridor routes ranging from decreasing 7 percent to increasing 3 percent.

The net daily vehicle travel on the cross-lake bridges (SR 520 and I-90) decreased by 14,000 vehicles in 2012; morning and afternoon peak travel times saw volume reductions of 6,900 vehicles (49 percent). Congestion-based variable time-of-day tolls began on SR 520 December 29, 2011. Traffic patterns observed during the first half of 2012 (January through June) continued into the second half of 2012 (July through December).

SR 520 commute routes (2012 vs. 2011): Travel time improvements for trips using SR 520 ranged from three to six minutes (14 to 28 percent) during the morning and afternoon commutes in 2012 compared to 2011. These travel time improvements coincide with traffic volume reductions of 18 to 36 percent. These travel time savings occurred despite being negatively impacted by major construction activities east of the SR 520 floating bridge.

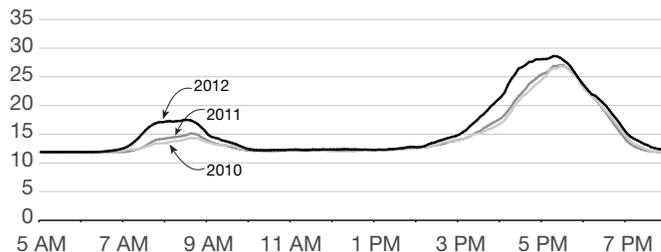
The graph below shows that the SR 520 commute time westbound from Bellevue to Seattle decreased by 25 percent in the morning and 20 percent in the

SR 520 travel times decrease from Bellevue to Seattle
July 1 – December 31, 2010-2012; Westbound travel time in minutes



Data source: WSDOT Northwest Region Traffic Office, Washington State Transportation Center (TRAC).

I-90 travel times increase from Bellevue to Seattle
July 1 – December 31, 2010-2012; Westbound travel time in minutes



Data source: WSDOT Northwest Region Traffic Office, Washington State Transportation Center (TRAC).

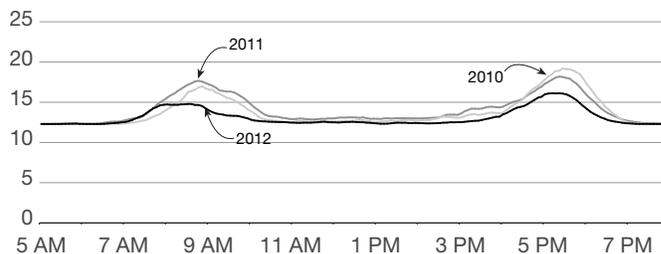
afternoon. One reason congestion was much lighter in the morning was that there are more reliable transit options for travelers inbound to Seattle during the morning commute than there are during the afternoon commute.

I-90 commute routes (2012 vs. 2011): Although both directions of I-90 experienced traffic volume increases, those increases resulted in greater travel times only on westbound I-90. Travel times increased by three minutes (16 percent) during the morning commute and by two minutes (6 percent) during the afternoon commute.

The graph at the top of this column shows that for westbound I-90, the larger changes in travel time happened at the beginning of the peak commute. The increased traffic volume, due to diversion from the tolled SR 520, caused congestion to form earlier in each commute period, but only marginally extended the duration of each commute. The Bellevue to Seattle graph also shows that I-90 travel times did not change significantly during the middle of the day, when free-flow conditions remained the norm.

As shown in the graph below, unlike westbound I-90, the eastbound commute travel times on I-90 between Seattle and Bellevue decreased by three minutes (16 percent) in the morning and by two minutes (11 percent) in the

I-90 travel times decrease from Seattle to Bellevue
July 1 – December 31, 2010-2012; Eastbound travel time in minutes



Data source: WSDOT Northwest Region Traffic Office, Washington State Transportation Center (TRAC).

Interstate 5 congestion results in increased commute travel times



Peak-period travel times increased for several major commute routes along I-5 in the Puget Sound region.

in the afternoon. These travel time improvements occurred despite increased traffic volumes. The main reason for this improvement was the completion of the Two-Way Transit and High Occupancy Vehicle (HOV) Operations project in March 2012; this created a direct access HOV ramp from 80th Avenue NE on Mercer Island, and a full HOV lane on I-90 from 80th Avenue NE to Bellevue Way. By completing this project, WSDOT added capacity, removed a construction distraction, and shifted transit buses, vanpools, motorcycles and carpools from the general purpose (GP) to HOV lanes on the eastern half of Mercer Island.

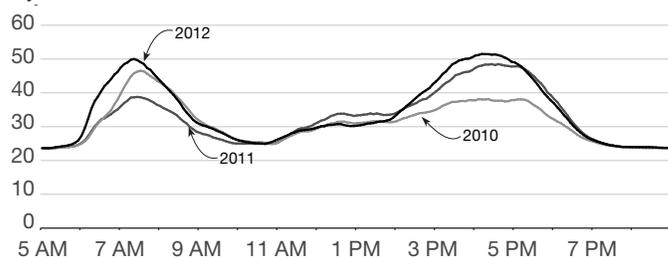
All 10 non-cross lake commute routes saw increased travel times (2012 vs. 2011)

Interstate 5 commute routes: The shift in traffic from SR 520 to I-90 changed where many vehicles enter and exit I-5 and I-405, influencing travel northbound and southbound through both downtown Seattle and Bellevue.

Additional construction activities between 2010 and 2012 also impacted I-5 traffic, including: the I-5 – 196th Street (Lynnwood) Braided Ramp project, the I-5 – Mountlake Terrace Freeway Station project, the Alaskan Way Viaduct Replacement Program and the Spokane Street Viaduct Widening project. The travel time changes presented in the table on page 19 show that these construction activities caused travel times to increase considerably.

Everett to Seattle: Travel times on I-5 southbound between Everett and Seattle were highly variable during morning and afternoon commutes between 2010 and 2012. The table on page 19 shows that morning commuters spent an additional 11 minutes in traffic during 2012

I-5 travel times up significantly from Everett to Seattle July 1 – December 31, 2010–2012; Southbound travel time in minutes



Data source: WSDOT Northwest Region Traffic Office, Washington State Transportation Center (TRAC).

compared to 2011; 2012 travel times were only three minutes longer than in 2010. Congestion also formed much earlier in the day in 2012 and 2011 than it did in 2010. The growing delays experienced in 2012 were mostly caused by increases in congestion in Mill Creek and Lynnwood. Also contributing was an increase in congestion south of SR 520 as vehicles entered and passed through downtown Seattle.

Morning commute travel times increased considerably along Interstate 5 from Everett through Seattle

Additional delays occurred during the morning commute as more vehicles accessed the ramps to I-90 eastbound.

Similarly, afternoon commute travel times significantly increased in 2011 and 2012, compared to 2010. The 2012 afternoon travel times were three minutes and 13 minutes longer, compared to 2011 and 2010, respectively. While some additional delay occurs in downtown Seattle, most of this increase in congestion happens between the northern Express Lanes entrance and the southern end of the Ship Canal Bridge. Congestion on this stretch of roadway consistently formed during weekdays throughout 2012. This congestion bottleneck started forming regularly in late summer 2011 and worsened in late October 2011, when construction closed a stretch of SR 99 for two weeks.

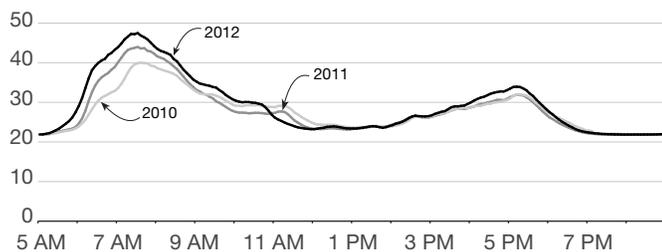
Seattle to Everett: Growth in congestion on the northbound commute between Seattle and Everett was less significant than seen with the Everett to Seattle route. Little congestion occurred on this route during morning commutes. In the afternoon, congestion decreased between 2010 and 2011, but increased in 2012. Afternoon commute travel times in 2012 were three minutes longer than in 2011, but one minute shorter than in 2010. The majority of the increase in 2012 occurred

Interstate 405 between Everett and Bellevue sees increased travel times

from the Ship Canal Bridge to Northgate, the latter being where the I-5 Express Lanes re-enter the I-5 mainline.

Federal Way to Seattle: Congestion on I-5 northbound from Federal Way to Seattle has grown both in the morning and afternoon commute periods. The graph below shows that increases in travel times during the morning commute have been consistent since 2010. The morning commute in 2012 took three and seven minutes longer than 2011 and 2010, respectively. This rise in travel times was caused by increasing intensity in the two major congestion locations on this trip from Federal Way through Des Moines in southern King County and then approaching downtown Seattle. The graph also shows that between 2010 and 2012, congestion has routinely formed earlier in the morning and has taken longer to dissipate at the end of the commute period, as travelers have adjusted their travel behavior to avoid the increasing congestion. During the northbound afternoon trip, travel times increased by two minutes, the vast majority of that increase occurring as a result of worsening congestion approaching the I-90 interchange just south of downtown Seattle.

I-5 travel times increase Federal Way to Seattle
July 1 – December 31, 2010–2012; Northbound travel time in minutes



Data source: WSDOT Northwest Region Traffic Office, Washington State Transportation Center (TRAC).

Seattle to Federal Way: I-5 southbound from Seattle to Federal Way did not experience significant congestion in 2012 during the morning (not shown in the table on page 19). In the afternoon, the average 2012 commute travel time increased by three and two minutes compared to 2011 and 2010, respectively. These added delays resulted from increases in congestion stretching from SR 599 and the top of the Southcenter Hill.

Interstate 405 Commute Routes: While the Puget Sound corridor was significantly influenced by SR 520 tolling, the I-405 NE 8th Street to SR 520 Braided Ramps Interchange Improvement project, completed in May 2012, greatly improved I-405 northbound travel



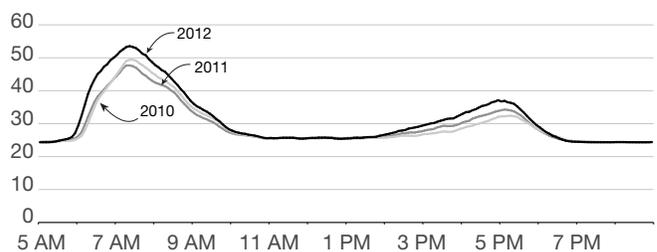
Multi-level “braided” ramps to separate vehicles entering and exiting northbound I-405 between NE 8th Street and SR 520 in Bellevue are under construction in this 2010 photo. WSDOT cut the ribbon marking the opening of the new ramps in May 2012, months ahead of schedule, improving the commute.

through Bellevue (see the 2012 *Congestion Report*, p. 79). This project helped mitigate additional northbound traffic flow through downtown Bellevue due to SR 520 tolling. However, the performance of an already congested southbound section of I-405 worsened.

Interstate 405 was less impacted by the Alaskan Way Viaduct Replacement Program and the Spokane Street Viaduct Widening project. Completed in 2010, the I-405 – I-5 to SR 169 Stage 2 Widening project resulted in improved travel times in 2010 and 2011 along the southern end of I-405. These improvements were sustained in 2012 for the southbound direction; northbound congestion worsened in 2012 from the SR 167 interchange through Renton.

Everett to Bellevue: The graph below shows the changing congestion patterns (intensity and duration) on the Everett to Bellevue southbound commute. In the morning, the six-minute increase in travel time is attributed to longer delays on the northern end of the

I-405 travel times increase from Everett to Bellevue
July 1 - December 31, 2010-2012; Southbound travel time in minutes



Data source: WSDOT Northwest Region Traffic Office, Washington State Transportation Center (TRAC).

High Occupancy Toll lane use improves overall corridor performance

I-405 corridor along with worsening congestion in the vicinity of the SR 522 interchange. Conversely, conditions improved approaching the SR 520 interchange on the southern end of the corridor. The longer afternoon travel times are due to the increasing delays north of the SR 522 interchange, and the increasingly congested segment approaching downtown Bellevue.

Bellevue to Everett: The commute northbound from Bellevue to Everett experienced only one congestion peak, in the afternoon. While the braided ramps improvement project greatly reduced congestion in 2012 through downtown Bellevue, increased congestion extending from SR 520 ramps to the SR 522 interchange resulted in longer afternoon commute travel times of up to seven minutes.

Tukwila to Bellevue: The northern section of I-405 experienced congestion in both peak commute periods. However, the southern section of I-405 experienced congestion only in the dominant direction of the commute – northbound toward Bellevue in the morning and southbound to Tukwila in the afternoon. The duration of the peak period did not increase in either direction. Northbound travel times grew longer in the morning by five to six minutes, caused by the increased delays in Renton.

Bellevue to Tukwila: The Bellevue to Tukwila southbound afternoon commute saw an increase in congestion in 2012 south of the I-90 interchange between SR 520 and Coal Creek Parkway. The duration of the afternoon peak period is lasting longer, but these changes have relatively modest impacts on average commute travel time. The bigger changes in travel time (a two- to four-minute increase) are caused by the growing intensity of congestion around 5 p.m. from downtown Bellevue to just south of the I-90 interchange. Traffic on this corridor was already heavily congested in 2011, but speeds have dropped even further. With speeds ranging between 5 to 15 mph, even modest further decreases will add considerable delay to southbound trips.

State Route 167 Auburn to Renton: There was little or no change in congestion at the beginning and end of the commute periods along the SR 167 corridor from SR 18 in Auburn to I-405 in Renton. This was true for both peak direction commutes, northbound in the morning and southbound in the evening. Travel times increased just one minute on both these commutes.



During the morning commute on SR 167, the number of vehicles using the High Occupancy Toll lane increased by 7 percent while general purpose lane volumes decreased by 7 percent, due to a rise in congestion.

Congestion formed in the morning at the northern end of the corridor more frequently in 2012 than in 2011. As a result of that increase in congestion, during the morning commute, 250 (7 percent) additional vehicles moved to High Occupancy Toll (HOT) lanes from the general purpose (GP) lanes while the GP lanes volume decreased by about 850 (7 percent) vehicles. The rest of the commuters might have chosen alternate routes or trip modes such as transit, vanpool or carpool. This accounted for roughly one-third of the decrease in peak period general purpose lane traffic volumes observed on SR 167.

New federal law aims to improve system performance and travel reliability

The federal transportation legislation Moving Ahead for Progress in the 21st Century (MAP-21) outlines several performance goals (see p. vii, one of which focuses on system reliability to improve the efficiency of the surface transportation system. WSDOT is a national leader in evaluating congestion and travel time reliability, and is engaged with the United States Department of Transportation and other state and national partners to support the development of a comprehensive mobility measurement program that involves trip- and corridor-based analysis.

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

Notable results

- **On-time performance increased 3 percent between the first quarters of 2012 and 2013**

- **Ridership and ticket revenues declined 11.6 and 11.2 percent, respectively**

Revenues trend slightly downward

Ridership and revenues for Washington state-supported Amtrak Cascades trains continued to be impacted by mudslides between January 1 and March 31, 2013. This contributed to ridership and ticket revenue declines of 11.6 and 11.2 percent, respectively, compared to the same quarter in 2012.

On-time performance increases compared to same quarters in 2011 and 2012

Amtrak Cascades' on-time performance for Washington state-supported trains averaged 71 percent in the first quarter of 2013. This was an increase from 68 percent in the first quarter of 2012 and 54 percent for the same quarter of 2011. Amtrak Cascades' goal is 80 percent on-time performance. Interference from freight and passenger trains was the main cause of delay during the first quarter of 2013. On-time performance is not impacted by mudslides because it is only measured for trains that start and end a trip at the scheduled origin and destination, which excludes trains experiencing cancellations or disruptions.

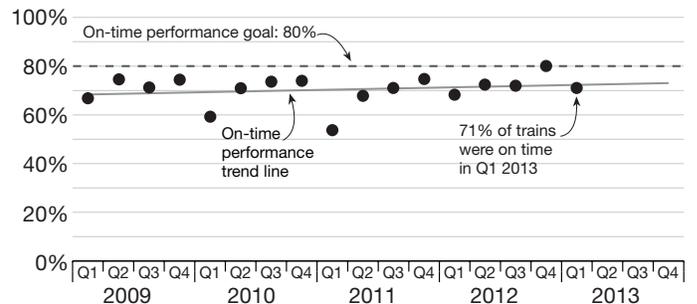
Mudslides impact ridership and revenues

Amtrak Cascades ridership fell from the first quarter of 2012 by 11.6 percent, returning to 2011 ridership levels. Although train cancellations resulting from mudslides declined during the first quarter of 2013, there was an increase in train disruptions. A disruption occurs if the train either starts or ends the trip at a different station than originally scheduled. When a cancellation or disruption occurs, Amtrak contracts with available charter bus companies to provide alternate transportation for Amtrak Cascades passengers.

Amtrak Cascades ticket revenues for state-supported trains decreased from \$4.42 million in the first quarter of 2012 to \$3.92 million in the same quarter of 2013, a decline of 11.2 percent. As with the decrease in ridership, the decline in ticket revenues for the quarter was a result of train disruptions and cancellations.

Amtrak on-time performance reaches 71 percent in first quarter of 2013

2009 through 2013; Percent of trains on time by quarter

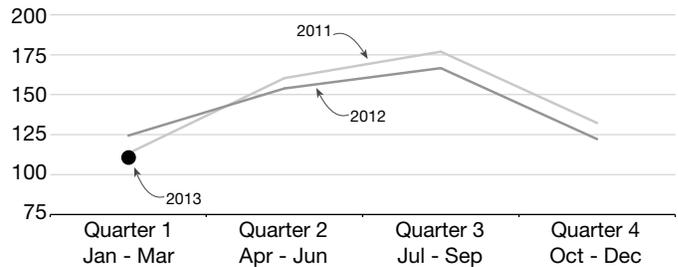


Data source: WSDOT Rail Division.

Notes: For Washington-funded trains only. On-time performance is calculated by dividing the number of trains that arrive at their endpoint on time by the total number of trains in operation during a specific period. These calculations consider trains 10 to 30 minutes late as on time, depending on the route length (10 minutes for Seattle to Portland trains and 15 minutes for Portland to Vancouver, B.C. trains).

Amtrak Cascades ridership decreases in first quarter

Number of passengers per quarter, 2011 through 2013; Riders in thousands

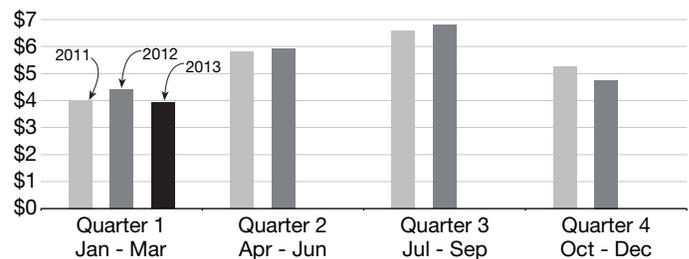


Data source: WSDOT Rail Division.

Notes: For Washington-funded trains only. January 1 to March 31, 2013.

Washington state-supported Amtrak Cascades quarterly ticket revenues decline

2011 through 2013; Dollars in millions



Data source: WSDOT Rail Division.

WSDOT gathers public input on state rail plan

Partner agencies explore mudslides causes

WSDOT is investing \$16.1 million of federal American Recovery and Reinvestment Act funding to identify, design and construct slope stabilization improvements along Amtrak Cascades' route between Seattle and Everett, a segment of the rail corridor prone to mudslides. Though early in the design phase, WSDOT is considering potential improvements like installing retaining walls, catchment systems, improving drainage systems, and controlling erosion. WSDOT expects to start constructing improvements in at least one location by late summer 2013, with work starting on the remaining locations in 2014.

WSDOT is also leading an effort with Sound Transit, Amtrak, BNSF and adjacent local agencies to explore the root causes of mudslides through this area. This will include analyzing geotechnical and hydrological factors, historical slides and other relevant data, and will complement the federally-funded project. While WSDOT expects these efforts to help reduce mudslides, the diverse topography, steep hillsides and historic slide patterns continue to be a challenge.

Cascades runs on BNSF rail lines

Amtrak Cascades service north of Seattle runs on BNSF rail lines. The state does not own the infrastructure and does not control operations on the corridor. When a mudslide occurs, BNSF imposes a 48-hour moratorium on affected railroad tracks, during which time the trains are not allowed to use the tracks so mud and other debris can be cleared, and engineers can assess damage and make necessary repairs. As a sponsor of Amtrak Cascades, WSDOT works with BNSF and other entities to assess the challenges and potential impacts to its customers and the state's investment in the service.

WSDOT coordinates state rail plan input

WSDOT is in the process of updating the Washington State Rail Plan. The plan will serve as a strategic blueprint for future public investment in the state's rail transportation system. It will provide an integrated plan for freight and passenger rail, including five- and 20-year investment priorities and funding strategies, designed to meet state and federal requirements. WSDOT will release the final version of the state rail plan by the end of 2013.

The Benton-Franklin Council of Governments hosted a regional rail workshop in Kennewick in March to gather

public input on the state rail plan as well as regional freight planning efforts. During the workshop, participants discussed rail system needs identified in the State Rail Plan. Public outreach efforts will continue until December 2013.

Total Amtrak Cascades ridership declines

First quarter (January 1 through March 31), 2013; Number of passengers per quarter, 2011 through 2013

Funding partner	Round trips funded	Quarter 1		
		2011	2012	2013
Washington	4	113,239	124,464	110,084
Oregon	2	26,629	28,912	31,960
Amtrak	1	27,145	28,750	26,903
Total ridership		167,013	182,126	168,947

Data source: WSDOT State Rail Division.

Funding changes will shift costs

Total ridership for Amtrak Cascades trains was more than 830,000 passengers in 2012. The Amtrak Cascades passenger rail service on the Pacific Northwest Rail Corridor links Eugene and Portland, Ore., with Tacoma and Seattle, Wash., and Vancouver, B.C. WSDOT's involvement with Amtrak Cascades began in 1994 and has gradually increased its services. Currently, 11 trains use the 467-mile corridor daily and stop at 18 stations.

Washington funds two daily round trips for Amtrak Cascades between Seattle, Wash., and Portland, Ore., one daily round trip between Portland and Vancouver, B.C., and one daily round trip between Seattle and Vancouver, B.C.; Oregon funds two daily round trips between Eugene, Ore., and Portland; and the federal government provides a subsidy to Amtrak to fund one daily round trip between Portland and Seattle.

Amtrak Cascades trains run on tracks that are privately owned by BNSF in Washington and British Columbia and by Union Pacific in Oregon. The train service is managed jointly by WSDOT and the Oregon Department of Transportation and operated by Amtrak, with funding coming from ticket sales and a combination of state and federal funds. When the federal Passenger Rail Investment and Improvement Act takes effect in October 2013, the federal government will no longer contribute toward the cost of operating intercity passenger rail. As a result, Washington and Oregon will absorb the portion of operating costs currently provided in the form of a subsidy through Amtrak.

Contributors include Teresa Graham, Kerri Woehler and Alison Wallingford

Notable results

- WSDOT teams responded to 9,396 incidents, clearing them in an average of 13 minutes
- Collisions caused roughly 77 percent of incidents lasting longer than 90 minutes

Incident Response provides \$15.1 million in economic benefits

WSDOT's Incident Response (IR) program responded to 9,396 incidents in the first quarter of 2013 (January 1 through March 31), clearing scenes in an average of 13 minutes. The IR teams' assistance provided Washington motorists approximately \$15.1 million in estimated economic benefits by proactively preventing secondary collisions and reducing incident-related congestion and associated costs, such as wasted fuel and time. Projected economic benefits include \$6.7 million from an estimated 1,879 prevented secondary crashes and \$8.4 million from reduced traffic delay. The IR program's quarterly benefit-to-cost ratio was approximately 13:1 for the first quarter 2013. These figures are only for incidents to which a WSDOT IR team responded and therefore are not equal to the delay costs for all incidents that occurred in the state (see *Gray Notebook* 46, p. 26, for more information on these calculations).

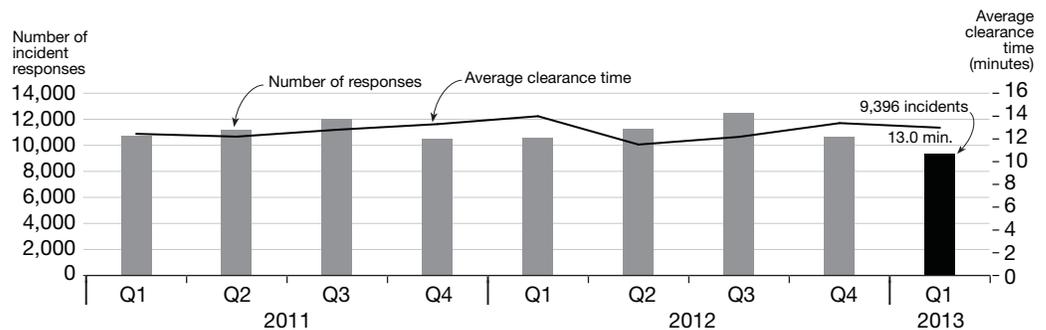
Fewer incidents may be due to mild winter

The 9,396 incidents WSDOT IR teams responded to (preliminary data as of April 15) in the first quarter of 2013

The Incident Response program keeps Washington roads safe and moving

The IR program's mission is to clear traffic incidents safely and quickly, to minimize congestion, restore traffic flow, and reduce the risk of secondary collisions. Incidents account for nearly half of non-recurring traffic congestion (congestion caused by one time events like severe weather or collisions). Incident Response teams are trained and equipped to provide assistance to motorists and the Washington State Patrol (WSP) during traffic-related emergencies. In addition to responding to emergencies, IR teams provide a variety of services to motorists such as jump starts or changing flat tires. These services keep traffic moving and reduce the risk of collisions from distracted drivers. The IR program has a fleet of 62 trucks and is budgeted \$9 million each biennium (\$1.125 million per quarter). It has 47 full-time equivalent positions.

WSDOT teams respond to 9,396 incidents, clearing them in 13 minutes on average January 1, 2011 through March 31, 2013; Number of incidents; Average clearance time in minutes



Data source: Washington Incident Tracking System (WITS), WSDOT Traffic Office.

Defining Incident Response performance measures

Performance measure	Definition	Measuring unit
Roadway clearance time	The time between the first recordable awareness of an incident (detection, notification, or verification) by a responding agency and the first confirmation that all lanes are available for traffic flow.	Time in minutes
Incident clearance time	The time between the first recordable awareness of the incident and the time the last responder has left the scene.	Time in minutes
Secondary incidents ¹	The number of unplanned incidents beginning with the time of detection of the primary incident where a collision occurs either within the incident scene or within the queue, including in the opposite direction, resulting from the original incident	Number of incidents

Data source: FHWA Traffic Incident Management Handbook.

Note: 1 The number of secondary incidents avoided as a result of the IR team's presence is a nationally-recommended performance measure. Neither WSDOT nor WSP currently collect this data. WSDOT estimates secondary avoided incidents and associated benefits – see *Gray Notebook* 47, p. 19, and *Gray Notebook* 46, p. 26, for calculation methods.

Crews clear incidents in an average of 13 minutes

WSDOT teams' performance at 9,396 incidents provides \$15.1 million in economic benefits

January 1 through March 31, 2013; Performance by incident duration; Time in minutes; Cost and economic benefits in dollars

Incident type	Number of incidents	Average IR response time ¹	Average roadway clearance time	Average incident clearance time	Incident-induced delay costs	Economic benefits from the IR program ²
Incident duration less than 15 minutes						
Blocking	1,055	2.4	5.0	6.9	\$2,293,560	\$953,656
Non-blocking	6,109	0.5	-	5.1	\$7,320,244	\$3,546,118
Total	7,164	0.8	5.0	5.3	\$9,613,804	\$4,499,774
Incident duration ranging between 15 and 90 minutes						
Blocking	855	8.9	27.3	34.3	\$9,692,430	\$4,030,084
Non-blocking	1,252	7.1	-	27.5	\$7,940,492	\$3,846,582
Total	2,107	7.8	27.3	30.3	\$17,632,922	\$7,876,666
Incident duration greater than 90 minutes						
Blocking	101	20.1	155.2	161.7	\$5,634,885	\$2,342,968
Non-blocking	24	45.8	-	136.4	\$798,612	\$386,868
Total	125	25.0	155.2	156.8	\$6,433,497	\$2,729,837
Grand Total	9,396	2.7	22.6	13.0	\$33,680,223	\$15,106,278

Data source: Washington Incident Tracking System (WITS), Washington State Patrol, WSDOT Traffic Office, and University of Washington.

Notes: 393 of the 9,396 incidents are "unable to locate" (UTL) incidents; IR personnel were en route to respond, but the incident cleared before the team reached the reported location. UTL incidents are included in the total number of incidents but not figured into average times. 1 A majority of incidents that WSDOT teams respond to are "roved" upon, meaning the team spots the incident while on patrol and thus is present at the scene when the first recordable awareness occurs. This makes average response times, especially for shorter lasting incidents, very small. 2 "Economic benefits" include the sum of economic benefits from saved time, gas and secondary incidents avoided due to the proactive work of the IR teams.

was considerably lower than previous years. The first quarters of 2012 and 2011 experienced 10,588 and 10,755 incidents or 11.3 and 12.6 percent more than 2013, respectively. This relatively low number may be due to the 2012-2013 winter being mild relative to previous years.

Average clearance times for blocking and non-blocking incidents down slightly in first quarter 2013

Approximately 21.4 percent of all incidents WSDOT IR teams responded to in the first quarter of 2013 (2,011 incidents) were blocking incidents. The other 78.6 percent (7,385 incidents) were non-blocking. Average statewide clearance times for blocking and non-blocking incidents were 27.1 minutes and 9.2 minutes, respectively. An incident is defined as blocking when it closes down at least one of the travel lanes. Non-blocking incidents leave all lanes of travel open to traffic. The table above shows average response and clearance times for blocking and non-blocking incidents by incident duration categories.

Incident-induced delay costs motorists \$33.7 million

Traffic delay induced by incidents cost Washington motorists \$33.7 million in fuel and time during the first quarter of 2013. This is a 22.1 percent drop from the \$42.7 million in induced delay costs during the first quarter of 2012. Of the total, \$17.6 million was from blocking incidents and \$16.1 million was from non-blocking incidents. WSDOT calculates the cost of blocking and non-blocking incidents at \$345 per minute and \$244 per minute, respectively (see *Gray Notebook* 46, p. 26, for more on calculation methodology). Broken down by incident duration, delay costs were \$9.61 million for incidents lasting less than 15 minutes, \$17.63 million for incidents lasting 15-90 minutes and \$6.43 million for incidents lasting longer than 90 minutes, respectively.

Disabled vehicles remain most common incident

Disabled vehicles were the most common type of incident responded to by IR teams during the first quarter of

Two incidents lasting six hours or more occur on the nine key Western Washington highway corridors

January 1 through March 31, 2013; Duration in minutes

Date & time	State route & location	Duration	Jurisdiction	Incident summary
February 5, 4:58 p.m.	Interstate 5 at milepost 26	364	Cowlitz County	Non-injury collision involving a rolled-over semi-truck.
February 27, 2013, 1:03 p.m.	State Route 167 at milepost 22.75	386	City of Kent	Non-injury collision involving a semi-truck that blocked one lane of travel. Response included hazardous material cleanup.

Data source: Washington State Incident Tracking System (WITS), Washington State Patrol, and WSDOT Traffic Office.

Only two incidents lasting over six hours occur in first quarter 2013

2013. Disabled vehicles include cars with a failed engine or an empty tank of gas. In total, they accounted for 61 percent of the 7,164 incidents lasting less than 15 minutes and 49 percent of the 2,107 incidents lasting 15-90 minutes. Collisions involving injuries were the most common type of incident lasting over 90 minutes. They accounted for 39 percent of incidents lasting longer than 90 minutes to which IR teams responded.

Traffic collisions accounted for 77 percent of over-90-minute incidents. This includes injury, non-injury and fatal collisions. Fatality collisions made up 0.13 percent of all incidents to which WSDOT IR teams responded.

WSDOT and State Patrol meet clearance goal

Seventy-four over-90-minute incidents occurred on nine key highway segments in the first quarter of 2013. These incidents had an average clearance time of 143 minutes, which is 12 minutes faster than the 155-minute goal.

The nine key segments include Interstate 5 (I-5) in Washington state, I-205, I-405, I-90 from Seattle to North Bend, State Route 16 (SR 16) from Tacoma to Purdy, SR 18 from Federal Way to I-90, SR 167, SR 512, and SR 520. Over-90-minute incidents on these corridors have a disproportionate impact on congestion and the economy compared to other highway segments. WSDOT and the Washington State Patrol have a formal agreement in the Joint Operations Policy Statement to clear blocking traffic incidents in 90 minutes or less.

Incidents lasting over 90 minutes have the goal of being cleared in 155 minutes. The table at the bottom of page 27 describes the two incidents lasting over six hours that occurred on the nine key state highway segments in Washington state. Both involved semi-trucks. Excluding these, the average clearance time of over-90-minute incidents on the nine key highway corridors was 136 minutes, 19 minutes faster than the 155-minute goal.

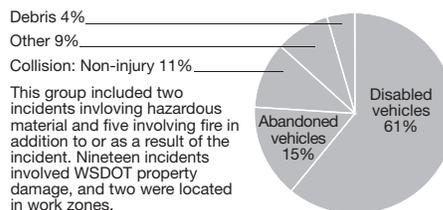
Contributors include Paula Connelley, Vince Fairhurst, Jim Hill (WSP), Diane McGuerty, Joanna Trebaczewks (WSP), and Bradley Bobbitt

Primary cause of incidents vary by duration

January 1 through March 31, 2013; Includes all incidents to which WSDOT teams responded; Total of 9,396 incidents

Incidents lasting less than 15 minutes (7,164)

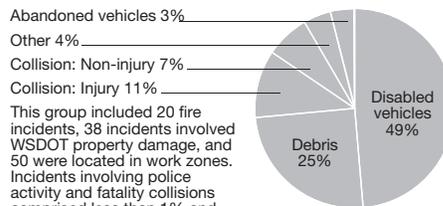
Estimated cost of delay from incidents lasting less than 15 minutes: about \$9.6 million



This group included two incidents involving hazardous material and five involving fire in addition to or as a result of the incident. Nineteen incidents involved WSDOT property damage, and two were located in work zones.

Incidents lasting between 15 and 90 minutes (2,107)

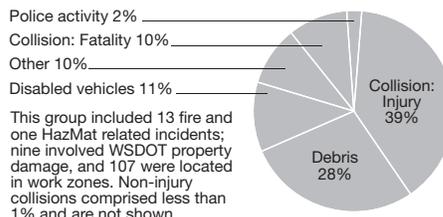
Estimated cost of delay from incidents lasting 15 to 90 minutes: about \$17.6 million



This group included 20 fire incidents, 38 incidents involved WSDOT property damage, and 50 were located in work zones. Incidents involving police activity and fatality collisions comprised less than 1% and are not shown.

Incidents lasting longer than 90 minutes (125)

Estimated cost of delay from incidents lasting longer than 90 minutes: about \$6.4 million



This group included 13 fire and one HazMat related incidents; nine involved WSDOT property damage, and 107 were located in work zones. Non-injury collisions comprised less than 1% and are not shown.

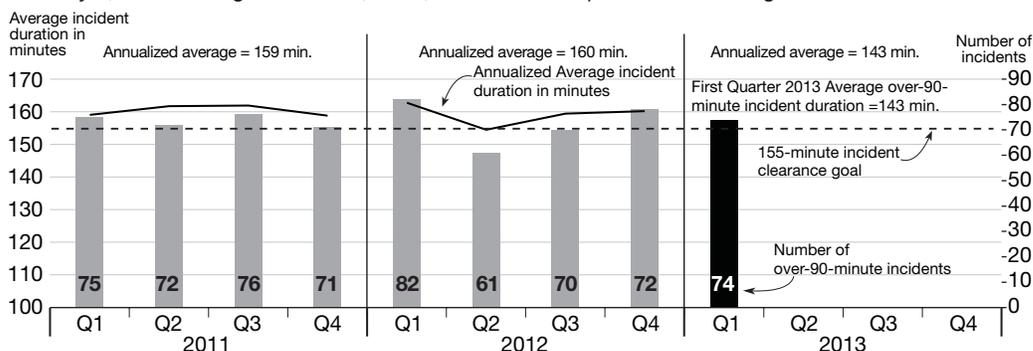
Data source: Washington Incident Tracking System (WITS), WSDOT Traffic Office.

WSDOT confirms, finalizes Incident Response performance from fourth quarter 2012

In *Gray Notebook* 48, WSDOT reported that IR teams responded to 10,691 incidents with an average clearance time of 13.4 minutes as preliminary data for the fourth quarter of 2012. These numbers are correct and have been confirmed and finalized by the WSDOT Traffic Office.

Crews meet clearance time goal for over-90-minute incidents on key highways

January 1, 2011 through March 31, 2013; Number of responses vs. average duration in minutes



Data source: Washington State Patrol and WSDOT Traffic Office.

Note: The key corridors in Washington state are Interstate 5, I-205, I-405, I-90 from Seattle to North Bend, State Route (SR) 16 from Tacoma to Purdy, SR 18 from Federal Way to I-90, SR 167, SR 512, and SR 520. Data includes all over-90-minute incidents, not just incidents at which Incident Response teams were present.

Notable results

- **Ferries ridership improved 3.4 percent from the same quarter last fiscal year; revenues increased 5 percent during this period**
- **Poor weather and tides caused 39 percent of the total trips canceled by ferries; there were 38,664 scheduled trips during the quarter**

Ferries on-time performance reaches second best mark in past six years

Washington State Ferries (WSF) exceeded its 95 percent on-time performance goal with 97.8 percent of trips on time in the third quarter of fiscal year (FY) 2013, January 1 through March 31. This marks the second best on-time performance quarter in the past six years for WSF.

Meanwhile, ridership for the quarter was 4.69 million, 1 percent below projections, and farebox revenue was \$31.6 million, 0.3 percent below quarterly projections. The percentage of sailings system-wide that departed on time in the third quarter of FY2013 declined 0.3 percent from the same quarter in FY2012. Despite the decrease – from 98.1 percent to 97.8 percent – the third quarter of FY2013 was the second best quarter in the last six years.

WSF exceeded its on-time performance goal of 95 percent for the quarter. The average sailing delay decreased



The Motor/Vessel (M/V) Evergreen State and the M/V Chelan pass near Point No Point in Hansville, Kitsap County.

slightly from 1.6 to 1.5 minutes from the third quarter of FY2012 compared to the third quarter of FY2013.

The overall percentage of sailings system-wide that departed on time increased by 1.5 percent compared to the previous quarter. In the third quarter of FY2013, 97.8 percent of trips were on time compared to 96.3 percent in the second quarter of FY2013.

Washington State Ferries on-time performance continues to be strong

Third quarter (January 1 through March 31), FY2012 and FY2013; Sailing delay in minutes; Goal = 95 percent

Route	Third quarter, FY2012			Third quarter, FY2013		
	Actual on-time trips ¹	On-time percentage ²	Average sailing delay ³	Actual on-time trips ¹	On-time percentage ²	Average sailing delay ³
San Juan domestic	5,757	94.4%	2.4	5,843	96.1%	1.7
International Route (Anacortes - Sidney, B.C.)	13	100.0%	0.4	11	68.8%	8.6
Edmonds - Kingston	4,214	99.9%	1.2	4,170	99.5%	1.1
Fauntleroy - Vashon - Southworth	9,575	98.1%	1.9	9,494	97.2%	2.1
Port Townsend - Coupeville	1,623	94.6%	2.9	1,567	93.0%	2.8
Mukilteo - Clinton	6,552	99.7%	0.9	6,477	99.6%	1.0
Pt. Defiance - Tahlequah	3,321	99.1%	1.6	2,849	99.5%	1.3
Seattle - Bainbridge Island	4,057	99.0%	0.9	3,983	98.3%	0.8
Seattle - Bremerton	2,674	99.0%	1.5	2,557	97.8%	1.7
Total	37,786	98.1%	1.6	36,951	97.8%	1.5

Data source: WSDOT Ferries Division.

Notes: 1 About 1 percent of trips are not detected by the automated tracking system due to marine and atmospheric conditions which prevent a trip from being reported when the vessel leaves a terminal. These trips are not included in on-time performance calculations. 2 On-time percentage is the number of actual on-time trips divided by the number of completed trips for the quarter. 3 The average sailing delay is shown in minutes and is an average of the duration of time occurring after the "on-time" window ends and the actual recorded departure time of the vessel. A trip is delayed when a vessel does not leave the terminal within 10 minutes of the scheduled departure time.

Ridership and revenues increase from same quarter in FY2012

Three routes showed declines in on-time performance between the third quarters of FY2012 and FY2013: Anacortes - Sidney, -31 percent; Port Townsend - Coupeville, -1.6 percent; and Seattle - Bremerton, -1.2 percent. Poor weather accounted for the delays on the Anacortes - Sidney route, which had only 16 sailings in the third quarter of FY2013. Poor weather and heavy traffic impacted the Port Townsend - Coupeville route, and the use of the Motor/Vessel (M/V) *Salish* for five days during third quarter of FY2013 contributed to the drop in on-time performance on the Seattle - Bremerton route.

The San Juan domestic route saw the largest increase (1.7 percent) in on-time performance in the third quarter of FY2013 compared to the same quarter in FY2012.

There is typically a seasonal increase in on-time performance in the fall and winter seasons when terminals and vessels are not as busy and capacities are not as constrained as during the spring and summer. As a result, the loading and unloading of vehicles is more efficient, helping vessels stay on schedule.

Poor weather results in canceled trips

There were seven more missed trips during the third quarter of FY2013 compared to the third quarter of FY2012, 170 compared to 163. For the quarter, 38,664 regular service trips were scheduled.

Of those trips, 302 were canceled and 132 were replaced, resulting in 170 net missed trips and 38,494 total trips

Washington State Ferries trip reliability unchanged from third quarter of FY2012 - remains above goal

Third quarter (January 1 through March 31), FY2012 and FY2013; Goal = 95 percent

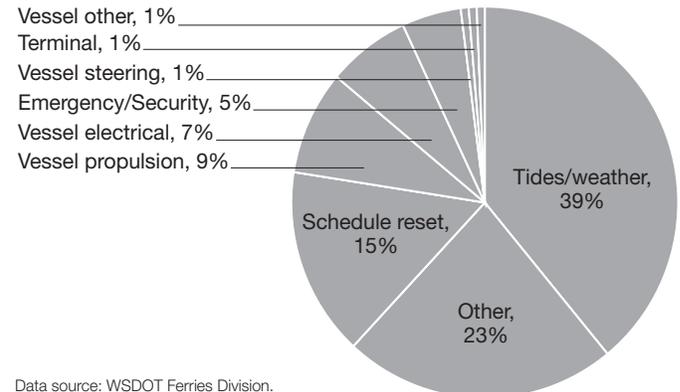
Route	Third quarter, FY2012			Third quarter, FY2013		
	Scheduled trips	Missed trips ¹	Reliability average ²	Scheduled trips	Missed trips ¹	Reliability average ²
San Juan Domestic	6,285	25	99.6%	6,223	14	99.8%
International Route (Anacortes - Vancouver, B.C.)	14	0	100.0%	16	0	100.0%
Edmonds - Kingston	4,238	2	100.0%	4,198	0	100.0%
Fauntleroy - Vashon - Southworth	9,812	16	99.8%	9,715	27	99.7%
Port Townsend - Coupeville	1,820	84	95.4%	1,800	99	94.5%
Mukilteo - Clinton	6,604	11	99.8%	6,530	9	99.9%
Pt. Defiance - Tahlequah	3,458	23	99.3%	3,420	2	99.9%
Seattle - Bainbridge Island	4,121	2	100.0%	4,075	2	100.0%
Seattle - Bremerton	2,717	0	100.0%	2,687	17	99.4%
Total	39,069	163	99.6%	38,664	170	99.6%

Data source: WSDOT Ferries Division.

Notes: 1 Missed trips is the difference (net) between the number of canceled trips and the number of replaced trips. 2 The reliability average is calculated by dividing the recorded number of net trips (scheduled trips - canceled trips + make-up trips) by the number of scheduled trips.

Weather tops reasons for Ferries' canceled trips

Third quarter (January 1 through March 31), 2013



Data source: WSDOT Ferries Division.

Notes: There were 47 cancellations from a schedule reset on the Fauntleroy - Vashon - Southworth route due to mechanical problems on the M/V *Klahowya*. The "other" category includes 60 cancellations due to the M/V *Salish* being placed on the Seattle - Bremerton route, and five miscellaneous cancellations. Numbers are rounded up and do not equal 100 percent.

for the quarter. (38,664 scheduled - 302 canceled + 132 replacement trips = 38,494 net trips.) The net trips figure represents 99.6 percent of total scheduled trips, which exceeds Ferries annual trip reliability goal of 99 percent.

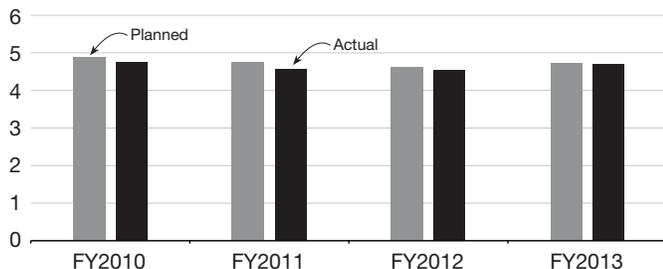
Poor weather accounted for 99 of the 170 missed trips and those weather-related cancellations occurred almost entirely on the Port Townsend - Coupeville route.

Vessel mechanical issues on the Motor/Vessel (M/V) *Klahowya* resulted in 17 of the total 27 missed trips on the Fauntleroy - Vashon - Southworth route. In

Crewing complaints decrease since last quarter from 129 to three

Ferries ridership increases 3.4 percent from same quarter in FY2012

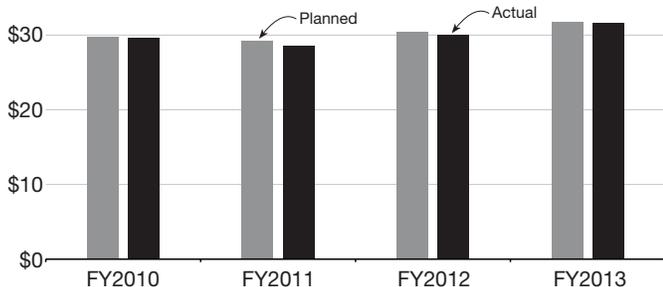
Third quarter (January 1 through March 31); FY2010 through FY2013; Passengers in millions



Data source: WSDOT Ferries Division.

Revenues up 5 percent from same quarter in FY2012

Third quarter (January 1 through March 31); FY2010 through FY2013; Dollars in millions



Data source: WSDOT Ferries Division.

In addition, necessary vessel inspections for the 130-car M/V *Kitsap* and M/V *Chelan* in January required the temporary placement of the 64-car M/V *Salish* on the Seattle - Bremerton route. The *Salish* is slower and smaller than the vessels that typically serve this route, and could not keep the sailing schedule; 14 trips were missed over a five-day period.

Creating a marine highway

Washington State Ferries creates a marine highway for motorists, and serves as a critical link to communities separated by water or longer driving distances. The service is essential to moving goods and people throughout the Puget Sound region in that it provides the most direct routes, and sometimes the only routes to regions and islands.

As the largest operating auto-ferry fleet in the world, carrying 10 million vehicles and more than 22 million ferry passengers each year, WSF faces unique challenges ranging from changing demographics and work patterns to a slow economic recovery statewide and relies on different strategies to maintain ridership and revenues.

Ridership and revenue up from last year

Ferries had approximately 45,000 fewer riders than the 4.69 million projected for the third quarter of FY2013. Compared to the same quarter one year ago, Ferries ridership increased by 3.4 percent, with about 155,000 more riders in the third quarter of FY2013 than in the third quarter of FY2012 (see graph top left).

Farebox revenue was \$31.6 million for the third quarter of FY2013. This was approximately \$95,000 less than the \$31.7 million projected (see graph at bottom left). Compared to the same quarter last year, farebox revenue was about \$1.5 million higher in the third quarter of FY2013, about a 5 percent increase over the third quarter of FY2012.

Rider complaints decrease 43 percent as Ferries addresses crewing issues

Customer complaints decreased by 43 percent in the third quarter of FY2013 compared to the second quarter, from 10.8 to 6.2 complaints per 100,000 customers. Crewing complaints saw the largest drop with 126 fewer than last quarter (three compared to 129). There was an unusually high number of crewing-related vessel cancellations in the second quarter of FY2013, making the decrease to typical levels larger than normal.

Washington State Ferries received 33 compliments in the third quarter of FY2013 which is down from 57 compliments in the second quarter of FY2013.



Customer kudos to Ferries

"I boarded the Edmonds - Kingston ferry ... and one of your employees, Mark, noticed a huge bubble in my front tire. When we arrived, he had me park in the lot, and changed my tire for me without asking for anything in return ... I would like him to know that his actions were greatly appreciated!"



New strategies improve ridership, service

Strategies to keep riders and use resources more effectively are underway and include an upgraded online reservation system that enhances access to the Port Townsend - Coupeville route. As a result, the reservation "show" rate has increased from 61 percent to more than 86 percent

continued on page 80

Notable results

- WSDOT has provided travel information to the public through more than 14 million calls to the 511 system
- In fiscal year (FY) 2012, 1.4 million calls were received by the 511 system, compared to 2.2 million calls in FY2009
- Fifty-four percent of visits to WSDOT's website now come through mobile devices
- In the Washington marketplace, WSDOT is one of the most popular Twitter feeds, with 33,308 followers

Mild winter reduces WSDOT's travel information requests

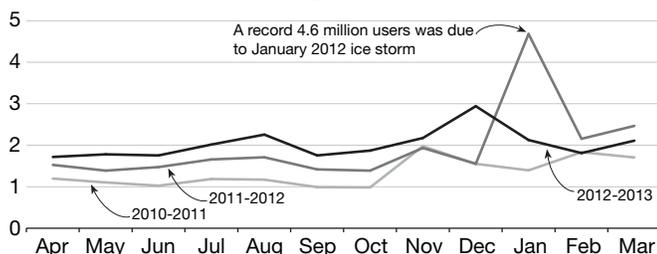
The popularity of social media (such as Twitter and Facebook) is enhancing the way WSDOT shares information with the traveling public. Since the agency began operating the 511 phone system in 2003, WSDOT has provided travel information to the public through more than 14 million calls.

While the public relies on the phone system, WSDOT also provides travel information through its website and social media. Last year, WSDOT achieved nearly 3,000 "likes" on Facebook and gained nearly 9,000 followers on the agency's Twitter feed, making it one of the most popular in the Washington marketplace, just behind the Seattle Times and KING-5 television. As of March 31, 2013, WSDOT had 33,308 Twitter followers.

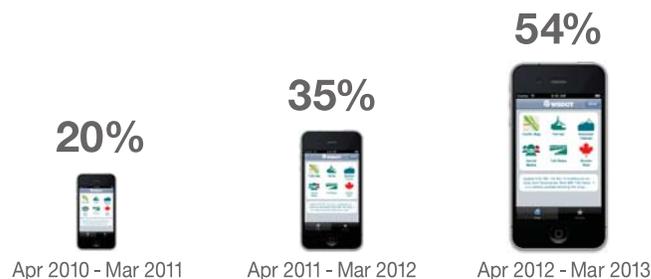
WSDOT tracks calls to the 511 system in four main categories: traffic, mountain passes, ferries and weather. The table below right shows the percentage of calls based on requested information for the last five fiscal years (July 1 through June 30), with data for fiscal year (FY) 2013 through March 31, 2013. WSDOT had its 14 millionth call to the system in February; persistent mountain snow through December led to a high call volume month, but

Mild winter lowers traffic, travel website use

Unique users from April through March, 2010-2013; In millions



Data source: WSDOT Communications Office.



Mobile devices become method of choice for accessing WSDOT website

April 2010 through March 2013; Percentage of visits to WSDOT website through mobile devices

Data source: WSDOT Communications Office.

the generally mild winter weather resulted in unremarkable demand. As more travelers use social media, the total number of calls to the 511 system have declined 34 percent since FY2009, when 2.2 million calls were received, to FY2012, when 1.4 million calls were received.

As the mild winter of 2012-2013 saw 511 calls decline, the number of page views to WSDOT's traffic and travel information web pages also decreased, while the number

continued on page 80

Mountain pass conditions generate greatest percentage of calls to 511 system

FY2009 through FY2013²; July 1 through June 30; Percentage¹ of total calls

Information requested	2009	2010	2011	2012	2013*
Traffic	22%	23%	20%	17%	23%
Mountain pass	63%	64%	68%	74%	62%
Ferry	6%	8%	6%	5%	9%
Weather	3%	3%	4%	3%	4%
Other	5%	2%	2%	2%	1%
Total calls	2,169,872	1,616,956	1,503,528	1,360,435	851,185

Data source: Vector directory numbers, WSDOT Traffic Office.

Notes: 1 Percentages may not add to 100 due to rounding. 2 FY2013 data through March 31, 2013.



Environment at a glance

Wetlands Protection Annual Report

34

- *Since 1988, WSDOT has constructed and monitored 220 wetlands and stream mitigation sites on 1,047 acres*
- *Wetlands mitigation sites have increased by 89 percent since 2006*
- *WSDOT has constructed and developed three certified mitigation banks*

State policy goal

To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment.

WSDOT's business direction

Protect and restore the environment while improving and maintaining Washington's transportation system.

Notable results

- **WSDOT has 220 wetlands and stream mitigation sites on 1,047 acres**
- **WSDOT has three certified mitigation banks**
- **Wetland mitigation efforts have increased 89 percent since 2006**

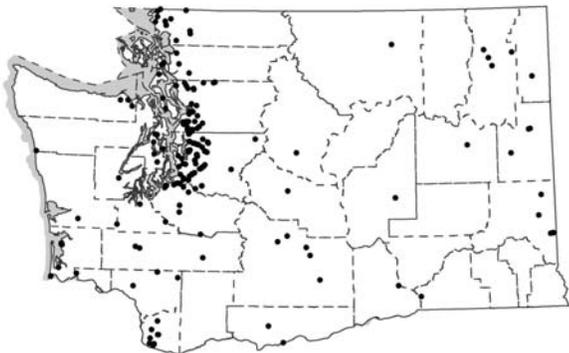
WSDOT counts wetlands sites rather than permit numbers

WSDOT has constructed and monitored 220 wetland and stream mitigation sites on 1,047 acres since 1988 (see map below for locations). This article includes stream mitigation sites, featured in the *Gray Notebook* for the first time. The data for all measurements is adjusted to reflect the number of sites rather than the number of permits. These changes increased the number of sites by 19 and the number of acres by 72 compared to 2011 (see *Gray Notebook* 45, p. 30). WSDOT's inventory of 220 mitigation sites includes:

- Eighty wetland and stream mitigation sites in the initial 10-year monitoring period, with seven new sites on 33 acres added in 2012.
- Sixty-four sites that have met their permit requirements and are closed by the U.S. Army Corps of Engineers (Corps), except for long-term care (stewardship).
- Twenty sites that are being evaluated by the Corps for completion of permit requirements.
- Thirteen sites that are past the initial monitoring period but have not met all of the permit requirements.
- Forty-three sites monitored prior to 2000 that have met final performance standards and are now in long-term stewardship.

WSDOT's 220 wetland mitigation sites

1988-2012; Replacement wetland site locations statewide



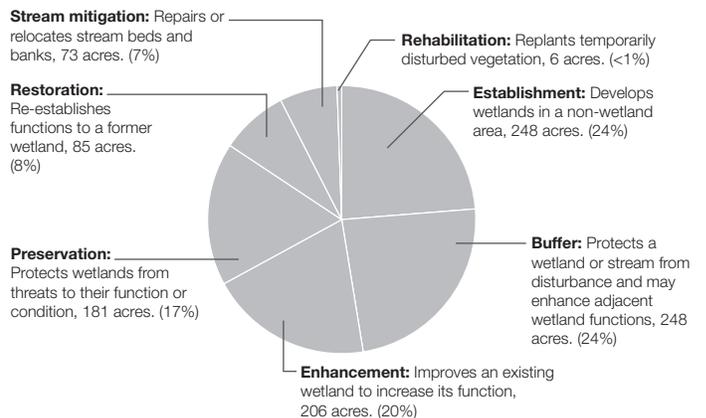
Data source: WSDOT Environmental Services Office.

WSDOT plans and designs transportation projects to avoid and minimize disturbance to wetlands and streams. When projects cannot avoid disturbing wetlands, WSDOT obtains permits from federal, state, and local regulatory agencies. WSDOT uses interdisciplinary teams to design mitigation sites. The interdisciplinary teams may include an engineer, wetland biologist, landscape architect, hydro-geologist and environmental permit coordinator. These teams follow the project from site selection through design and construction. After the site is constructed, monitoring and management of the site begins. The site is monitored until it is verified as successful by the Corps. After the Corps verifies mitigation is complete, WSDOT moves closed mitigation sites into long-term stewardship. WSDOT is required to permanently protect and maintain mitigation sites.

WSDOT mitigates for unavoidable disturbance by enhancing, restoring, rehabilitating, or preserving existing wetlands, or by establishing new wetlands. For additional information about the benefits wetlands provide, refer to *Gray Notebook* 45, p. 30.

WSDOT replacement wetlands

1988 through 2012; Total acreage (and percent) of replacement wetlands and stream mitigation sites by type (220 sites on 1,047 acres)



Data Source: WSDOT Environmental Services Office.

Mitigation work requires creative solutions

WSDOT increases wetland area and function

WSDOT construction projects disturbed 50 acres of wetlands at 64 sites that have been closed. WSDOT compensated for this disturbance by 1) establishing or restoring 54 acres of wetlands for a net gain of four acres, 2) enhancing the functions of 27 acres of existing wetlands, and 3) preserving 48 acres of existing wetlands. WSDOT complies with federal, state, and department policies to ensure “no net loss” of wetland area and function.

WSDOT fixes under-performing mitigation sites

WSDOT reduced the number of under-performing mitigation sites from 14 to 13 in the past year. The Corps verified that one site was successfully established after additional planting and weed control occurred. WSDOT expects verification from the Corps on six more under-performing wetland mitigation sites in 2013, and three in 2014. These under-performing sites have either not met their performance standards, are not providing enough mitigation acres, or both. WSDOT consults with Washington State Department of Ecology and the Corps on ways to improve under-performing sites or WSDOT recommends substitute mitigation acres at a different location. Four mitigation sites are not expected to develop the needed wetland characteristics and functions. WSDOT is working to provide substitute mitigation acres.

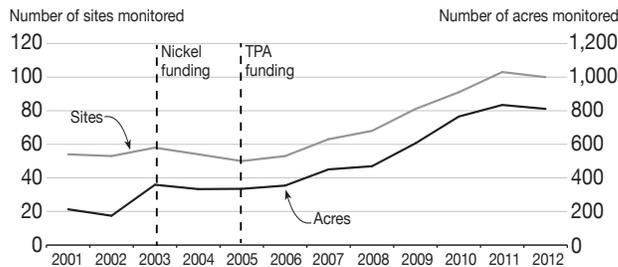
Wetland mitigation workload remains high

The wetland monitoring workload for 2012 is nearly the same as in 2011. WSDOT expects the workload to remain high for several more years. WSDOT monitors mitigation sites for 10 years after they are constructed to evaluate their compliance with permit requirements. The graph above shows how wetland mitigation efforts have increased since 2006 from construction projects funded by the 2003 Nickel and the 2005 Transportation Partnership Account gas tax packages. WSDOT will continue to construct mitigation sites as needed when transportation projects are implemented.

WSDOT has kept up with the increasing wetland work by implementing efficiencies such as: hiring seasonal college interns and temporarily reassigning existing staff for summer monitoring; installing groundwater monitoring wells to reduce hydrology monitoring efforts; obtaining Corps agreements to alter the monitoring schedule after certain

WSDOT monitors 100 mitigation sites

2001 through 2012; Number of sites and acres compared to funding sources



Data source: WSDOT Environmental Services Office.

performance standards are met, and shifting from paper data forms to all-electronic data collection processes.

Maintaining mitigation sites improves success

Newly constructed wetland mitigation sites benefit from regular maintenance so the desired vegetation becomes well-established. WSDOT takes care of mitigation sites in response to identified needs such as weed control, irrigation, mulching, and replacing dead or damaged plants. These actions during the monitoring period can improve mitigation results. All 50 recommended actions to improve mitigation sites were completed in 2012.

WSDOT partners with tribes, state agencies, and local governments to construct wetland and stream mitigation on their properties. WSDOT receives mitigation credit and the partners assume long-term stewardship obligations.

WSDOT partners with tribes, state agencies, and local governments to construct wetlands and provide stream mitigation

WSDOT-owned mitigation sites may be transferred to tribes, other state agencies, local governments, or conservation entities willing to

take responsibility for long-term stewardship. WSDOT is working to transfer selected sites to local land trusts and counties for flood control and open space.

WSDOT provides funding for liaison positions at regulatory agencies; these positions work only on WSDOT projects. Liaison staff is focused on keeping WSDOT’s permits moving forward by expediting reviews and feedback. WSDOT’s liaisons help reduce the time needed to get permits, and review mitigation sites to verify they have successfully provided appropriate mitigation and can be closed and transferred to long term stewardship.

WSDOT earns credits for wetland protection efforts

WSDOT uses mitigation banks, in-lieu-fee programs, and advance mitigation to reduce cost and save time. Most WSDOT mitigation sites are constructed at the same time as the corresponding transportation project. Regulatory agencies prefer having mitigation sites in place before transportation projects are constructed. Mitigation banks and advance mitigation have these benefits:

In-lieu-fee programs have the benefit of transferring all mitigation obligations to the program sponsor with a lump sum payment. In-lieu fee programs are administered by a public agency or non-profit organization that has obtained approval from regulatory agencies to receive fees and develop, monitor, and maintain mitigation sites within a defined service area. Permit applicants with projects in the service area can use this option if permitting agencies agree the proposed compensation is appropriate. WSDOT has used this process in King County; as discussed in the last paragraph of this article.

WSDOT operates three mitigation banks

WSDOT developed and operates three certified mitigation banks: Moses Lake Bank, North Fork Newaukum Bank, and Springbrook Creek Bank. Mitigation banks reduce costs for design, land purchases, construction, monitoring and maintenance because mitigation for several projects is constructed in advance on one site. Mitigation banking can be thought of as a type of “savings account” for future capital projects and mitigation needs. Mitigation banks create credits based on the number of acres and their value.

In 2012, WSDOT earned 6.28 credits from its North Fork Newaukum and Springbrook Creek mitigation banks. The Moses Lake Bank earned all five of its planned credits prior to 2012. No WSDOT bank credits were used for projects during 2012. For additional information refer to *Gray Notebook* 45, p. 32.



Interns collect vegetation data to evaluate wetland permit compliance.

WSDOT mitigates before projects disturb wetlands

Nine WSDOT advance mitigation sites are earning mitigation credit, which can be used when future construction projects disturb wetlands. Advance mitigation is similar to mitigation banking because it is developed before any disturbance occurs. However, advance mitigation credits are limited to department projects and may not be sold to others.

Purchasing third-party credit compensates for loss of stream bed and stream bank

One WSDOT project purchased credit from King County’s in-lieu-fee program to compensate for the loss of almost a half acre of stream bed and a quarter acre of streambank in 2012. WSDOT purchases credit from certified third-party wetland mitigation banks and approved in-lieu-fee programs when those options are cost effective.

Contributors include Cyndie Prehmus, Doug Swanson and Joanne Wearley



Economic Vitality at a glance

Trucks, Goods and Freight Annual Report

38

- *The total number of trucks entering Washington from Canada grew by 1 percent between 2011 and 2012*
- *Container volumes at the ports of Seattle and Tacoma increased by 2 percent between 2011 and 2012*
- *The state-owned Palouse River and Coulee City Railroad shipped a record number of 11,664 carloads in 2012, an increase of 12.7 percent from 2011 levels*

Commercial Vehicle Information Systems and Networks Annual Report

45

- *The Commercial Vehicle Information Systems and Networks program bypasses saved an estimated 101,000 hours of travel time and \$12.4 million in operating expenses for the trucking industry on Washington highways*
- *The program also provided an environmental benefit by reducing fuel use for commercial trucks in Washington by an estimated 484,000 gallons in 2012*

State policy goal

To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy.

WSDOT's business direction

Provide and operate a strong and reliable transportation system that efficiently connects people with jobs and their communities, moves freight, builds partnerships with the private sector, and supports a diverse and vibrant economy.

Notable results

- *Forty-four percent of the state's jobs depend on freight*
- *Thirty-seven percent of all state route miles carry truck freight volumes of at least four million tons a year*
- *The state-owned rail system shipped a record high of 11,664 carloads in 2012*
- *Container shipments increased 2 percent at the ports of Seattle and Tacoma*

State's economy depends on freight

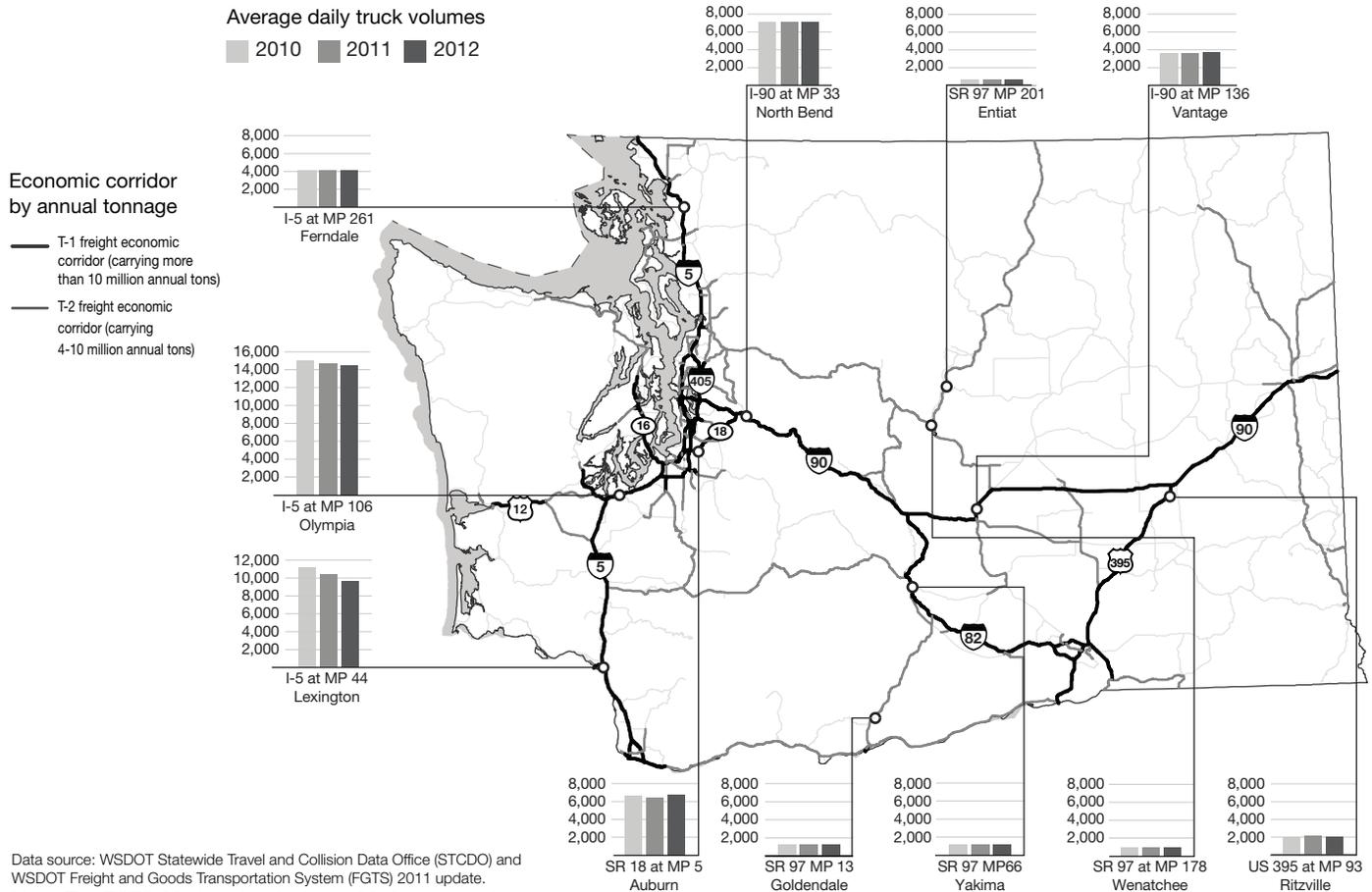
The number of Washington jobs in freight-dependent industries (such as retail, agriculture and manufacturing) grew by 2.6 percent, from 1.20 million jobs in 2011 to 1.23 million jobs in 2012. Washington was one of the five most trade-dependent states in the nation in 2011, with total imports and exports valued at \$111.5 billion and gross business income for freight-dependent industries

totaling \$450 billion. The competitiveness of Washington's economy depends on the statewide freight systems.

WSDOT supports Washington freight systems and freight-dependent industries by directly managing the state's interstate and highway systems, the ferry system, a short-line railroad, and several freight rail programs. WSDOT also provides policy analysis and counsel for the

WSDOT classifies 2,846 state route miles as truck freight economic corridors

Average daily truck volumes at select highway mileposts for 2010 through 2012; WSDOT's truck freight economic corridors by 2010 annual tonnage



Data source: WSDOT Statewide Travel and Collision Data Office (STCDO) and WSDOT Freight and Goods Transportation System (FGTS) 2011 update.
 Note: The FGTS 2011 update includes 2010 tonnage data.

Truck crossings at Washington borders slowly increasing

state's marine freight interests on the Columbia and Snake rivers and statewide air freight transportation systems.

WSDOT measures truck freight volumes, identifies economic corridors

WSDOT identified the state's truck freight economic corridors as a deliverable of the Washington State Freight Mobility Plan in 2012. These corridors include all routes that have been designated as T-1 or T-2, as well as several corridors that serve as alternatives to primary freight routes. WSDOT classifies truck freight corridors by the average

Average daily truck volumes on I-5 showed moderate decreases

annual gross tonnage they carry. A corridor must carry more than 10 million tons per year to be designated as a T-1 corridor, or carry four to 10 million tons per

year to qualify as a T-2. Truck freight economic corridors represent 2,846 miles (40.3 percent) of all state route miles. T-1 corridors account for 1,068 miles (15.1 percent of all state route miles), T-2 roads for 1,521 miles (21.6 percent of all state route miles), and alternate routes account for 258 miles (3.7 percent of all state route miles).

All of the selected locations on Interstate 5 (I-5) showed decreases in average daily truck volumes between 2011 and 2012; truck traffic decreased 1.9 percent on I-5 near Olympia, 4.3 percent near Lexington, and 0.2 percent near Ferndale. Other locations in the state showed mixed results; there was a 2.8 percent increase on State Route 18 (SR 18) near Auburn, a 2.1 percent increase on I-90 near

Vantage, and a 1.9 percent decrease on SR 97 near Wenatchee. By measuring truck volumes at select locations throughout the state, WSDOT can identify those locations with the greatest activity, as well as growth trends.

These mixed trends in average daily truck volumes reflect trends in the broader economy. In 2012, Washington experienced moderate economic growth, slow job growth, and weakening exports.

Washington saw moderate economic growth in 2012

In 2013, WSDOT will continue work identifying connector freight routes (also classified as truck freight economic corridors) that link intermodal facilities, industrial lands, rural agricultural processing centers and commercial lands to the T-1/T-2 backbone system.

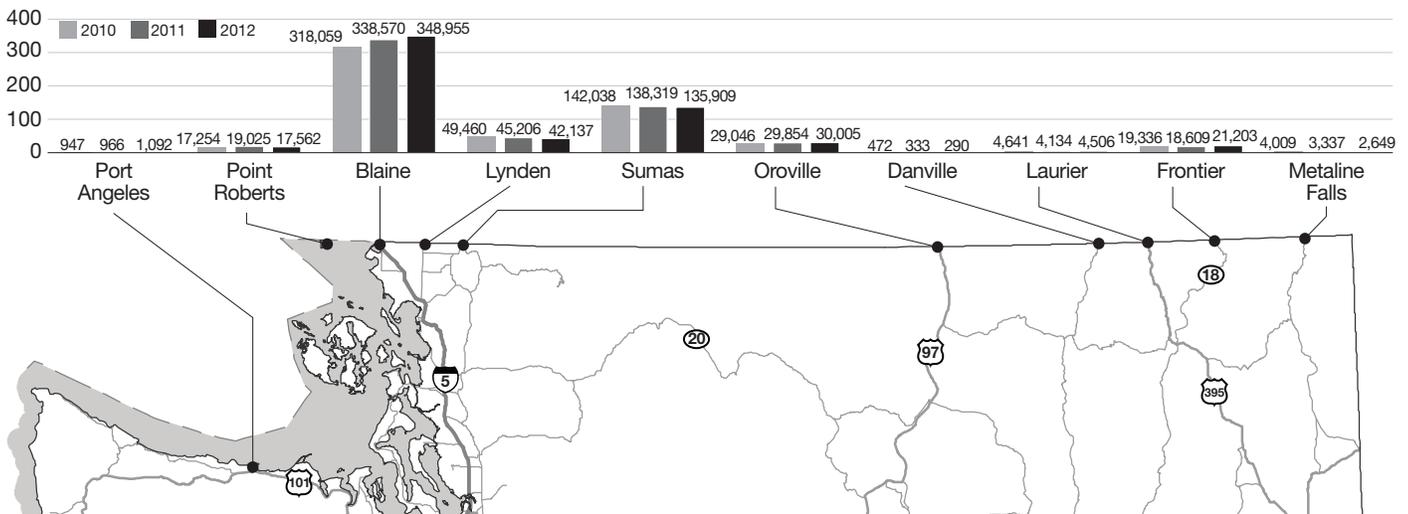
Truck traffic at Western Washington borders with Canada continues an upward trend

The total number of trucks entering Washington from Canada increased 1 percent, from 598,353 total truck crossings in 2011 to 604,308 total truck crossings in 2012. This continues the upward trend observed since 2009, with small annual increases.

Crossings at Blaine, Lynden and Sumas, which see the greatest number of border truck traffic, increased 1.3 percent from a combined average of 2,660 northbound/southbound trucks a day in 2011 to an average of 2,695 trucks a day in 2012. After mostly annual declines between 2000 and 2010, truck traffic is

Number of trucks entering Washington from Canada slowly trending upward

2010 through 2012; Annual number of southbound truck crossings

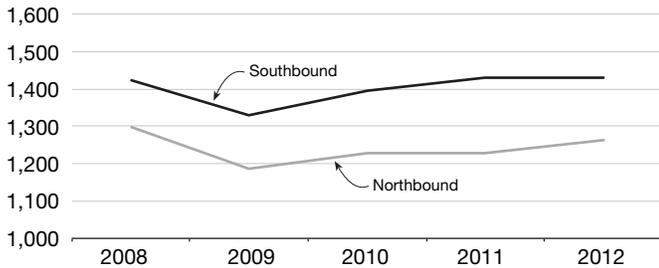


Data source: U.S. Department of Transportation, Bureau of Transportation Statistics.

Nearly half of Washington's jobs depend on freight

increasing at a slow pace at Western Washington borders. These crossings handle nearly 80 percent of all cross-border trade along the state's border with Canada.

Western Washington border truck traffic increasing 2008 through 2012; Average daily truck volumes at Blaine, Lynden and Sumas border crossings



Data source: U.S. Customs & Border Protection, Statistics Canada; Compiled by Whatcom Council of Governments.

Freight transport plays critical role in Washington's economic vitality

Freight-dependent industries accounted for approximately 44 percent of Washington's jobs in 2012:

- 628,200 jobs in retail and wholesale trade, a 2.0 percent increase from 2011
- 518,800 jobs supported by "Made in Washington" products such as agriculture and manufacturing, a 3.3 percent increase from 2011
- 83,100 jobs supported by "global gateways," which includes jobs in truck, rail, water, and air transportation industries, a 2.9 percent increase from 2011.

The state's freight system is an intermodal network of highways and local roads, mainline and short-line railroads, navigable waterways and deep water ports, and air cargo facilities. Washington's freight system supports both the national and state economies in three primary ways: Serving as a global gateway that connects Asian trade flows to the U.S., Alaska to the lower 48 states, and Canada to the U.S. West Coast; transporting "Made in Washington" products to domestic and international customers; and by carrying consumer goods such as food, health care supplies and fuel to state residents.

WSDOT develops classifications for statewide truck freight bottlenecks

In 2012, WSDOT's Truck Performance Measurement (TPM) program collected data from more than 6,000 trucks on the state's truck freight corridors using Global Positioning

System (GPS) transponders to analyze the data to identify poor performance locations and to develop criteria for identifying bottlenecks. This is done to help evaluate the benefits and costs of proposed solutions and ensure that the agency maintains a transparent decision-making process for prioritizing projects. For more information on the history and development of the TPM program, see *Gray Notebook 41*, p. 42, and *Gray Notebook 45*, p. 39.

As a result of the 2012 federal legislation Moving Ahead for Progress in the 21st Century (MAP-21), the U.S.

Department of Transportation (USDOT) will provide GPS truck data to states to facilitate bottleneck identification and development of freight performance measures. WSDOT anticipates receiving data in the first half of 2013

and expects this data set will contain a larger truck sample than was previously available from the state program.

WSDOT continued to refine the criteria used to identify truck bottlenecks in 2012. WSDOT is now classifying truck bottlenecks and their solutions into four categories: restricted access, resiliency, slow speed and reliability bottlenecks.

Restricted access bottlenecks limit truck access

Restricted access bottlenecks occur when a weight or height restriction on a bridge, tunnel or road prohibits the access of legal truck loads, forcing trucks to take detours. Criteria to identify restricted access bottlenecks include that the facility is on a T-1 or T-2 freight corridor, and the facility has a posted weight limit less than the legal gross vehicle weight of 105,500 pounds, or a posted height limit less than the legal truck height limit of 14 feet. WSDOT has identified six restricted access truck bottleneck locations on state highways, four of which are located in the central Puget Sound region.

WSDOT identifies two resiliency bottlenecks

Resiliency bottlenecks occur on roadways that have a high probability of facility failure in the event of severe weather (flooding or snow) or natural disasters (earthquakes), which would result in large economic impacts for freight shippers, carriers and customers. The criteria for identifying resiliency bottlenecks are that the roadway segment is on a T-1 or T-2 freight corridor that also carries

The federal government will provide GPS truck data to states to support bottleneck identification

WSDOT identifies several types of truck freight bottlenecks

an average of at least 5,000 trucks a day, and that the roadway has had at least one closure lasting longer than 24 hours in a continuous 20-year period due to severe weather. WSDOT has identified two resiliency bottleneck locations on state highways: on I-5 near Chehalis, and on I-90 between North Bend and Ellensburg.

Slow speed and reliability bottleneck criteria still under development

The current working criteria for slow speed bottlenecks are that more than 50 percent of sample trucks are traveling below a speed performance threshold, which WSDOT defines as 60 percent of the posted speed (35 mph on urban freeways), and that the truck tonnage on the corridor meets T-1 or T-2 freight corridor thresholds.

Slow-speed truck bottlenecks fall into two categories and include congested freeway and traffic bottlenecks. Congested freeway bottlenecks in urban areas refer to a segment of interstate highway that experiences recurring congestion and traffic backups, leading to significant delays for trucks because traffic volumes exceed highway capacity. Solutions could include improving the viability of alternate modes, providing traveler information, managing demand by using variable-rate tolling, or strategically adding highway capacity.

Traffic bottlenecks on signalized state highways in urban areas are segments where trucks experience reduced speeds and delays due to traffic signal operations. Solutions may include optimizing traffic signal timing to reduce delay, and implementing intersection and signage improvements.

WSDOT is also working to refine the criteria to identify truck reliability bottlenecks, which occur on highway segments that experience unreliable travel times. WSDOT



Interstate 5 in Seattle, identified by WSDOT as a truck freight economic corridor, experiences recurring congestion on a daily basis.

is in the process of testing and selecting a method for categorizing highway segments as reliable and unreliable.

WSDOT makes progress on freight research

Freight benefit and economic impact analysis

WSDOT, the University of Washington and Washington State University (WSU) partnered to successfully complete the development of a freight-specific benefit methodology for highway projects in December 2012. WSDOT tested this methodology on two case study projects and will publish the results as part of the Washington State Freight Mobility Plan in 2014. This is a step in WSDOT's process of developing a comprehensive benefit analysis methodology. In addition, it is one of the first steps that WSDOT has taken to conduct an economic impact analysis, which can be used to quantify truck freight-related economic benefits (such as employment) that result from freight mobility projects. These results can be taken into consideration along with the direct benefit estimates when the agency prioritizes projects.

Commodity flows on select state highways

In fall 2012, WSDOT partnered with WSU to perform freight commodity flow surveys at selected locations throughout the state. The last time WSDOT collected statewide commodity flow information was nearly 10 years ago. This information can be used to quantify the economic importance of a

MAP-21 establishes freight performance measures for states

A key element of the MAP-21 legislation is establishing a performance-based program to meet national goals. One of these goal areas is freight movement and economic vitality. The aim is to improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.

MAP-21 requires the USDOT to establish measures for states to use in assessing freight performance on the interstate system. States will be required to set performance targets in relation to these measures and integrate the targets into the planning process. States will also be required to report periodically on progress in relation to the targets and on how congestion and freight bottlenecks are being addressed. Efforts at the national level, for the development of freight performance measures are underway and progress will be reported in future editions of the Gray Notebook. See p. vii for additional information on MAP-21.

Domestic and international container freight volumes inch upward

specific corridor; other publicly available commodity flow information is aggregated at the state or national level.

This study, which WSDOT expects to complete in late 2013, is collecting data such as truck type, origin/destination, weight, and commodity type at several locations on I-90 near Snoqualmie Pass, on SR 28 and U.S. 97 in the Wenatchee area, and on U.S. 395 between the Spokane County line and Canadian border. WSDOT and WSU are conducting four surveys throughout the year to capture seasonal variations. WSDOT will make the results available through its online Freight Data Library, which is currently being developed.

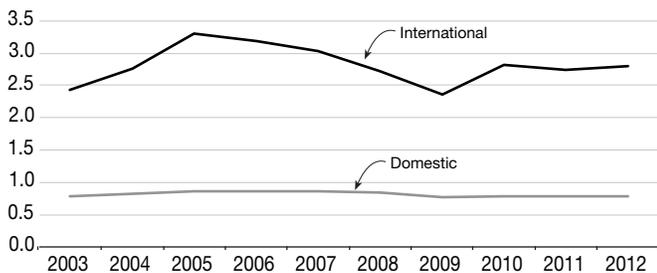
Container freight traffic increases in 2012

Total container volumes through Washington's main container ports (the ports of Seattle and Tacoma) grew by 2 percent between 2011 and 2012. Domestic container volumes grew by 1.4 percent during this period, while international volumes increased by 2.2 percent. Together, these ports handled a total of 3.58 million 20-foot equivalent units in 2012.

While the ports of Seattle and Tacoma handle nearly 100 percent of Washington waterborne container traffic, other ports specialize in different types of cargo. For example, the Port of Everett primarily ships over-dimensional loads such as aerospace components for Boeing. The inland ports located on the Columbia-Snake River system primarily transport bulk products, such as wheat grown in Eastern Washington.

Container traffic volumes at the Port of Seattle and Port of Tacoma trend slightly upward

2003 through 2012; Millions of containers (20-foot equivalent units)



Data source: Ports of Seattle and Tacoma.

Note: Measures of container traffic include full and empty containers.

Statewide waterborne freight increases in 2011

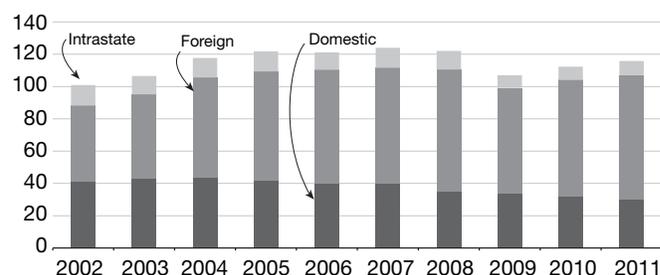
Washington's waterborne freight activity, measured in total tonnage, was 115.8 million tons in 2011 (the most recent year for which waterborne freight data is available). This was an increase of 3.1 percent from 2010 levels, when



The Port of Seattle (pictured above) and the Port of Tacoma together handle nearly 100 percent of all container freight in Washington.

112.3 million tons of waterborne freight was shipped in Washington. This includes increases in both foreign and intrastate shipments (by 4.5 million and 0.52 million tons, respectively), which were partially offset by a 1.5 million ton decrease in domestic shipments. In 2011, total U.S. waterborne freight activity was 2.98 billion tons, a 0.8 percent increase from 2010. Since 2008, Washington's waterborne freight activity has mirrored national trends.

Washington intrastate and foreign waterborne freight increase while domestic waterborne freight declines 2002 through 2011; Cargo measured in millions of tons



Data source: U.S. Army Corps of Engineers, Navigation Data Center.

State-owned rail system reaches record high for carloads shipped

There were a record 11,664 carloads on the Palouse River and Coulee City (PCC) Rail System in 2012, a 12.7 percent increase from the previous year, which is equivalent to removing 41,990 truck trips from Eastern Washington roads. This overall increase includes a 31 percent increase on the Pleasant Valley Hooper Line, an 18 percent increase on the Palouse and Lewiston Line, and a slight decrease of less than 1 percent on the Central Washington Line.

The PCC Rail System is a short-line railroad in eastern Washington owned by WSDOT. For the third year in a

State-owned freight rail increases shipments in 2012

row, the railroad experienced system-wide double digit percentage carload gains in 2012. Since the state of Washington purchased the PCC Rail System in 2007, more than 175,000 truck trips have been removed from roadways. See *Gray Notebook* 47, p. 42, for more information and a map of the PCC Rail System.

Carloads shipped by the Palouse River and Coulee City Rail System

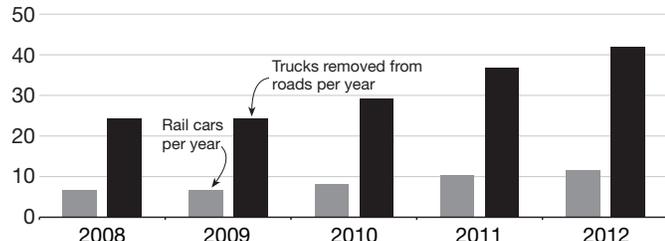
2007 through 2012; Carloads by branch of rail line

Year	Branch Line			Total	Percent change
	Palouse & Lewiston	Central Washington	Pleasant Valley Hooper		
2012	3,942	4,635	3,087	11,664	12.7%
2011	3,334	4,669	2,350	10,353	27.5%
2010	3,125	2,388	2,606	8,119	19.7%
2009	2,581	2,189	2,014	6,784	0.4%
2008	1,752	2,910	2,097	6,759	30.4%
2007	1,049	1,434	2,699	5,182	-

Data source: WSDOT Freight Systems Division.

Growth in rail car shipments removes more trucks from Washington roads

2008 through 2012; Number of rail car shipments for the Palouse River and Coulee City Rail System in thousands



Data source: WSDOT Freight Systems Division.

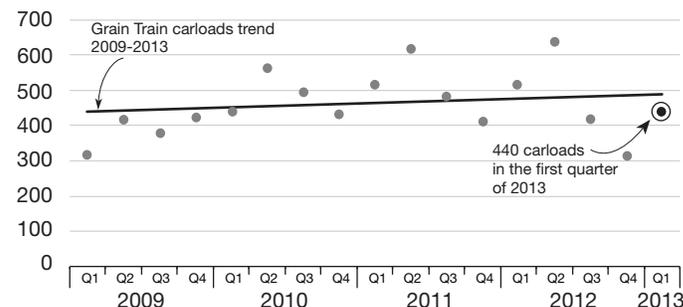
Note: The calculation for the number of trucks removed from roads is based on the assumption that one rail car shipment removes 3.6 trucks from Washington state roadways.

Grain Train shipment downturn follows Washington grain export trends

The trend of fewer Grain Train carloads is due to uncertainty of a product's ability to reach international markets. This uncertainty resulted from pending labor contract negotiations at Puget Sound and Columbia River port terminals, causing Washington state farmers to keep more wheat and other commodities in storage silos between the third quarter of 2012 and the first quarter of 2013. Despite a 40 percent increase in carloads shipped to domestic destinations from the previous quarter, total carloads for the first quarter of 2013 decreased 14 percent relative to the same quarter in 2012. This

Washington State Grain Train shipments increase in first quarter of 2013

2009 through 2013; Carloads per quarter



Data source: WSDOT Freight Systems Division.

Note: Grain Train carload data from the fourth quarter (Q4) of 2010 forward has been updated to correct previous under reporting.

year-over-year comparison improved from the fourth quarter of 2012, when carloads decreased 23 percent compared to the same quarter in the previous year.

Despite the slowdown in carload shipments, 2012 was the third best year for the Grain Train in the program's 19-year history, which transported more than 188,000 tons of Washington-grown wheat, barley, peas and lentils to market. This translates to 7,500 truck trips removed from Washington's roads.



The Washington Grain Train began operations in 1994 and currently has 118 grain cars in the fleet, 100 of which are owned by WSDOT.

Washington freight rail tonnage update delayed

Due to delays with data acquisition and processing, WSDOT expects to report Washington's 2012 rail freight tonnage in the Freight Rail Semi-Annual Update in *Gray Notebook* 51, for the quarter ending September 30, 2013.

Air cargo handled at Sea-Tac hits highest level in four years

Air freight at Sea-Tac increases in 2012

Total tonnage of air freight handled at the Seattle-Tacoma International Airport (Sea-Tac) increased by 1.4 percent between 2011 and 2012; 279,625 metric tons were handled in 2011 compared to 283,500 metric tons in 2012 (one metric ton is equivalent to 2,205 pounds). Between 2011 and 2012, slight growth was observed in the three main categories of air freight handled at Sea-Tac, which include domestic, international and air mail.

In 2011, Sea-Tac ranked 18th in the U.S. for tons of cargo handled. Washington’s exporter and importer distribution facilities, logistics service providers, and freight forwarders and consolidators (such as FedEx) that are concentrated in the South Puget Sound region rely on this integrated network to deliver fast and reliable door-to-door service.

All types of Sea-Tac air freight increase in 2012

2007 through 2012; Air freight measured in metric tons

Year	Domestic	International	Air mail	Total	Percent change
2012	155,170	82,041	46,289	283,500	1.4%
2011	152,211	81,918	45,496	279,625	-1.3%
2010	152,995	85,440	44,990	283,425	5.1%
2009	151,296	74,536	43,857	269,689	-7.2%
2008	161,847	84,069	44,852	290,768	-8.9%
2007	181,993	88,753	48,267	319,013	-6.7%

Data source: Port of Seattle, Seattle-Tacoma International Airport Activity Report.

Notes: Data as reported to Port of Seattle by the airlines. Sea-Tac air freight is measured as cargo weight and does not include plane weight.

Total air cargo handled in Washington declines slightly

Washington airports handled 1.35 million tons of air cargo in 2011, measured in plane plus cargo weight as reported by the Federal Aviation Administration (FAA). This represents a 1.4 percent decrease from 2010 air cargo levels. Rising fuel prices have been a factor in declining air cargo traffic over the last decade. In some cases, air cargo has been diverted to other modes such as truck and marine transportation, which tend to be less sensitive to fuel costs.

In 2011, the Sea-Tac, Boeing Field/King County and Spokane international airports handled 51 percent, 33 percent and 16 percent of the state’s total air cargo tonnage, respectively. These airports have been designated by the FAA to receive Federal Cargo Apportionment funding based on meeting the qualifying threshold of pushing over 100 million pounds (50,000 tons) of cargo annually.

Total Washington air cargo tonnage trends down 2007 through 2011; Tonnage measured in plane plus cargo weight

Year	Annual tonnage	Percent change
2011	1,350,534	-1.4%
2010	1,370,262	-6.7%
2009	1,469,397	3.8%
2008	1,416,036	5.1%
2007	1,347,350	-0.7%

Data source: Federal Aviation Administration, All-Cargo Data for U.S. airports.



The Seattle-Tacoma International Airport is ranked 18th in the nation for the amount of air cargo handled.

Freight Mobility Plan will help prioritize investments to improve trade, economy

In 2011, WSDOT began the process of updating the Washington State Freight Mobility Plan. Through it, WSDOT will develop and prioritize freight transportation system improvement strategies that enhance trade and economic growth while supporting safety, the environment, and goods delivery needs in Washington. The plan is expected to:

- Make a case for funding freight priority projects and programs in the reauthorization of the federal transportation bill and future state transportation packages.
- Guide capital and operating investments in the state’s freight systems.

The plan, scheduled for completion in 2014, will help WSDOT fulfill the requirements of the Revised Code of Washington (RCW) 47.06.045 and the recommended state freight planning activities described in MAP-21. Additional information on the Washington State Freight Mobility Plan is available at <http://www.wsdot.wa.gov/Freight/freightmobilityplan>.

Contributors include Chris Herman, Barbara Ivanov, Rachel Knutson, Wenjuan Zhao and Alison Wallingford

Notable results

- *The Commercial Vehicle Information Systems and Networks (CVISN) program gave 1.2 million “green lights,” allowing trucks to bypass weigh stations, saving them a total of 101,000 travel hours*
- *The CVISN program helped the trucking industry reduce fuel use by 484,000 gallons in 2012*
- *Use of CVISN transponders was up 3.2 percent in 2012*

Electronic screening saves time and fuel for commercial trucks

WSDOT’s Commercial Vehicle Information Systems and Networks (CVISN) program gave more than 1.21 million “green lights” in 2012, allowing commercial trucks voluntarily equipped with CVISN transponders to bypass open weigh stations. These bypasses saved the trucking industry an estimated 101,000 hours of travel time and resulted in an economic benefit of approximately \$12.4 million in saved operating costs. The CVISN program also provided an environmental benefit by reducing fuel consumption for trucks that bypass open weigh stations. The program reduced fuel use by an estimated 484,000 gallons in

The commercial vehicle information systems and networks program keeps freight moving

The CVISN program uses weigh-in-motion technology, transponders, and Automated License Plate Recognition (ALPR) to electronically screen trucks as they approach open weigh stations. Weight, credentials and carrier safety characteristics are rapidly verified; if satisfactory, the truck is allowed to bypass the weigh station rather than having to stop for inspection. For more information on transponders and ALPR, see *Gray Notebook 26*, p. 79, and *Gray Notebook 37*, p. 54, respectively.

Operation of the CVISN program is a cooperative effort between WSP and WSDOT. The state patrol operates the weigh stations and enforces laws associated with commercial vehicles and safety, and WSDOT installs and maintains CVISN equipment.

Trucking industry transponder use and benefits increase in 2012
2009 through 2012; Estimated economic benefit in millions of dollars

Statewide CVISN transponder use	2009	2010	2011	2012
Number of transponders read ¹	2,152,252	2,230,546	1,920,241	2,000,863
Percent given “greenlight”	62.5%	61.0%	61.4%	60.5%
Percent of trucks with transponders	34.0%	35.3%	39.0%	42.2%
Number of active weigh stations	11	10	9/10 ³	10
Estimated CVISN program benefits				
Number of green lights	1,342,352	1,359,740	1,178,452	1,210,522
Estimated hours of travel time saved ²	112,000	113,000	98,000	101,000
Estimated economic benefit ²	\$13.8	\$13.9	\$12.1	\$12.4

Data source: WSDOT Commercial Vehicle Information Systems and Networks office.

Notes: 1 A truck’s transponder is read multiple times a day when it passes multiple weigh stations. 2 Calculation of estimated economic benefit and travel hours saved are based on industry standard values of \$10.28 (including operating costs, time savings and fuel savings) and five minutes saved per bypass. Values are held constant for all years evaluated. 3 In 2011, the southbound stations at SeaTac and Everett closed and the new Spokane Port of Entry opened in September.

2012. Benefits per-bypass were calculated using industry standards of five minutes of saved travel time providing an economic benefit of \$10.28. This includes 0.4 gallons of fuel saved per bypass. See *Gray Notebook 45*, p. 45, for more information on estimating program benefits.

The 1.21 million green lights given in 2012 is 2.7 percent more than the 1.18 million given in 2011, and 9.8 percent less than the 1.34 million in 2009, as shown in the table above. The decrease from 2009 is due to the number of CVISN-equipped weigh stations open in the state. In 2012, two of the 12 CVISN-equipped weigh stations were inactive. The inactive stations included two southbound stations; one at SeaTac closed in 2010 due to construction on the State Route 18 (SR 18) triangle and the other in Everett, which was destroyed by a drunk driver in April 2011. The SeaTac station is expected to resume operations in early 2014 after construction is finished. The Washington State Patrol (WSP) is currently seeking funding to rebuild the Everett weigh station.

WSDOT works with state patrol to limit excess hours of driving



An Automated License Plate Recognition device and transponder reader (on top of the pole, right) relay information to commercial vehicle enforcement officers about a truck as it approaches a weigh station.

Use of transponders up 3.2 percent in 2012

WSDOT estimates that 42.2 percent of all commercial vehicles moving through the state were using CVISN transponders in 2012. This is 3.2 percent more than in 2011 and an 8.2 percent increase from 2009.

To promote transponder use, WSDOT has installed signs with the toll-free number for the Commercial Vehicle Services Office at all CVISN-equipped weigh stations. Commercial vehicle drivers can call to get a transponder application while they wait in line at a weigh station.

Commercial vehicle transponders read two million times at Washington weigh stations in 2012

Of the two million transponder readings in 2012, 60.5 percent were given a green light to bypass weigh stations. This is a 0.9 percent decrease from 2011.

About 61 percent of transponder readings allowed trucks to bypass open weigh stations

However, the total number of readings increased 4.2 percent. The number of transponder readings does not equal the number of trucks using CVISN

transponders on Washington's highways. This is because trucks' transponders are read multiple times if they pass multiple weigh stations while traveling through the state.

WSDOT provides electronic screening data to Washington State Patrol to improve safety

Each time trucks are electronically screened as they approach a CVISN-equipped weigh station, an electronic event record is created with the truck's

safety characteristics, the date and time. This record is accessible online to WSDOT transponder administrators.

WSDOT started providing the state patrol access to this data in 2012. Troopers can now validate how long drivers have been behind the wheel, called their "hours of service," by comparing their logbooks to electronic event records. Troopers can query by jurisdiction, vehicle identification numbers or license plates. If an operator is found to be driving past their allotted hours per day, they can be pulled from the road to get some rest or even fined.

Currently, access to this data is only available to state patrol troopers at CVISN-equipped weigh stations. WSDOT plans to make the data available to state patrol troopers statewide as well as the Federal Motor Carrier Safety Administration. This will assist with enforcing hours-of-service regulations for inspections at all weigh stations and on state highways.

Washington uses electronic screening as part of a multi-state hours-of-service enforcement emphasis

Between July 8 and 12, 2012, Washington, Oregon and California conducted a joint hours-of-service enforcement emphasis on the Interstate 5 corridor. In Washington and Oregon, 366 drivers were placed out of service after weigh station inspections, due to excess hours-of-service violations.

Commercial vehicle officers and troopers from Washington State Patrol, Oregon Department of Transportation and California Highway Patrol participated in the enforcement effort. All weigh stations remained open throughout the operation except for two scale houses near Federal Way.

Inspectors targeted fatigued drivers by using electronic screening information from Washington, as well as scale crossing records from Oregon, to verify drivers' logbooks during inspections at the weigh stations. Drivers found to be operating in excess of allowable hours of service or in possession of falsified logbooks were placed out of service for an average of 10 hours.

Automated infrared brake screening pilot project ready for testing at Fort Lewis

WSDOT continues to move forward on the federally-funded Automated Infrared Roadside Screening (AIRS) pilot project at the Fort Lewis weigh station.

continued on page 80



Stewardship at a glance

Capital Project Delivery Programs Quarterly Update 48

- *Since 2003, WSDOT has completed 344 of 421 Nickel and Transportation Partnership Account projects, 88 percent on time and 92 percent on budget*

Federally-funded Passenger Rail Projects Update 67

- *Seven of WSDOT's 21 federally-funded passenger rail projects were under construction or completed in the first quarter of 2013*

Mega-projects Special Report 68

- *A change order was approved for the I-90 Snoqualmie Pass East – Hyak to Keechelus Dam project, allowing WSDOT to construct avalanche bridges. The change saves WSDOT about \$650,000 annually compared to the previous plan*

Workforce Level and Training Quarterly Update 70

- *WSDOT has 6,620 permanent full-time employees as of March 31, 2013, 2 percent fewer than one year ago*
- *WSDOT's highway construction program workforce level was 2,176 full-time equivalents at the end of March, below the target of 2,400 by the end of the 2011-2013 biennium*

Highlights for the Quarter Ending March 31, 2013 72

WSDOT Lean Quarterly Update 76

- *Thirteen WSDOT employees have received training in Lean, which provides tools for creating a more efficient workplace*

State policy goal

To continuously improve the quality, effectiveness, and efficiency of the transportation system.

WSDOT's business direction

Enhance WSDOT's management and accountability processes and systems to support making the right decisions, delivering the right projects, and operating the system efficiently and effectively in order to achieve the greatest benefit from the resources entrusted to us by the public.

Notable results

- Since 2003, WSDOT has completed 344 of 421 Nickel and Transportation Partnership Account (TPA) projects
- The 16-year TPA revenue projections are currently \$1.04 billion below the 2005 cumulative baseline total of \$4.94 billion

WSDOT completes three additional gas tax projects during the quarter

WSDOT completed three Transportation Partnership Account (TPA) projects on time and on budget this quarter (January 1 through March 31, 2013), bringing its total count to 344 out of 421 projects completed since the 2003 Nickel and 2005 TPA gas tax funding packages were approved.

Of the 344 projects completed to date, 88 percent were on time and 92 percent were on budget. The goal for projects being delivered on budget and on time is 90 percent. The total value of these completed projects is approximately

Total completed Nickel and TPA projects grows to 344

Project status	Number of projects	Value in thousands
Projects completed in earlier biennia that are <i>not</i> included in the current transportation budget	81	\$371,970
Projects completed that <i>are</i> included in the current transportation budget	263	\$5,235,742
Completed projects subtotal:	344	\$5,607,712
Projects included in the current transportation budget that are not yet completed	77	\$10,735,466
Total:	421	\$16,343,178

Data source: WSDOT Capital Program Development and Management.

Cumulative delivery performance¹ for Nickel and TPA projects shows 81 percent done on time, on budget July 1, 2011 through March 31, 2013

Calendar year	2011		2012				2013
	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Number of projects	310	325	325	330	336	341	344
Percent on time	89%	87%	87%	88%	88%	88%	88%
Percent on budget	91%	91%	91%	91%	91%	91%	92%
Percent on time and on budget	82%	81%	81%	81%	81%	81%	81%

Data source: WSDOT Capital Program Development and Management.

Note: 1 A project is "on time" if it is operationally complete within the quarter planned in the last approved budget, and "on budget" if the budget is within 5 percent of the last approved budget.

\$5.6 billion. The remaining \$10.7 billion in Nickel and TPA funds will support or continue to support 77 additional projects, including a number of mega-projects like the Interstate 90 Snoqualmie Pass East – Hyak to Keechelus Dam project and the State Route 167 Completion project.

WSDOT has advertised three new TPA projects since January 1, 2013, for a total of 28 projects in the construction phase as of March 31, 2013 (pp. 52-54).

Gas tax revenue forecast gaps continue to widen, falling short of original projections

Gas tax revenues generated through the 2003 Nickel and 2005 TPA continue to come in below original revenue projections, leaving WSDOT with billions less in funding for transportation projects statewide.

The March 2013 forecast for the Nickel account is unchanged from last quarter (October 1 through December 31, 2012) with approximately \$1.73 billion for the 10-year period. This is 10.1 percent less than the original 2003 projection of \$1.92 billion.

As of March 2013, the 16-year revenue projections for the TPA are 21.1 percent below the 2005 cumulative baseline total. There is more than a \$1.04 billion dollar difference from the \$4.94 billion in anticipated gas tax revenues and the \$3.90 billion forecast for March 2013. This difference is due primarily to gasoline consumption continuing to be lower than the 2005 estimate.

Washington state's gas tax is based on gallons sold rather than price, like the state sales tax, and as a result, reduced consumption results in reduced revenues. As less gas is purchased, the gap between revenue projections that assumed an upward trend in gas sales, and actual revenues continues to widen.

Contributors include Mike Ellis, Heather Jones, Claudia Lindahl, Firas Makhoul, Pat Morin, Theresa Scott, Dean Walker and Joe Irwin

WSDOT completes 344 Nickel and TPA highway projects to date

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

As of March 31, 2013; Dollars in thousands

Combined Nickel and TPA programs	Number of projects	Value of program	
Projects completed in earlier biennia that <i>are not</i> included in the current transportation budget	81	\$371,970	
Projects completed that <i>are</i> included in the current transportation budget	263	\$5,235,742	
<i>Subtotal of completed projects</i>	344	\$5,607,712	
Projects included in the current transportation budget but not yet completed	77	\$10,735,466	
Total number of projects¹ in Improvement and preservation budget	421	\$16,343,178	
Schedule and budget summary Nickel & TPA combined: Results of completed projects in the current Legislative Transportation Budget and prior budgets.	Completed in 2011-2013 biennium budget	Total in current legislative budget	Cumulative program ²
Number of projects completed	40	263	344
Percent completed early or on time	78%	86%	88%
Percent completed under or on budget	90%	92%	92%
Percent completed on time and on budget	75%	81%	81%
Baseline estimated cost at completion	\$1,481,920	\$5,235,742	\$5,607,712
Current estimated cost at completion	\$1,456,070	\$5,157,581	\$5,531,445
Percent of total program over or under budget	2% under	1% under	1.4% under
Advertisement record: Results of projects entering into the construction phase or under construction are detailed on pp. 52-54.	Combined Nickel & TPA		
Total current number of projects in construction phase as of March 31, 2013	28		
Percent advertised early or on time	82%		
Total number of projects advertised for construction in 2011-2013 biennium to date (July 1, 2011 through March 31, 2013)	19		
Percent advertised early or on time	84%		
Projects to be advertised: Results of projects now being advertised for construction or planned to be advertised, detailed on p. 54.	Combined Nickel & TPA		
Total projects being advertised for construction bids April 1 through September 30, 2013	3		
Percent on-target for advertisement on schedule or early	66%		
Budget status for the 2011-2013 biennium: Dollars in thousands	WSDOT biennial budget		
Budget amount for 2011-2013 biennium	\$3,772,395		
Actual expenditures to date 2011-2013 biennium (July 1, 2011 through March 31, 2013)	\$2,388,657		
<i>Total 2003 Transportation Funding Package (Nickel) expenditure</i>	\$261,026		
<i>Total 2005 Transportation Partnership Account (TPA) expenditure</i>	\$831,408		
<i>Total Pre-existing Funds (PEF) expenditure³</i>	\$1,296,222		

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 program buckets (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 March 31, 2013. 3 For full details of the Pre-existing Funds program, see pp. 59-62.

Current Legislative Evaluation and Accountability Program (LEAP)

WSDOT completes 18 rail and 19 Ferries projects with Nickel and TPA funds

Eleven Nickel and seven Transportation Partnership Account (TPA) rail construction projects costing \$103.3 million have been delivered on time and on budget as of March 31, 2013. Four projects (two Nickel-funded, two TPA-funded) are in construction and have a combined award amount of \$157.9 million.

Washington State Ferries has delivered 19 Nickel and TPA projects costing \$257.9 million on time and on budget as of March 31, 2013. Three additional projects (two Nickel-funded, one TPA-funded) are in construction or are entering the construction phase and have a combined award amount of \$231.5 million.

WSDOT finishes 18 rail construction projects

As of March 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 March 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%
Percent completed on time and on budget ¹	100%	100%	100%
Baseline estimated cost at completion	\$62,380	\$40,965	\$103,345
Current estimated 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

2011-2013 biennium to date (July 1, 2011 through March 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.

WSDOT finishes 19 Ferries construction projects

As of March 31, 2013; Dollars in thousands

	Nickel (2003)	TPA (2005)	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed projects ²			
Cumulative to date (July 1, 2003 through March 31, 2013)	10	9	19
Percent completed early or on time ³	100%	100%	100%
Percent completed within scope ³	100%	100%	100%
Percent completed under or on budget ³	100%	100%	100%
Percent completed on time and on budget ³	100%	100%	100%
Baseline estimated cost at completion	\$48,516	\$209,343	\$257,859
Current estimated cost at completion	\$48,516	\$209,343	\$257,859
Percent of total program on or under budget ³	100%	100%	100%

Advertisement record: Projects under construction or entering construction phase

Cumulative to date (July 1, 2003 through March 31, 2013)	2	1	3
Percent advertised early or on time ³	100%	100%	100%
Total award amounts to date	\$116,188	\$115,345	\$231,533

Data source: WSDOT Capital Program Development and Management.

Notes: 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). 2 Ferries completed projects record includes the 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. 3 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).

WSDOT completing the majority of its gas tax projects on time and on budget

Biennial summary of gas tax projects completed highlights a decade of continued progress

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	Completed on time and on budget
Current quarter reporting on capital project delivery								
2011-2013 biennium summary This information is updated quarterly throughout the biennium.	5 Nickel 35 TPA	30 on time 10 late	31 on time 9 late	40	\$1,481,910	\$1,856,070	36 on budget 4 over budget	30 on time and on budget
2009-2011 reporting on capital project delivery								
2009-2011 biennium summary See <i>Gray Notebook</i> 42, p. 53, 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	76 on time and on budget
Notes: In earlier editions of the <i>Gray Notebook</i> , 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.								
Earlier reporting on capital project delivery								
2007-2009 biennium summary See <i>Gray Notebook</i> 34, p. 45, 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	90 on time and on budget
2005-2007 biennium summary See <i>Gray Notebook</i> 26, p. 3, 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	59 on time and on budget
2003-2005 biennium summary See <i>Gray Notebook</i> 19, p. 5, for project listing.	27 Nickel	25 on time 2 late	27 on time	27	\$124,580	\$124,409	25 on budget 2 over budget	25 on time and on 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.

Three gas tax projects completed as of March 31, 2013

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

Project description (County)	Fund type	On-time advertised	On-time completed	Baseline estimated cost	Current estimated cost at completion	On budget completed	Completed on time and on budget
SR 99/Aurora Avenue - George Washington Memorial Bridge - Seismic Retrofit (King)	TPA	√	√	\$10,423	\$9,923	√	√
SR 529/Ebey Slough Bridge - Replace Bridge (Snohomish)	TPA	Late	√	\$39,183	\$35,128	√	√
SR 161/Clear Lake North Road to Tanwax Creek - Spot Safety Improvements (Pierce)	TPA	Late	√	\$4,877	\$2,021	√	√

Data source: WSDOT Capital Program Development and Management.

Advertisement record

WSDOT tracks advertisement records for Nickel and TPA projects

Twenty-eight projects in construction phase as of March 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
Concrete Rehabilitation Program Although this budget line item is active, no projects are currently planned for construction in the 2011-2013 biennium.	Nickel					
U.S. 2/Chiwaukum Creek - Replace Bridge (Chelan) Advertisement was delayed to allow time for processing a shoreline permit. This project was combined with the U.S. 2/Wenatchee River Bridge project (below) for efficiency.	TPA	Late	Apr-11	Selland Construction	Sep-13	\$4,190
U.S. 2/Wenatchee River Bridge - Replace Bridge (Chelan)	TPA	Late	Apr-11	Selland Construction	Sep-13	\$3,912
I-5/Northeast 134th Street Interchange (I-5/I-205) - Rebuild Interchange (Clark)	Nickel	√	May-11	Moore Excavation	Dec-14	\$17,791
SR 99/Spokane Street Bridge - Replace Bridge Approach (King)	TPA	√	Oct-12	MidMountain Contractors	Oct-14	\$9,213
SR 28/Junction U.S. 2 and U.S. 97 to 9th Street Stage 1 - New Alignment (Douglas) This is a multi-contract project with several significant stages. Project operationally complete date delayed from October 2012 due to a contract delay caused by right of way acquisition and an error made in the original bid.	TPA	√	Sep-09	Selland Construction	May-13	\$4,565
SR 99/Alaskan Way Viaduct - Replacement (King) This project replaces an aging viaduct with a new viaduct on the south end and a tunnel in downtown Seattle.						
• SR 99/South Massachusetts Street to Union Street - Electrical Line Relocation	TPA	√	May-08	Frank Coluccio Construction	Nov-09	\$17,040
• SR 99/South Holgate Street to South King Street - Viaduct Replacement	TPA	√	Oct-09 May-10	Signal Electric Skanska USA Civil West	Sep-13 Sep-13	\$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.						
• 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-09	Signal Electric	Nov-10	\$2,409
• SR 99/South King Street Vicinity to Roy Street - Viaduct Replacement	Nickel/ TPA	√	May-10	Seattle Tunnel Partners	Dec-15	\$1,089,700
U.S. 395/North Spokane Corridor (NSC) - Design and Right of Way - New Alignment (Spokane)	Nickel/ TPA					
• U.S. 395/NSC - Francis Avenue Improvements	Nickel	√	Apr-12	Graham Construction	Nov-13	\$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-10	Tri-State Construction	Dec-11	\$19,731
• I-5/Mellen Street to Blakeslee Junction - Add Lanes, Interchange Improvements	TPA	√	Mar-12	Cascade Bridge	Oct-13	\$21,596
• I-5/Mellen Street Interchange - Interchange Improvements	TPA					<i>Combined with project above for construction efficiencies.</i>
I-5/Chehalis River - Flood Control (Lewis)	Nickel	√	Mar-12	Cascade Bridge	Oct-13	\$21,596
U.S. 97/North of Goldendale - Wildlife Habitat Connectivity (Klickitat)	TPA	√	Apr-12	Rotschy	Oct-14	\$2,113
SR 502/I-5 to Battle Ground - Add Lanes (Clark)	TPA	√	Apr-12	Tapani Underground	Oct-15	\$5,194
SR 285/West end of George Sellar Bridge - Intersection Improvements (Chelan)	TPA	√	Apr-12	Selland Construction	Nov-13	\$9,787
SR 105/North River Bridge - Replace Bridge (Pacific)	TPA	√	Jun-12	Award pending	Sep-14	Pending
SR 105/Smith Creek Bridge - Replace Bridge (Pacific)	TPA	√	Jun-12	Award pending	Sep-14	Pending
U.S. 101/Middle Nemah River Bridge - Replace Bridge (Pacific)	TPA	√	Jun-12	SB Structures	Aug-14	\$3,253

WSDOT tracks advertisement records for Nickel and TPA projects, *continued*

Twenty-eight projects in construction phase as of March 31, 2012

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-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-09	KLB Construction	Oct-09	\$3,298
• I-90/Snoqualmie Pass East Phase 1B Hyak to Snowshed Vicinity - Add Lanes and Bridges	TPA	√	Nov-09	Max J. Kuney Company	Oct-13	\$76,699
• I-90/Snowshed to Keechelus Dam Phase 1C - Replace Snowshed and Add Lanes	TPA	Late	Apr-11	Guy F. Atkinson Construction	Oct-17	\$177,144
Advertisement was delayed to address fire and safety issues with the original snowshed design.						
SR 520/Bridge Replacement and HOV (King)	TPA					
• SR 520 Pontoon Construction (Grays Harbor, Pierce)	TPA	√	Aug-09	Kiewit-General, A Joint Venture	Jul-14	\$367,330
Portions of this project are now in construction, but were not previously captured in <i>Gray Notebook</i> "Projects to be advertised" tables.						
• SR 520/I-5 to Medina - Evergreen Point Floating Bridge and Landings	TPA	√	Dec-10	Kiewit-General, A Joint Venture	Dec-14	\$586,561
• SR 520/Medina to SR 202 Vicinity - Eastside Transit and HOV	TPA	√	May-10	Eastside Corridor Constructors	Mar-14	\$306,278
SR 6/Willapa River Bridge - Bridge Replacement (Pacific)	TPA	√	Mar-13	Mar-13	Nov-14	Pending
I-5/Tacoma HOV Improvements (Pierce)	Nickel/ TPA					
• I-5/Port of Tacoma Road to King County Line - Add HOV Lanes	Nickel	Late	Jun-09	Tri-State Construction	May-11	\$31,015
Advertisement date was delayed due to design challenges associated with stormwater and floodplain issues; a formal consultation with U.S. Fish and Wildlife and National Oceanic and Atmospheric Administration was required. 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-08	Guy F. Atkinson Construction	Jun-11	\$119,925
• I-5/SR 16/Eastbound Nalley Valley - HOV	Nickel/ TPA	√	Jun-11	Mowat Construction Company	Mar-14	\$74,688
SR 161/24th Street East to Jovita - Add Lanes (Pierce)	Nickel	Late	Feb-11	Tri-State Construction	Sept-13	\$11,928
Advertisement date was delayed to coordinate with local agencies. Project operationally-complete date delayed from June 2012 due an error in the electronic bidding system which required re-advertisement.						
I-405/Kirkland Vicinity, Stage 2 - Widening (Snohomish, King)	Nickel/ TPA					
• I-405/SR 520 to SR 522 - Widening Stage 2	Nickel	Early	Nov-10	Gary Merlino Construction	Dec-15	10,694
• I-405/Northeast 195th Street to SR 527 - Northbound Widening	TPA	Early	May-09	Kiewit Pacific	Jun-10	\$19,263
SR 9/212th Street Southeast to 176th Street Southeast, Stage 3 - Add Lanes (Snohomish)	Nickel	Late	Apr-11	Northwest Construction	Aug-13	\$24,297
Advertisement was delayed because the ditches on the project required an individual permit under the jurisdiction of the U.S. Army Corps of Engineers.						
SR 522/Snohomish River Bridge to U.S. 2 - Add Lanes (Snohomish)	Nickel	√	Apr-10	Scarsella Bros.	Nov-14	\$88,653
SR 11/Padden Creek - Fish Barrier Removal (Whatcom)	TPA	√	Feb-13	Ram Construction	Oct-13	\$1,761

Advertisement record

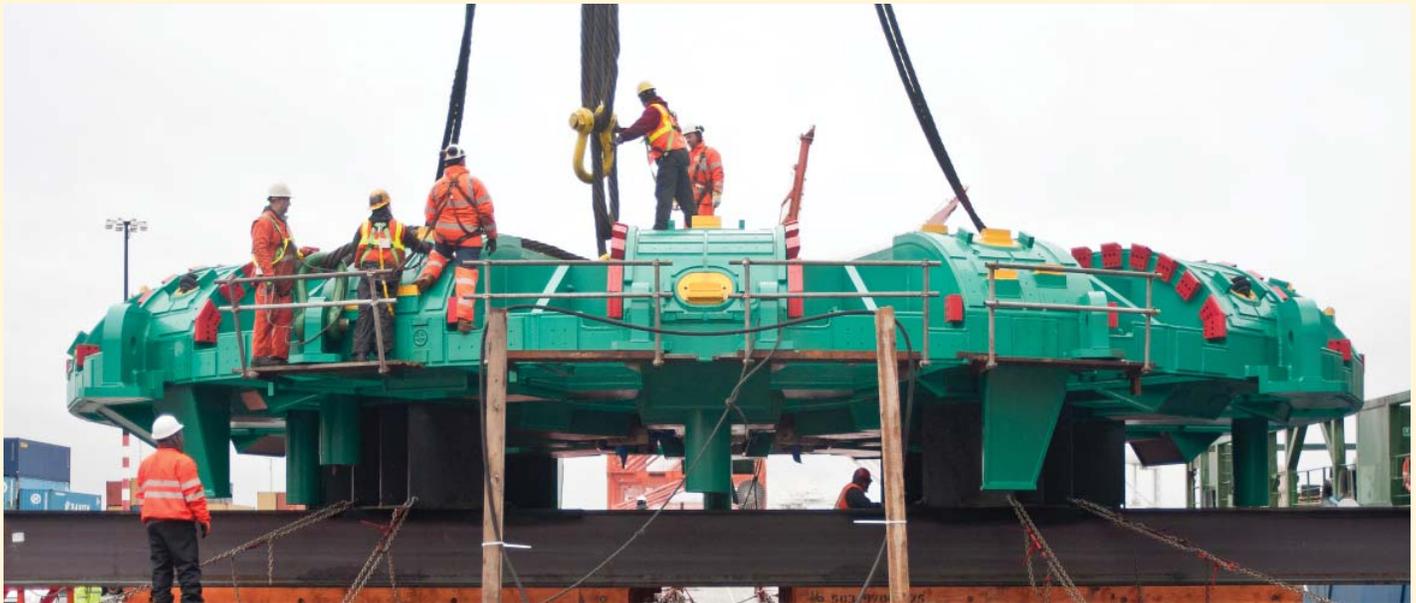
WSDOT tracks advertisement records for Nickel and TPA projects, *continued*

Twenty-eight projects in construction phase as of March 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
SR 112/Colville Creek - Fish Barrier Removal (Clallam)	TPA	√	Feb-13	Thompson Brothers Excavating	Nov-13	\$996
SR 9/Pilchuck Creek - Replace Bridge (Snohomish)	TPA	Late	Jul-12	Granite Construction	Jul-14	\$8,900
Advertisement date was delayed due to a delay in the hydraulic report, which then delayed the shoreline permit.						
U.S. 101/Bone River Bridge - Replace Bridge (Pacific)	TPA	Late	Apr-12	Cascade Bridge	Nov-13	\$5,715
Advertisement delay due to delay in right of way acquisition.						

Data source: WSDOT Capital Program Development and Management.



State Route 99/Alaskan Way Viaduct - Replacement project crews remove crane cables from the SR 99 tunneling machine's cutterhead after it was lowered onto a specialized truck used to transport the largest pieces of the machine. In April 2013, the ship carrying the SR 99 tunneling machine docked at Terminal 46 near Seattle's stadiums and the tunnel's launch pit. Pieces were offloaded from the ship in a carefully choreographed sequence and transported onto the launch pit site.

Projects to be advertised

Three projects in the six-month delivery pipeline for April 1 through September 30, 2013

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

Project description	Fund type	Original planned ad date	Current planned ad date	On schedule	Baseline estimated cost at completion	Current estimated cost at completion
SR 3/Belfair Area - Widening and Safety Improvements (Mason)	TPA	Jul-12	Jun-13	Late	\$18,154	\$18,153
SR 6/Rock Creek Bridge East - Replace Bridge (Lewis)	TPA	Apr-13	Jun-13	√	\$8,770	\$8,882
SR 6/Rock Creek Bridge West - Replace Bridge (Lewis)	TPA	Apr-13	Jun-13	√	\$6,953	\$7,074

Data source: WSDOT Capital Program Development and Management.

WSDOT has completed 117 Nickel-funded projects since 2003

The performance dashboards below and those on the following page provide status reports on how WSDOT is delivering the Nickel and Transportation Partnership Account (TPA) programs compared to the original legislative intent as presented in the 2003 and 2005 Legislative Evaluation and Accountability Program (LEAP) lists.

It's important to note that the Legislature has approved changes to these funding packages and assigned funds to different projects since the 2003 and 2005 transportation funding packages were created. As a result, the original funding package (LEAP list) data below and on the next page differs from the current budgets on pp. 49-50.

The dashboard below feature all budget items including pre-construction and environmental studies that were in

the original funding packages. They do not contain the local programs projects WSDOT collaborates on with cities, counties and tribes, which lead the process.

The first two columns in the top dashboard on each page show the total number of projects and the percentage of those projects that are complete, underway, scheduled to start in the future, or affected by a legislatively-approved change of project scope.

The second dashboard on each page provides budget updates showing original planned budgets and the current plan or actual expenditure. In both tables, the next sets of columns break out the program by category: highways, ferries and rail.

Project delivery update: Original 2003 Transportation Funding Package (Nickel)

As of March 31, 2013

Project number and phase	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
	156		127		5		24	
Completed projects	117	75%	101	80%	2	40%	14	58%
Total projects under way	29	19%	26	20%	2	40%	1	4%
<i>In pre-construction phase</i>	16		15		1		0	
<i>In construction phase</i>	13		11		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%
<i>Number of legislatively-approved scope changes</i>	20		18		0		2	
<i>Pre-construction starts within six months</i>	0		0		0		0	
<i>Construction starts within six months</i>	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.

Project budget update: Original 2003 Transportation Funding Package (Nickel)

As of March 31, 2013; Dollars in thousands

Project number and phase	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 2009-2011 biennium	3,278,038	84%	2,813,701	83%	293,919	99%	170,418	81%
Actual expenditures, 2003 through 2009-2011 biennium	3,262,619	84%	3,002,188	89%	132,448	44%	127,983	61%
Original plan through 2011-2013 biennium	3,887,483	100%	3,380,124	100%	297,851	100%	209,508	100%
Current plan through 2011-2013 biennium	3,804,314	98%	3,351,787	99%	319,004	107%	133,524	64%
Actual expenditures, 2003 through March 31, 2013	3,634,854	94%	3,266,735	97%	239,104	80%	129,016	62%

Data source: WSDOT Capital Program Development and Management.

Notes: Expenditures are Nickel funds only. Totals do not include local programs projects.

Original Legislative Evaluation and Accountability Program (LEAP)

WSDOT delivers 177 Transportation Partnership Account-funded projects

Project delivery update: Original 2005 Transportation Partnership Account (TPA)

As of March 31, 2013

Project number and phase	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	177	71%	170	74%	0		7	47%
Total projects under way	53	21%	48	21%	1	25%	4	27%
<i>In pre-construction phase</i>	24		23		0		1	
<i>In construction phase</i>	29		25		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%
<i>Number of legislatively-approved scope changes</i>	23		23		0		0	
<i>Pre-construction starts within six months</i>	0		0		0		0	
<i>Construction starts within six months</i>	3		3		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 TPA's passage in 2005, the Legislature has approved changes to the ferry construction program so that the current budget does not match the original budget. Among the changes, TPA funding was provided to the 64-car ferries.

Project budget update: Original 2005 Transportation Partnership Account (TPA)

As of March 31, 2013; Dollars in thousands

Total original legislative planned budget	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 2009-2011 biennium	4,042,962	58%	3,886,331	58%	81,701	44%	74,930	63%
Actual expenditures, 2005 through 2009-2011 biennium	2,703,850	39%	2,572,833	39%	64,128	35%	66,889	57%
Original plan through 2011-2013 biennium	5,585,341	80%	5,386,836	81%	87,655	47%	110,850	94%
Current plan through 2011-2013 biennium	3,990,940	57%	3,841,057	58%	76,244	41%	73,639	62%
Actual expenditures, 2003 through March 31, 2013	3,551,315	51%	3,417,233	51%	65,584	35%	68,497	58%

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 in a "pre-construction phase" that have been funded and have commenced 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 All activities 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.

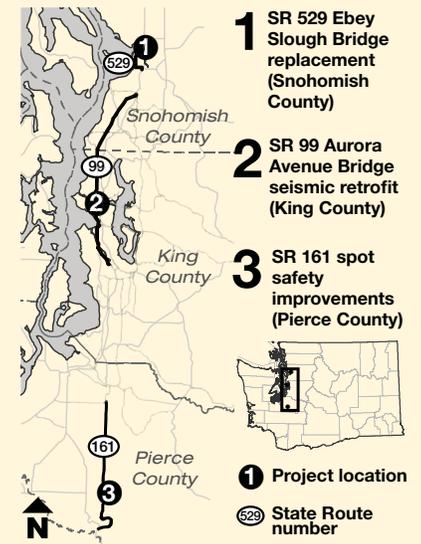
Three Transportation Partnership Account projects done this quarter

WSDOT completed three Transportation Partnership Account (TPA) projects from January 1 to March 31, 2013. The projects included the \$9.9 million retrofit of the State Route 99 (SR 99)/Aurora Avenue - George Washington Memorial Bridge near Fremont in King County, \$2 million in safety improvements on SR 161 between Clear Lake North Road and Tanwax Creek in Pierce County, and the \$35.1 million replacement of the Ebey Slough Bridge in Maryville in Snohomish County.

Project delivery performance reporting on budgets and schedules is measured against the latest approved budgets in accordance with criteria established by the Legislature. For this quarter, it is the 2012 transportation budget.

In addition to the projects' last approved budgets and schedules, this article includes the original project appropriations to explain changes in budgets. As projects move from design and construction toward completion, their budgets and schedules may change from those originally approved by the Legislature. 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>.

Three gas tax projects complete in Puget Sound area January 1 through March 31, 2013



SR 99/Aurora Avenue – George Washington Memorial Bridge – Seismic Retrofit

2005 Transportation Partnership Account (King)

The project seismically retrofitted columns, trusses, crossbeams, girders and expansion joints, strengthening the SR 99/Aurora Avenue – George Washington Memorial Bridge and making it able to better withstand earthquakes.

Benefits: Earthquake-resistant columns help prevent the collapse of the SR 99/Aurora Bridge. The improved columns are less likely to crumble, split, or crack in ways that would make the bridge vulnerable to collapsing. Stronger trusses, crossbeams, and girders also make the bridge less prone to

earthquake damage, and help keep traffic flowing on this key route between Fremont and Seattle.

Highlights and challenges: Seismic design code changes for bridges required additional time and funds to conduct geotechnical investigations and a more sophisticated structural design analysis. As the bridge is an historic landmark, using traditional steel jacketing to support the piers would have altered their appearance and was not a viable option. WSDOT used a newer polymer fiber technology to stabilize the bridge, but this method required additional testing and resulted in delays and higher costs.

The accepted construction bid was 29.3 percent lower than the engineer's estimate, reducing the anticipated project cost by approximately \$2.7 million. The estimate was made in 2011, when the then-approved project cost peaked at \$16.4 million due to an increase in seismic protection costs.

Budget performance: The project was operationally complete for \$9.9 million, on target with the last approved budget. The budget at completion was about \$5.3 million more than the original 2007 budget of \$4.6 million.

Schedule performance: The project was operationally complete in March 2013, on time with the last approved schedule and nearly four years later than the originally approved schedule of June 2009.



Crews raise the SR 99 Aurora Avenue Bridge about 3/8-inch to slide in a bearing that will help the structure sway during an earthquake.

Completed projects

Three Transportation Partnership Account projects done this quarter, *continued*

SR 161/Clear Lake North Road to Tanwax Creek – Spot Safety Improvements

2005 Transportation Partnership Account (Pierce)

This project made spot improvements for the roadway, such as flashing beacons, pavement markings, illuminations, and basic improvements such as upgrading guardrails on the one-mile stretch of SR 161 between Clear Lake North Road and Tanwax Creek.

Benefits: WSDOT has listed this section of SR 161 as a high collision corridor and these safety improvements are expected to reduce the potential for collisions.

Highlights and challenges: WSDOT's engineer's estimate exceeded the approved baseline estimate for this project. Engineers reviewed the scope of work to determine if there were other options available to stay within available funding. They used a set of recently-released analytical tools, developed by the Federal Highway Administration, to evaluate the effectiveness of several alternatives. The package of software suggested the options for their consideration. Their investigation produced a solution that addressed the underlying contributing factors and still stayed within the baseline estimate for this safety project.

Project budget: The project was operationally complete for slightly more than \$2 million, about \$1 million less than the original 2005 budget of \$3 million. A reduction in scope decreased the estimated cost from \$4.9 million to \$1.6 million in 2012 because neither right of way acquisition nor major construction was required. Approximately \$400,000 was added to this due to additional redesign and inspections, change orders, and an extension to the construction timeline.

Project schedule: The project was operationally complete in February 2013, two months earlier than the last approved schedule and nearly two years later than the originally approved schedule of June 2011. The delay to the original schedule was due to changes in the project's scope that were recommended by the engineers' reassessment.

SR 529/Ebey Slough Bridge - Replace Bridge

2005 Transportation Partnership Account (Snohomish)

The project replaced the old two-lane, swing-span bridge with a new four-lane, fixed-span, steel bridge across

the Ebey Slough near Marysville. The 1925 bridge had reached the end of its service life. The new bridge features sidewalks and separate bicycle lanes. State Route 529 was realigned to meet the new bridge and a two-way left turn lane was added just north of the new bridge.

Benefits: The project improved safety for drivers, bicyclists, and pedestrians while eliminating bridge openings, reducing traffic congestion along this commuter route. The project also enhanced the aquatic environment in the channel by removing creosote bridge sections. WSDOT replaced some of the existing soil around the removed creosote structures with clean sand, and built an enclosed stormwater system to capture roadway runoff, further protecting the environment.

Highlights and challenges: WSDOT faced a number of challenges, which ranged from removing creosote pilings and contaminated soils to obtaining permits from state and federal environmental agencies. These activities delayed construction progress and added to the overall project cost. To minimize impacts to the environment,

The project was completed for about \$4 million less than the original budget

work took place during low tide periods and sometimes during nighttime hours.

Changes in the design standard due to poor soils at the site, materials

cost increases, and additional work to address water quality were also issues during construction. The accepted construction bid was approximately 23.2 percent lower than the engineer's estimate, reducing the anticipated project cost by approximately \$8.1 million. The estimate was made in 2010, when the then-approved project cost peaked at \$49.5 million.

Budget performance: The project was operationally complete for \$35.1 million, approximately \$4 million less than the last approved budget for the project. The original legislative budget for the project was \$28 million in 2005.

Schedule performance: The project was operationally complete in March 2013, approximately two months ahead of the last approved schedule, and approximately nine months later than the original 2005 schedule of June 2012.

Contributors include Pat Morin, Theresa Scott and Joe Irwin

WSDOT advertises 65 Pre-existing Funds projects for quarter

Sixty-five of 106 scheduled Pre-existing Funds (PEF) projects were advertised during the first quarter of 2013 (January 1 through March 31). Of those advertised, two were advanced, 36 were on time, 15 were late and 12 were emergent. (See pp. 60-61 for project descriptions).

The current cost to complete the 65 PEF projects advertised for the quarter was \$117.3 million. This is approximately \$41.3 million less than the original value of \$158.6 million, which was estimated at the beginning of the 2011-2013 biennium. The difference is the result of project savings, underspending and reprioritization of projects during the development of the 2013 budget.

Unlike Nickel and Transportation Partnership Account (TPA) projects, which come from fixed lists 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 with projects, such as pavement preservation, bridge rehabilitation and fish passage improvements, and allows the agency to efficiently address issues that arise.

How WSDOT reports on Pre-existing Funds projects

Between 2001 and 2009, WSDOT began reporting on six individual Pre-existing Funds projects. Five of those projects are complete (see *Gray Notebook* 45, p. 72, for their advertisement, budget and schedule performance). The sixth project, the SR 28/East End of George Sellar Bridge - Construct Bypass, is underway in Douglas County. The project was awarded in August 2011 and is scheduled to be complete in June 2013. The original legislative budget for this project was approximately \$9.4 million in 2004.

The most recent legislative budget for the project is about \$28.7 million and was approved in April 2013. The increase is due to challenges such as right of way issues, higher costs for materials and the addition of a pedestrian tunnel.

How WSDOT tracks other Pre-existing Funds projects

For all other Pre-existing Funds projects, WSDOT reports on planned versus actual cash flows for its preservation and improvement programs, and tracks advertisements for the biennium (See p. 62).

Of the 266 projects advertised from July 1, 2011, to March 31, 2013, 20 were advanced, 121 were on schedule, 64 were late, and 61 were considered emergent and addressed unexpected needs and emergency repairs. An additional 96 projects were delayed within the biennium, 50 were delayed out of the biennium and 14 have been deleted.

Majority of project advertisements continue to be on time during 2011-2013 biennium

Project status	Quarter ¹	Cumulative ²
Projects advanced	2	20
Projects advertised on time	36	121
Projects advertised late	15	64
Emergent projects advertised	12	61
Total projects advertised	65	266
Projects delayed (delayed within the biennium)	6	96
Projects deferred (delayed out of the biennium)	23	50
Projects deleted	5	14

Data source: WSDOT Capital Program Development and Management.

Note: Seven projects from this quarter that advertised early are not included above because they were already counted in previous quarters. 1 Quarter refers to January 1 through March 31, 2013. 2 Cumulative refers to July 1, 2011 through March 31, 2013.

An explanation of PEF terms

The name Pre-existing Funds came about to help differentiate the funding source from more recently introduced funding methods like the 2003 Nickel and 2005 Transportation Partnership Account (TPA). Nickel and TPA funds started have different timelines, reporting, sources and legislation.

Advertisement date

The date that WSDOT schedules to publicly advertise a project for bids from contractors. When a project is advertised, it has a completed set of plans and specifications, along with a construction cost estimate.

Advanced

A project from a future quarter which is advertised in the current quarter.

Early

A project with an advertisement date originally scheduled for the current quarter but has its advertisement occur in an earlier quarter.

On time

A project that is advertised within the quarter planned in the biennial budget.

Late

A project that is advertised in the current quarter but missed the original advertisement date.

Emergent

A new project that addresses unexpected needs, such as emergency landslide repair, and is advertised in the current quarter.

Projects not advertised on schedule fall into three categories:

Delayed

A project that has not yet been advertised and has had the advertisement date moved out of the quarter being reported to another quarter within the biennium.

Deferred

A project not yet advertised, which has had the advertisement date moved out of the quarter being reported to a future biennium.

Deleted

A project that, upon review or due to changing circumstances, is no longer required or has been addressed by another project.

Pre-existing Funds

Pre-existing Funds provide financial support for WSDOT projects

WSDOT advertises and schedules 28 Pre-existing Funds (PEF) projects for advertisement this quarter

January 1 through March 31, 2013

Advanced (2)

SR 7/Muck Creek Tributary to Nisqually River - Fish Barrier Removal

I-5/SR 705 and Railroad Bridge Southbound - Seismic Retrofit

Early (7)

SR 99/Gibson Road - Traffic Signal

I-5/Lynnwood to Ferndale - Redirectional Landforms

SR 518/42nd Avenue South Vicinity to I-5 Interchange - Concrete Pavement Rehabilitation

SR 18/Southeast 312th Way Vicinity to Southeast 304th Street Vicinity - Redirectional Landforms

SR 92/99th Avenue Northeast - Roundabout

I-405/Northbound SR 167 Ramp to Northbound I-405 - Culvert Replacement

SR 92/113th Avenue Northeast - Roundabout

On time (36)

SR 539/I-5 to Horton Road - Access Management

SR 291/Division Street to Lowell Road - Paving

I-5/Lucile Street Bridge - Bridge Deck Rehabilitation

U.S. 97/West Wapato Road Vicinity to Lateral A Road Vicinity - Paving

I-5/Northbound to Westbound West Seattle Viaduct - Bridge Deck Rehabilitation

U.S. 97/North of Brewster - Passing Lane

SR 20/Skagit River Chronic Environmental Deficiency - Permanent Restoration

I-205/SR 14 to I-5 Junction - Concrete Pavement Rehabilitation

SR 546/Depot Road and Bender Road - Intersections Improvements

SR 14/2 Miles East of Christy Road to I-82 - Paving

SR 107/Chehalis River Bridge - Seismic Retrofit

SR 21/1.1 Miles North of Rin Con Creek Road to Canada - Paving

SR 27/32nd Avenue to Junction SR 290 - Paving

U.S. 97/I-90 Bridge to Desmond Road Intersection Vicinity - Paving

SR 503/4th Plain to 119th Street - Median Curb

SR 411/Tenant Way to Lincoln Street - Concrete Pavement Rehabilitation

U.S. 12/North Shore Road Vicinity to Vansycle Canyon Bridge Vicinity - Chip Seal

SR 23/Junction U.S. 195 to Junction I-90 - Chip Seal

U.S. 12/Harbert Road Vicinity to Dixie - Chip Seal

SR 23/Junction I-90 to Lords Creek Road - Chip Seal

U.S. 12/Dayton to Turner Road Vicinity - Chip Seal

SR 231/SR 23 to U.S. 2 - Chip Seal

U.S. 12/Dixie to Lewiston Road Vicinity - Chip Seal

SR 231/Reardan to Fisher Road - Chip Seal

SR 24/Cold Creek Road Vicinity to SR 240 Intersection - Chip Seal

SR 902/I-90 to Lakeland Village - Chip Seal

U.S. 97/Canal Drainage Bridge to SR 22 - Chip Seal

SR 904/Tyler to Cheney - Chip Seal

SR 124/Old BNSF Railroad Bridge to County Road 473 - Chip Seal

I-5/Downtown Seattle - Expansion Joint Replacement

SR 223/SR 22 Intersection to Indian Church Road - Chip Seal

U.S. 12/Solki Road to Wynoochee River - Paving

SR 410/East Winter Gate to Sawmill Flat Campground Vicinity - Chip Seal

SR 512/Junction I-5 to Northeast of 104th Street - Paving

SR 291/Lowell Road to Stevens County Line - Paving

U.S. 97/2.4 Miles North of Tomith Road to 2 Miles South of Dry Creek Road - Chip Seal

Late (15)

SR 31/Pend Oreille County - Pedestrian Improvements
Delayed due to a change to federal authorizing legislation to fund the project.

U.S. 101/West Wishkah Street - Rebuild Signal
Advertisement delayed to allow materials acquisition for signal hardware.

U.S. 97/Toppenish to Yakima - Replace Single Strand Cable
Delayed to further evaluate current design solution.

U.S. 101/Ennis Street Signal - Rebuild Signal
Advertisement delayed for NEPA and construction, including equipment fabrication and delivery.

I-90/Big Creek Bridge Eastbound - Deck Rehabilitation
Advertisement delayed to avoid conflicts with adjoining project.

I-5/SR 705 and Railroad Crossing Northbound - Seismic Retrofit
Advertisement delayed to combine two seismic projects together for efficiency. Will be done with the M Street to Portland HOV project.

I-90/Yakima River Bridge Westbound - Deck Rehabilitation
Advertisement delayed to avoid conflicts with adjoining project.

SR 18/Eastbound Green River (Neeley) Bridge - Bridge Deck Rehabilitation
Project delayed to revise traffic control plans, address city of Federal Way concerns, perform additional coring, and to address drainage deficiencies on SR 18 under I-5.

I-90/Taneum Creek Bridge Eastbound - Deck Rehabilitation
Advertisement delayed to avoid conflicts with another project.

I-5/SR 104 Interchange Vicinity to 52nd Avenue West - Paving
Project delayed to combine with similar projects for efficiencies.

I-90/Dry Creek Bridge Eastbound - Deck Rehabilitation
Advertisement delayed to avoid conflicts with another project.

SR 18/Eastbound Carey Creek Tributary to Issaquah-Hobart Road Vicinity - Paving
Project delayed to combine with similar projects for efficiencies.

Pre-existing Funds provide financial support for WSDOT projects, *continued*

WSDOT advertises and schedules 28 Pre-existing Funds (PEF) projects for advertisement this quarter *January 1 through March 31, 2013*

Late continued

I-90/Dry Creek Bridge Westbound - Deck Rehabilitation
Advertisement delayed to avoid conflicts with another project.

I-5/220th Street Southwest Interchange Vicinity - Ramps Paving
Project delayed to combine with similar projects for efficiencies.

U.S. 101/South Alder Street - Rebuild Signal
Advertisement delayed to allow materials acquisition for signal hardware.

Emergent (12)

U.S. 395/Lind Road Vicinity - Intersection Improvements

U.S. 12/Wildcat Creek to Tieton River Bridge - Chip Seal

I-5/Maytown and Scatter Creek Safety Rest Area Roof Replacements

SR 17/U.S. 395 to SR 260 - Chip Seal

SR 531/43rd Avenue Vicinity to SR 9 Vicinity - Paving

I-90/Price Creek Vicinity to Easton Hill Eastbound - Paving

I-5/Nisqually River Bridges - Bridge Painting

I-90/Cabin Creek Vicinity to Easton Hill Westbound - Paving

I-5/M Street Bridge - Seismic Retrofit

U.S. 97/South of Satus Creek Bridge - Chip Seal

SR 501/0.6 Miles West of Smythe Road - Slide Repair

U.S. 97/Pumphouse Road to Jenson Road Vicinity - Chip Seal

Delayed (6)

U.S. 101/North of Lilac Avenue to Kolonels Way - Safety Improvements
Project delayed for STIP amendment approval.

SR 106/Twanoh Falls - Chronic Environmental Deficiency - Restoration
Project delayed for completion of condemnation in right of way.

SR 108/East of Little Creek Casino to U.S. 101 - Paving
Project delayed to tie with similar project for efficiencies.

SR 507/Reynolds Avenue Signal Replacement
Project delayed for additional right of way acquisitions.

U.S. 101/Purdy Canyon Vicinity Slide - Stabilize Slope
Project delayed after additional analysis determined that a more involved excavation was required.

SR 9/Getchell Road Bridge - Seismic
Project delayed for additional preliminary engineering.

Deferred (23)

SR 9/32nd Street Southeast - Roundabout
Project deferred to combine with another for efficiencies.

SR 410/Yakima County Line to Union Creek Bridge - Chip Seal
Project deferred to allow funding of higher priority projects.

SR 410/Scatter Creek Bridge - Seismic Retrofit
Project deferred for additional preliminary engineering.

SR 410/Little Naches River Bridge to Nile Road - Chip Seal
Project deferred to allow funding of higher priority projects.

SR 128/Snake River Bridge to Idaho State Line - Chip Seal
Project deferred to allow funding of higher priority projects.

U.S. 97/Frontage Road Vicinity to West Wapato Road Vicinity - Paving
Project deferred to allow funding of higher priority projects.

U.S. 12/Howell Grade Road Vicinity to Alpowa Creek Bridge - Chip Seal
Project deferred to allow funding of higher priority projects.

SR 28/Lamona to Harrington - Chip Seal
Project deferred to allow funding of higher priority projects.

SR 241/Rosa Canal Bridge to 2.7 Miles South of Wautoma Road - Chip Seal
Project deferred to allow funding of higher priority projects.

SR 906/West Summit Interchange to Hyak Interchange - Paving
Project deferred to allow funding of higher priority projects.

SR 25/Davenport to Fruitland - Chip Seal
Project deferred to allow funding of higher priority projects.

SR 504/Kid Valley Road Vicinity to Johnston Ridge - Paving
Project deferred to allow funding of higher priority projects.

SR 241/I-82 to Factory Road - Paving
Project deferred to allow funding of higher priority projects.

SR 202/Snoqualmie River Bridge to South Fork Snoqualmie River Bridge - Paving
Project deferred to allow funding of higher priority projects.

U.S. 12/SR 128 Vicinity to Snake River Bridge - Paving
Project deferred to allow funding of higher priority projects.

I-182/Road 100 Interchange - Paving
Project deferred to allow funding of higher priority projects.

I-82/Valley Mall Boulevard Vicinity to Yakima River Bridge - Paving
Project deferred to allow funding of higher priority projects.

I-182/Road 68 Interchange - Paving
Project deferred to allow funding of higher priority projects.

U.S. 395/W Kennewick Avenue to I-182 Bridge - Paving
Project deferred to allow funding of higher priority projects.

I-182/Road 68 Interchange - Interstate Safety
Project deferred to allow funding of higher priority projects.

SR 10/SR 970 to U.S. 97 - Chip Seal
Project deferred to allow funding of higher priority projects.

U.S. 2/Anderson Creek Vicinity Debris Flow - Slope Stabilization
Project deferred to allow funding of higher priority projects.

SR 24/7.4 Miles West of SR 241 to SR 241 - Chip Seal
Project deferred to allow funding of higher priority projects.

Deleted (5)

SR 7/North of Alder (Phase 2) - Rock Scaling
Project deleted as work is to be included in another project with different funding.

SR 904/Vicinity Betz Road to I-90 - Fog Seal
Project was determined to be unneeded and was deleted.

SR 410/East of Mundy Loss Road East to East of Chamberlain Road - Safety Improvements
Project was determined to be unneeded and was deleted.

I-90/Flora Road to Barker Road Test Section Eastbound Inside Lane - Fog Seal
Project was determined to be unneeded and was deleted.

I-90/Adams County Line to Salnave Road - Fog Seal
Project was determined to be unneeded and was deleted.

Pre-existing Funds

Pre-existing Funds provide financial support for WSDOT projects, *continued*

Pre-existing Funds supporting 266 advertised projects this biennium

WSDOT has advertised 266 of 312 Pre-existing Funds (PEF) projects planned to date in the 2011-2013 biennium. These 266 projects were initially valued at \$629.3 million but have a current cost to complete of \$574.4 million, which is approximately \$51.9 million less than they were initially valued. This decrease is the result of several projects being reprioritized and deferred out of the current biennium during the development of the 2013 biennial budget.

For the quarter ending March 31, 2013, the actual cash flow for the Pre-existing Funds improvement program was approximately \$1.42 billion, about \$156 million (about 10 percent) less than the planned cash flow of \$1.58 billion. A combination of project savings and cash flow adjustments on mega-projects resulted in underspending for this program.

The improvement program focuses on projects that increase highway capacity to move more vehicles, correct highway safety deficiencies, improve the movement of freight goods, and reduce the impact of highway construction projects on the environment.

The actual cash flow for the PEF preservation program during the same quarter came in at \$429 million, which was approximately \$94 million less (about 18 percent lower) than the planned amount of \$523 million. Project savings and the delay of several bridge preservation projects resulted in underspending.

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

Contributors include Mike Ellis, Dean Walker and Joe Irwin

Actual cost to complete outpaces original value of planned advertisements for the quarter

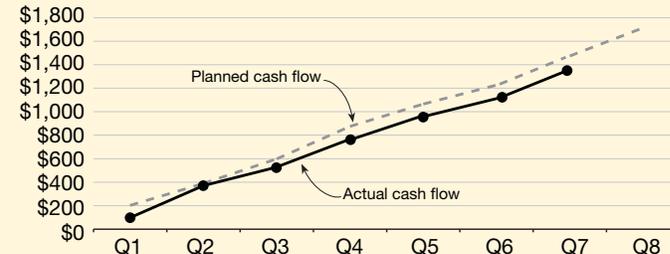
2011-2013 biennium; July 1, 2011 through March 31, 2013; Dollars in millions

	Number of projects	Original value	Current cost to complete
Total PEF advertisements planned 2011-2013	328	\$794.9	\$659.4
Planned advertisements through March 31, 2013	290	\$690.0	\$562.2
Actual advertisements through March 31, 2013	259	\$626.3	\$574.4

Data source: WSDOT Capital Program Development and Management.

Improvement program cash flow 10 percent less than planned amount for the biennium

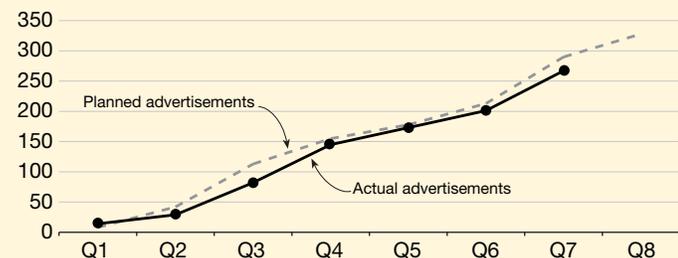
2011-2013 biennium; Quarter ending March 31, 2013; Planned vs. actual; Dollars in millions



Data source: WSDOT Capital Program Development and Management.
Note: Original planned cash flow values were updated based on the 2012 Legislative Final Budget.

Actual advertised projects just shy of planned levels

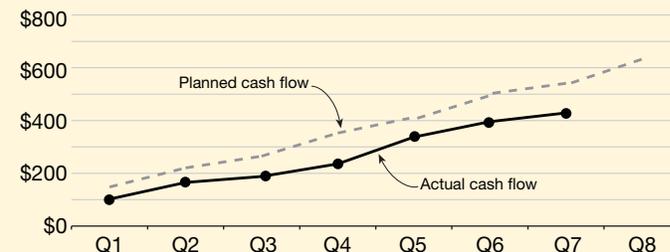
2011-2013 biennium; Quarter ending March 31, 2013; Planned vs. actual advertisements



Data source: WSDOT Capital Program Development and Management.

Preservation program cash flows continue to fall well short of planned level for the biennium

2011-2013 biennium; Quarter ending March 31, 2013; Planned vs. actual; Dollars in millions



Data source: WSDOT Capital Program Development and Management.
Note: Original planned cash flow values were updated based on the 2012 Legislative Final Budget.

Watch List puts projects with potential issues in the spotlight

Three projects added to Watch List

WSDOT added three projects to its Watch List from January 1 through March 31, the first quarter of 2013. During the same period, one project was removed from the list and four were updated.

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 it serves.

The Watch List provides information on issues currently affecting projects, and those that could potentially impact project schedules and budgets. It helps WSDOT track these projects, providing status reports while explaining the issues at hand, how they are 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.

WSDOT's Capital Program Development and Management office is now providing monthly reports on Watch List projects online. The Delivery Progress Report provides a monthly update on issues impacting the selected projects and can be found at <http://www.wsdot.wa.gov/Projects/Reports/>. Monthly lists of operationally complete and advertised projects can be found on the same Web page.

The box below describes some of the common problems that may affect the progress of a project from design through completion. They are listed in the order that WSDOT might typically encounter them, starting with planning and ending with construction.

Projects facing schedule or budget concerns are listed on the next page with references to the problem category and a more detailed description of the precise problem or its resolution appears on the following pages. More information on individual projects can be found at <http://www.wsdot.wa.gov/projects>.

Coordination

Local concerns: Concerns raised by local communities may require additional, unanticipated, design, right of way, or utilities work which, if not resolved, might result in additional costs or delays later in construction.

Federal requirements: Funding and project development issues with Federal Highways Administration (FHWA), Federal Transit Administration (FTA), USDOT; workload prioritization and coordination for reviews by U.S. Fish & Wildlife Service, National Oceanic and Atmospheric Administration (NOAA) Fisheries, U.S. Forest Service or others may result in delays.

Inter-agency issues: Project may require more collaboration with local jurisdictions, or may require interlocal agreements, such as Memoranda of Understanding (MOUs) or Memoranda of Agreement (MOAs).

Tribal concerns: Consultation with tribes as required by Centennial Accord and specific treaties with each tribal government. Where treaty rights are affected, there may be financial settlements unanticipated in the original project budget.

Environmental

Planning & analysis: Completing essential studies required to comply with the National and State Environmental Policy acts (NEPA/SEPA), the Endangered Species Act (ESA), or other programs may take longer and cost more than anticipated.

Technical issues: The time needed to resolve matters involving archeological discoveries, hazardous materials, stormwater, noise, and hydrology may cause delay.

Mitigation: Negotiating for and designing sites to compensate for impacts to wetlands, floodplains, fish habitat and migration, and so on, may involve many other factors from design through construction.

Permitting: New information about a project site, changes in design, or new regulatory requirements may delay permitting. If existing permits must be reworked, it can cause delay or additional expense.

Design

Geological: Studies may reveal unsuitable soil conditions for construction on the proposed route.

Alternatives: Design alternatives may require unanticipated revision as the result of environmental analyses and/or public input.

Design disputes: Communities or other entities may challenge design concepts, requiring additional design time.

Design element changes: Project parameters may change, requiring changes to designs in progress or under construction.

Utilities

Agreements with other jurisdictions: Agreements may take longer to obtain than anticipated.

Utility relocations: Moving power, water, gas, or other utility lines may be more complex than originally expected.

Right of Way

Design changes: Project revisions may require additional land.

Land acquisition: Negotiations with landowners regarding purchase of property may take longer than anticipated.

Land appreciation: Property value increases that exceed projections.

Land use designation changes: Land previously zoned as farmland may have been converted to industrial or commercial use, raising the purchase price.

Construction

Contractor issues: Disputes with contractors or disagreements over contract parameters may delay construction at any point in the job.

Cost increase of materials: Unit costs may increase beyond the set budget due to fluctuations in the marketplace or a failure to estimate costs properly at the design phase.

Materials procurement: Unexpected demand or lack of availability of raw materials required for construction.

Site problems: Discovery of contaminated (hazardous) soils, unsuitable geological conditions, or similar unforeseen issues after construction has begun.

Timing problems: Delays at design or right of way may result in work schedules conflicting with events such as fish spawning season.

Weather: Weather unsuitable for construction work can temporarily halt the project.

Litigation

At any point, a problem may escalate if one or more of the parties decides to file a lawsuit.

Watch List

Watch List puts projects with potential issues in the spotlight, *continued*

Watch List projects with schedule or budget concerns

Quarter ending March 31, 2013

Added to Watch List	Project type	Watch List issue
SR 3/Belfair Area - Widening and Safety Improvements (Mason)	Highway	Design: design element changes
I-5/Portland Avenue to Port of Tacoma Road - Northbound HOV (Pierce)	Highway	Coordination: tribal concerns
I-5/Portland Avenue to Port of Tacoma Road - Southbound HOV (Pierce)	Highway	Coordination: tribal concerns
Updates to Watch List		
U.S. 2/Wenatchee River Bridges - Bridge Replacement (Chelan) (Related project: U.S. 2/Chiwaukum Creek - Replace Bridge)	Highway	Construction: weather, contractor issues, timing problems
SR 161/24th Street East to Jovita - Add Lanes (Pierce)	Highway	Utilities: utility relocations; Construction: timing problems, weather
SR 520 Pontoon Construction Project (Grays Harbor)	Highway	Construction: materials procurement
SR 520/Medina to SR 202 Vicinity - Eastside Transit and HOV (King)	Highway	Coordination: local concerns; Litigation: lawsuit; Design: design changes
Removed from Watch List		
U.S. 97/Satus Creek Bridge - Bridge Replacement (Yakima) Related projects: U.S. 97/Satus Creek Vicinity - Safety Work and U.S. 97/Satus Creek Vicinity - Pavement	Highway	Design: design alternatives; Construction: weather, materials procurement

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

Added to Watch List

SR 3/Belfair Area - Widening and Safety Improvements (Mason County)

This project, budgeted for \$18.1 million, will extend the center turn lane and construct paved shoulders and sidewalks on both sides of State Route 3 (SR 3) for 1.7 miles through Belfair. The work is expected to address traffic congestion and safety concerns in the business area, adding bicycle and pedestrian facilities, and making stormwater improvements to meet stormwater mitigation requirements.

The project is in the design phase; the schedule is at risk. The advertisement date has been delayed four months from February to June 2013. The delay is due to revisions to the project limits which provide more room for staging the project. These revisions also delayed the schedule to review and approve the right of way acquisition plans.

WSDOT has delayed the operationally complete date by 13 months, from May 2014 to June 2015, to ensure more efficient construction staging occurs.

Interstate 5/Portland Avenue to Port of Tacoma Road - Northbound HOV (Pierce County)

This section of the Interstate 5 (I-5) corridor is experiencing congestion during peak hours and is part of the Pierce County high occupancy vehicle (HOV) program, a series of highway projects to provide operational improvements and HOV lanes on I-5, SR 16, and SR 167.

This project, budgeted for \$305.8 million, will widen I-5 from Portland Avenue to the Port of Tacoma Road to provide one northbound HOV lane and four general purpose lanes in each direction. As part of this project, WSDOT will also construct a new northbound I-5 bridge across the Puyallup River.

The new bridge will be straighter and wider than the existing bridge. Additionally, the project reconstructs the I-5/SR 167 interchange, improves the Portland Avenue interchange, and repaves all the lanes on I-5 with concrete within the project limits. When complete, the project is expected to reduce congestion and enhance motorist safety.

This project was advertised in June 2012 but the bid opening was canceled after being on advertisement for nine months. The schedule is at risk. The bid opening delay allowed WSDOT more time to negotiate with the Puyallup Tribe of Indians on the project's potential impacts and easement acquisitions, and to comply with the in-water work window. The project is expected to be re-advertised later in the year.

These delays have pushed the operationally complete date back 13 months from June 2015 to July 2016.

Interstate 5/Portland Avenue to Port of Tacoma Road - Southbound HOV (Pierce County)

This section of the I-5 corridor is experiencing congestion during peak hours and is part of the

Watch List puts projects with potential issues in the spotlight, *continued*

Pierce County Core HOV program, a series of highway projects to provide operational improvements to HOV lanes on I-5, SR 16 and SR 167.

This project, budgeted for \$221.7 million, demolishes and replaces the existing southbound bridge over the Puyallup River, rehabilitates reconstruction, concrete pavement and builds and paves a southbound HOV lane from Portland Avenue to the Port of Tacoma Road interchange. HOV lanes will help ensure that transit, vanpools and carpools move efficiently through the Tacoma corridor, especially when traffic is congested in the adjacent general purpose lanes.

Other improvements include realigning and rebuilding exit ramps, upgrading signage, illumination, and stormwater and water quality treatment facilities. When complete, the project is expected to reduce congestion and enhance motorist safety.

This project is in design; the schedule is at risk. The advertisement date has been pushed back one year from March 2015 to March 2016 due to the delayed bid opening on the Northbound I-5/Portland Avenue to Port of Tacoma Road HOV project. The bid opening is delayed to allow time to complete negotiations with the Puyallup Tribe of Indians on mitigating the project's impacts and acquiring easements.

The operationally complete date for the southbound work has been delayed from January 2018 to March 2019.

Updates to Watch List

U.S. 2/Wenatchee River Bridges - Replace Bridge (Chelan County)

(Related project: U.S. 2/Chiwaukum Creek - Replace Bridge)

These projects, budgeted for \$12.5 million and known as the U.S. 2 – Tumwater Canyon Bridge replacements, will replace three narrow bridges over the Wenatchee River and Drury and Chiwaukum creeks with wider bridges designed to current standards. The added width is designed to reduce risks for motorists, bicyclists and pedestrians. These projects also construct new turn lanes to the Tumwater Campground and add fish passage enhancements in the creek beds.

The projects are in the construction phase; the budget and schedule continue to be at risk. The previous project

cost increase of \$1.5 million reported in *Gray Notebook* 48, p. 58, has increased to \$1.7 million. Cost increases are due to removing unforeseen large boulders encountered during drilling, which required a change in excavation methods.

As reported in *Gray Notebook* 48, p. 58, the operationally complete date has been delayed by nine months from January to September 2013 due to higher than expected water levels and the boulders encountered during drilling.

At the end of November 2012, the bridge's girders were set and prepared for winter. Completion of this work keeps the project on schedule with the new September 2013 completion date. WSDOT continues to monitor the schedule. The cost increase has been included in the Governor's 2013 Budget.

SR 161/24th Street East to Jovita - Add Lanes (Pierce County)

This project, budgeted for \$40 million (including \$367,000 in local agency funds), widens a 1.2-mile section of SR 161 from three to five lanes through the city of Edgewood. Construction includes new sidewalks and road approaches, illumination, retaining walls, stormwater drainage facilities, and utility relocations. When complete, the project is expected to ease congestion and improve safety along the SR 161 corridor.

The project is in the construction phase; the schedule and budget are at risk. As reported in *Gray Notebook* 48, p. 59, slow progress on utility relocation and trench construction due to underground utility conflicts delayed the project. Winter weather further delayed progress.

The operationally complete delay of 15 months, from June 2012 to September 2013, has increased the total project cost by \$2.7 million and was included in the Governor's 2013 Budget.

SR 520 Pontoon Construction Project (Grays Harbor County)

This design-build project, budgeted for a \$367 million contract, built a 55-acre casting facility in Aberdeen to construct 33 longitudinal pontoons (360 feet long by 75 feet wide), two cross pontoons (240 feet long by 75 feet wide), and 10 supplemental stability pontoons (98 feet long by 60 feet wide), for the new SR 520 floating bridge. These pontoons are designed to replace the existing floating bridge in the event of a catastrophic failure during an event like an earthquake. During the course of bridge

Watch List

Watch List puts projects with potential issues in the spotlight, *continued*

construction, 44 supplemental stability pontoons (for additional buoyancy and stability) are being built in Tacoma and will be joined with the 33 larger longitudinal and cross pontoons built in Aberdeen, for a total of 77 pontoons needed to construct the world's longest floating bridge.

The project is in the third of six pontoon construction cycles in Aberdeen; the interim schedule milestones are at risk. As reported in *Gray Notebook* 48, p. 59, repairs were made to the spalling and cracking that appeared on four of the first cycle pontoons that floated out from Aberdeen to Lake Washington on July 30, 2012.

An independent expert panel was convened to evaluate the probable causes of spalling and cracking in the first cycle of pontoons. The panel also reviewed design, materials, construction methods, and the overall integrity of the pontoons.

Following the expert panel's findings, WSDOT is adding transverse post-tensioning across the pontoons, in addition to the length-wise post-tensioning already in place. There was limited cracking during the second cycle, but the overall amount of cracking was less than it was during the first cycle. Given the amount of time remaining in the project and the possibility to accelerate work if needed, the impact to the schedule is currently unknown and can be negotiated.

Secretary of Transportation Lynn Peterson has taken the further step of appointing a private-sector consultant to assess WSDOT's contract decision-making, dispute resolution, and cost controls on three design-build projects, including the SR 520 project.

SR 520/Medina to SR 202 Vicinity - Eastside Transit and HOV (King County)

This design-build project, budgeted for a \$306 million contract, will feature a six-lane SR 520 corridor between Medina and Redmond. The project will build an HOV/transit lane, wider shoulders, and environmental improvements including nine fish-passable stream crossings. It will also add community enhancements like highway lids over the freeway (see *Gray Notebook* 46, pp. 57-58) that feature bicycle and pedestrian paths, a regional trail extension, construct two new median transit stops and add a transit/HOV lane. When completed, the project will reduce the potential for serious collisions along the SR 520 corridor, and



An aerial view shows construction on the Evergreen Point Road lid in February 2013.

improve mobility for transit, pedestrians, bicyclists and drivers, as well as improve fish habitat.

The project has completed design, and construction is on schedule to be completed by the end of 2013. As reported in *Gray Notebook* 48, p. 59, WSDOT and the design-builder, Eastside Corridor Constructors, continue discussions on budget and schedule risks that developed after the contract was awarded. Potential schedule and budget impacts will be determined after further consultation with the contractor. WSDOT is working with the contractor to resolve a geotechnical issue regarding soil stability under several wall sections. Negotiations are complete on the Fairweather Basin permit modifications and the additional noise walls. WSDOT is monitoring the project and expects the geotechnical issue to be resolved by summer 2013.

Construction has been slowed due to delays at the 84th Avenue Interchange and in the Fairweather Basin area. As reported in *Gray Notebook* 48, p. 59, the Fairweather Basin residents' lawsuit, which alleged reduced property values as a result of project actions, was resolved in November 2012. In January 2013, the project received a \$418,000 increase from local government funds. WSDOT will use the funds to design and construct the 92nd Avenue pavement overlay in Yarrow Point, and to modify and relocate utilities for the cities of Bellevue and Kirkland.

Removed from Watch List

U.S. 97/Satus Creek Vicinity - Bridge Replacement (Yakima County)

(Related projects: U.S. 97/Satus Creek Vicinity - Paving and U.S. 97/Satus Creek Vicinity - Safety Work)

This project, budgeted for \$13.4 million, will replace a 70-year-old, structurally deficient bridge across Satus Creek with a wider, longer bridge. It will also realign U.S. 97, widening shoulders, upgrading

continued on page 80

Federally-funded rail projects on schedule for 2017 completion

Seven of WSDOT's 21 federally-funded passenger rail projects were under construction or completed in the first quarter of 2013. Work on the 21 projects includes adding rail line capacity, purchasing new locomotives and passenger rail cars, and upgrading tracks, utilities, signals, stations and advanced warning systems. These projects will add two more Amtrak Cascades round trips between Portland, Ore., and Seattle, Wash., improve on-time performance, and reduce conflicts between passenger and freight trains that share track.

The 2009 American Recovery and Reinvestment Act is funding 17 of the 21 projects, which represents more than 96 percent (\$766.6 million) of the total grant amounts; the remaining four projects, with funding of \$28.3 million, are supported by other federal fund sources.

Two projects completed as of early 2013

BNSF crews finished the \$3.5 million Everett Storage Track project in January 2013, the second of the 21 projects to reach completion. This project consisted of installing two 7,000 foot rail tracks through BNSF's Delta Yard to reduce rail congestion and conflicts with freight traffic. The first project to be completed, the Tacoma D to M Street Connection, was reported on in *Gray Notebook* 48, p. 61.

Work resumes on Corridor Reliability project

BNSF crews resumed work in early March 2013 on the \$91.7 million Corridor Reliability Upgrades - South project between Nisqually and Vancouver, Wash. This project, which broke ground in fall 2012, will upgrade track quality and durability, and enable Amtrak Cascades to run at top speeds of 79 mph. Work includes replacing 34 turnouts or sections of track that allow trains to change tracks. Another phase of work to replace rail ties will begin in 2014. The project is scheduled for completion by fall 2016.

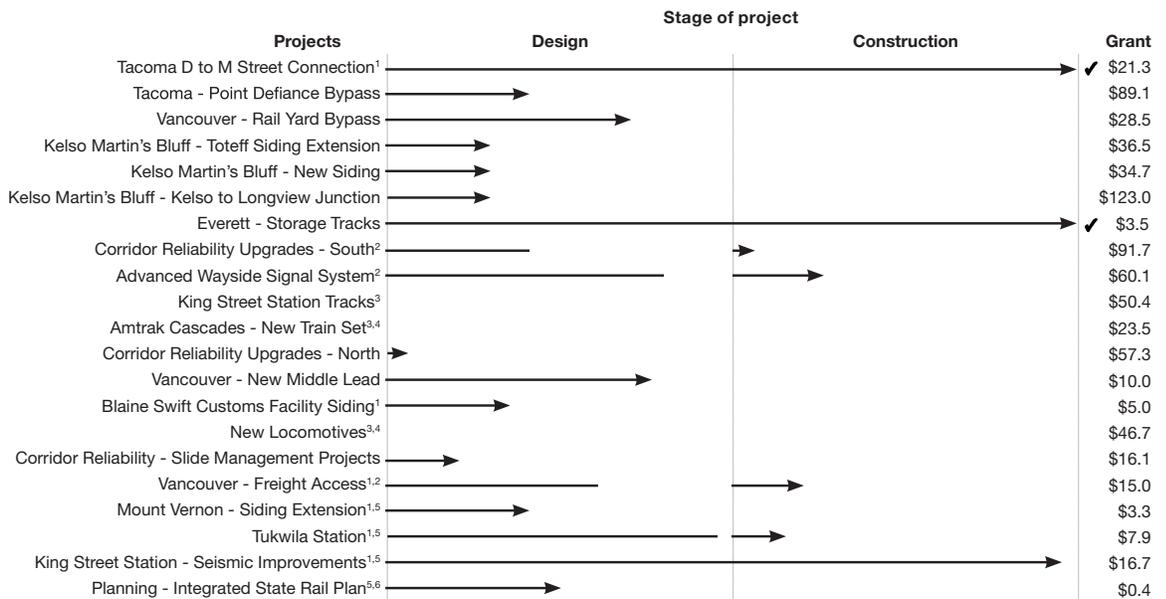
New equipment purchasing plans being developed

WSDOT is a member of the Next Generation Equipment Committee, a national committee of states and industry stakeholders working to procure new American-made locomotives and passenger cars. The Illinois Department of Transportation will lead the national procurement of locomotives on behalf of Illinois, California, Michigan, Missouri and Washington. Under the plan, the committee will purchase 35 locomotives. Washington will purchase up to eight of these, along with one set of passenger rail cars, to add to the Amtrak Cascades fleet. These new locomotives and rail cars are expected to be in service by July 2017.

Contributors include Melanie Coon, John Romero and Alison Wallingford

Two federally-funded passenger rail projects completed, five under construction

Project status as of March 31, 2013; Rail projects by stage of project; Grant amounts in millions of dollars



Data source: WSDOT State Rail Division.

Notes: The amount of progress through the project design phase decreased for 10 of the above tasks relative to the data published in *Gray Notebook* 48 due to updated baselines in February 2013. ✓ = project is operationally complete. 1 Six projects are partially funded from non-Federal Railroad Administration sources such as Sound Transit, state and local sources and the Federal Transit Administration. 2 Gaps show projects progressing through multiple phases with portions moving into construction while other portions are still in design. 3 Project is in pre-design phase. 4 The construction timeframe for these projects consists of manufacturing and delivering the new train components. 5 The first 17 projects in the table are funded by the American Recovery and Reinvestment Act. The last four projects are funded by other federal sources. 6 Project only consists of the design phase.

Study examines options for completing State Route 167

WSDOT finished its comprehensive tolling study for the State Route 167 (SR 167) Completion Project in January 2013. The estimated \$1.6 to \$1.8 billion project will finish the remaining four miles of SR 167, connecting the highway to Interstate 5 (I-5) near Fife in Pierce County as well as construct a new connection between SR 509 and I-5. WSDOT expects these enhancements to improve regional mobility and allow for faster and safer freight movement resulting in long-term jobs being added in the region.

The study evaluated the possibility of using tolling to help fund the project through six different construction options. The options ranged from a minimal construction scenario including only one lane in each direction to a “full build out” scenario with two general purpose lanes and a High Occupancy Vehicle lane in each direction. All scenarios included tolling. Key findings from the study include:

- Tolling revenues could provide up to \$65 million, which is only 4 percent of the project’s total capital needs;
- Stakeholders strongly support completing SR 167;
- Stakeholder support for the project diminished under scenarios that include tolling;
- Stakeholders are more supportive of tolling if revenue is used exclusively for the SR 167 Completion Project; and
- Use of tolls could help manage traffic demand and make a phased construction approach viable.

WSDOT needs to reevaluate project’s Environmental Impact Statement

Due to design refinements and the new emphasis on tolling, WSDOT needs to reevaluate the project’s Environmental Impact Statement (EIS). This reevaluation will determine if the project can move forward with the current EIS or if an amendment or supplement will be required. Updating the project’s EIS could take 18 to 24 months and cost

The project will complete the final four miles of SR 167, connecting it to I-5 near Fife

up to \$4 million. This process would involve providing new information to reflect proposed project design changes and analysis of any additional environmental impacts.

Project needs additional \$189 million for right of way acquisition

The Legislature made \$3 million available for right of way acquisition along the planned SR 167 corridor in November 2012. WSDOT has acquired 103 properties accounting for roughly 70 percent of the project’s proposed footprint. An estimated \$189 million in additional funding is needed to complete right of way acquisition.

To date, the SR 167 Completion Project has received \$160.9 million in funding including \$138.3 million from state sources, \$22.1 million from federal sources, and \$500,000 from local sources. WSDOT used these funds to complete environmental documentation, advance engineering, and purchase 70 percent of the corridor right of way. An additional \$1.5 billion is needed to construct the project to the “full build out” scenario described earlier.

Contributors include Steve Fuchs P.E. and Bradley Bobbitt

State Route 167 Completion Project funding needs

Dollars in millions; Projected costs based on 2012 dollars

Project activity	Funds spent	Funds remaining	Additional funding needed ¹
Preliminary engineering	\$30.7	\$4.1	\$97
Right of way acquisition	\$125.6	\$0.5	\$189
Construction	\$0	\$0	\$1,200
Total	\$156.3	\$4.6	\$1,486

Data source: WSDOT SR 167 Completion Project Office.

Note: 1 Funding needs reflect a “full build out” scenario including two general purpose lanes and one High Occupancy Vehicle lane in each direction.



WSDOT has acquired 70 percent of land needed for the SR 167 project right of way. This map shows acquired and needed land along SR 167 completion project corridor as of March 31, 2013.

I-90 project removes snowshed in favor of new avalanche bridges

Big changes are coming to Interstate 90 (I-90) east of Snoqualmie Pass; the existing two-lane snowshed is coming down and bridges are going up. In early March, the Federal Highway Administration and WSDOT approved a Supplemental Environmental Impact Statement for the I-90 Snoqualmie Pass East – Hyak to Keechelus Dam project. This gives the contractor for the final two miles of the five-mile project (Phase 1C) the green light to build two elevated bridges instead of a wider snowshed.

The bridges will carry six lanes of traffic over a series of engineered avalanche paths designed to direct future sliding snow, rock and debris between the piers and toward Keechelus Lake. This design will reduce the number of avalanche-related closures in the winter, helping keep motorists and goods moving on this vital cross-state freight corridor.

At approximately \$71 million, the cost of the bridges is about the same as a new, wider snowshed. But

The bridges will save WSDOT approximately \$650,000 annually over a proposed wider snowshed

the bridge design saves WSDOT approximately \$650,000 annually (nearly \$49 million over the bridges' expected lifespan of 75 years) in anticipated upkeep and operations costs that

would have been needed to maintain fire and life safety systems in the proposed snowshed.

The design change came after nearly a year of collaboration between WSDOT and contractor, Guy F. Atkinson Construction. The change was proposed by the contractor and provides a more cost-effective way to widen this section of I-90. Bridge construction will begin later this summer and is scheduled to be completed in fall 2017.

Crews continue widening work as rock blasting and concrete pours resume

Other big changes are also taking place on I-90. In fall 2012, WSDOT opened nearly three miles of new westbound lanes, which provide the 27,000 drivers who cross the pass every day a chance to see what I-90 will look like in the future. Improvements



South Central Region's Eric Snider illustrates an online flip show to inform travelers about the I-90 project and travel delays they can expect.

include a wider chain-up area for vehicles and trucks, which was put to the test last winter and alleviated congestion at a major bottleneck on the pass.

Crews went back to work this April and will be busy blasting rock slopes, moving thousands of cubic yards of material, pouring concrete, building bridges, stabilizing slopes and widening I-90 from four to six lanes.

First three miles of project on schedule, budget savings to help fund next phase

The first three miles of the five-mile project are expected to be complete this fall, with the remaining two miles scheduled for completion in 2017. The \$551 million improvement project, paid for by 2005 Transportation Partnership Account funds, is on schedule and approximately \$108 million under budget. This cost savings is being used to fund design, right of way purchase and construction on Phase 2 of the project.

Next phase continues, construction of additional two miles scheduled for 2015

Despite facing tough funding choices, the 2012 Legislature recognized the importance of the project and confirmed its support by committing corridor savings to the next two miles in the 2013-2015 biennium. This \$108 million will support Phase 2A of the project and continue work for two additional miles from the Keechelus Dam vicinity to the Price/Noble Creek Sno-Park. WSDOT engineers are currently designing Phase 2A, which is scheduled for construction in 2015.

Contributors include Meagan McFadden, Melinda Warren and Joe Irwin

Notable results

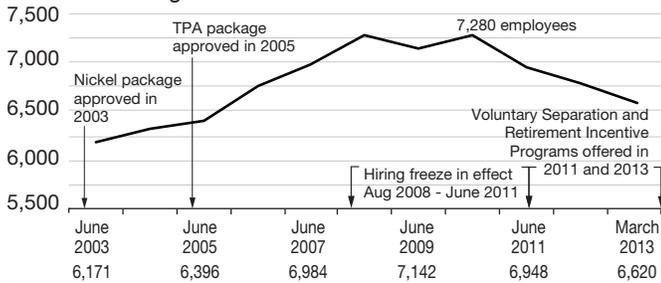
- Training system use increased 12 percent
- Training completion rates improved or held steady for all mandatory policy and diversity courses
- WSDOT workforce level declined to 6,620 permanent full-time employees, 9 percent lower than the peak of 7,280 in June 2010

WSDOT workforce level declines; nears legislatively mandated goal

WSDOT has 6,620 permanent full-time employees as of March 31, 2013. This is 57 fewer than the previous quarter ending December 31, 2012, and 2 percent (161) fewer than the 6,781 workers employed one year ago. The chart below shows the number of permanent full-time employees since June 2003. The current level is 9 percent below the peak of 7,280 employed in June 2010.

Employee numbers continue decline

June 2003 through March 2013



Data source: Department of Personnel Data Warehouse, Human Resource Management System, WSDOT and the Ferry System payroll.

WSDOT’s highway construction program workforce level was 2,176 full-time equivalents (FTEs) at the end of March 2013. This is up from 2,064 in December 2012, but below the target of 2,400 FTEs by the end of the 2011-2013 biennium in June. This increase is partly due to seasonal fluctuations; winter represents the annual low point for the FTE level, and the summer construction season is the annual high. An “FTE” may represent more than one part-time employee.

Voluntary separation reduces workforce

As work activities wind down from the transportation funding packages passed in 2003 and 2005, WSDOT is resizing the workforce to meet the ongoing needs of the agency. The Legislature authorized state agencies to develop a second round of Voluntary Separation and Retirement Incentive Programs to help reduce the size of the state workforce. (See *Gray Notebook* 42, p. 81, for WSDOT’s first round of voluntary separation offers in 2011). WSDOT focused

incentive offers toward those whose positions could be eliminated, primarily in the technical and engineering job classes attached to capital delivery projects.

In August 2012, WSDOT offered incentives of up to \$25,000 to retire or leave state employment to 458 permanent employees with sufficient state service. Ninety-nine accepted the voluntary separation offers and are scheduled to leave state service by June 30, 2013.

WSDOT provided incentives totaling \$2,305,000 to the employees who accepted the voluntary separation offers. Each agency has two years from the program’s effective date to recover the cost of the incentives paid to employees, and must provide periodic updates to the Office of Financial Management. By August 2014, WSDOT expects to save \$9,396,712 through the use of the incentive program, more than four times the amount paid out.

Training courses show improved compliance

The employee training completion rate improved or held steady for all seven mandatory courses for the first quarter of 2013 compared to the previous quarter. A goal of 90 percent completion applies to each of these courses. Three courses met or exceeded the goal. WSDOT requires employees to participate in seven training courses to educate and inform a diverse workforce on agency policies and methods for maintaining a respectful workplace. Employees must attend refresher classes for three of the mandatory courses on a pre-defined schedule (the frequency of refresher classes is discussed on p. 71).

In the past, WSDOT’s mandatory training was delivered through instructor-led classes with participants attending in person. WSDOT deployed the Learning Management System in May 2012, and began offering all mandatory training courses in an online, self-directed format the same year. Online classes remove the need to travel and increase the flexibility for when employees can complete the training. The

Employee training compliance improves for six of seven courses

improved compliance for six of seven mandatory courses demonstrates how the improved access to mandatory training contributes to training compliance. In addition to improving access to training, the learning system sends automatic reminders as employees approach the due date for their refresher classes. WSDOT expects these reminders to improve compliance for all mandatory training, and is focusing on the Information Security training in particular because a refresher is required annually for all employees. Compliance with this training requirement has remained below the target since WSDOT deployed the class six years ago.

As of March 31, 2013, more than 4,000 WSDOT employees logged onto the new system; this represents 57 percent of the active workforce, up from 3,200 employees (45 percent) at the end of 2012. WSDOT tracks the number of log-ins as an early indicator for use of the training system.

Training completion improves or holds steady for all diversity and policy courses

All WSDOT employees must take three diversity and four policy training courses within six months of starting work, with periodic refreshers for three of these courses. This helps ensure employees are informed of any policy changes, and provides opportunities for discussion and continued learning.

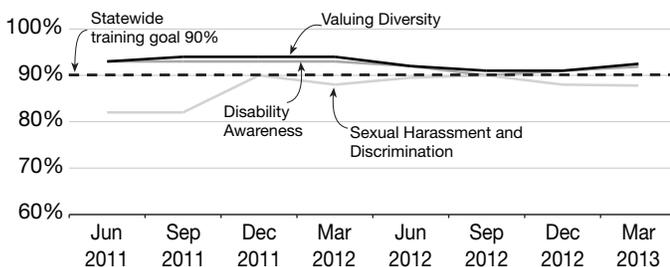
Two diversity training courses meet compliance goal

The graph below illustrates the completion rates during the past two years for WSDOT diversity training courses compared to the goal of 90 percent completion. Employee training completion for the three mandatory diversity courses was as follows for the first quarter of 2013:

- Disability Awareness and Valuing Diversity each improved 1 percent to 92 percent in the first quarter, remaining above the goal. No refresher courses are required.
- Completion for the Sexual Harassment and Discrimination course held steady at 88 percent for the first quarter of 2013, below the 90 percent goal.

WSDOT exceeds goal with two diversity classes

June 2011 – March 2013; Percent of employees in compliance



Data source: WSDOT Office of Human Resources and Safety, Staff Development.

A refresher course is required every three years for managers and every five years for employees.

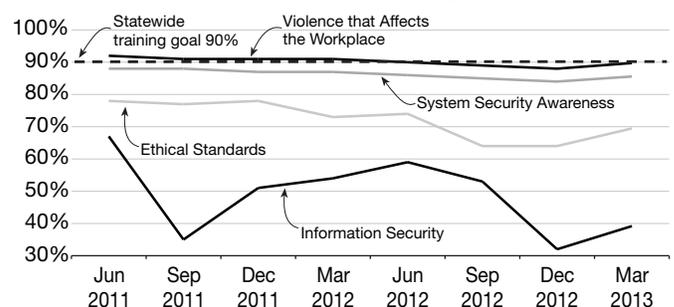
Compliance improves for all policy training courses

The graph above compares the completion rate to the 90 percent goal for mandatory policy training courses over the past two years. Employee training completion for the four policy courses was as follows for the first quarter of 2013:

- The course on violence that affects the workplace improved 2 percent, to 90 percent compliance for the first quarter of 2013, meeting the goal. No refresher course is required.
- Information Security training is required annually for all state employees. Training completion dipped from 59 percent in June 2012 to 32 percent in December 2012. Compliance improved 7 percent to 39 percent for the first quarter of 2013; this improvement is likely due to new automatic reminders sent through the learning system.
- System Security Awareness training improved 2 percent, to 86 percent compliance, though it remained below the 90 percent goal in the first quarter of 2013. No refresher course is required.
- Ethical Standards training improved 5 percent, to 69 percent compliance, though it remained below the 90 percent goal in the first quarter of 2013. A refresher course is required every three years for all employees.

Mandatory policy training compliance improves

June 2011 – March 2013; Percent of employees in compliance



Data source: WSDOT Office of Human Resources and Safety, Staff Development.

WSDOT continues efforts to track safety and maintenance training

WSDOT continue efforts to create employee training plans in the learning system in order to report on compliance with safety and maintenance training requirements.

Contributors include Sue Briggs, Matt Cronk, Mike Ellis, Cathy Roberts, Jennifer Wagner, Terry Whitney and Anna St. Martin

Highway projects improve safety, reduce travel times

Camas and Washougal drivers get more elbow room on State Route 14

WSDOT opened two more lanes of the newly raised and widened State Route 14 (SR 14) in Camas and Washougal in February 2013. Traffic began flowing on parts of the new section in October 2012, but ongoing construction kept two of the highway's four lanes closed. Crews needed to install guardrails and bridge barriers before all lanes could safely be opened to drivers.

Before the project, this section of SR 14 had frequent severe collisions, occurring primarily at intersections. As traffic volumes continue to increase, higher demand is expected on SR 14. The project accommodates future residential, commercial and industrial growth in the corridor area while improving safety and reducing travel times along SR 14.

The project elevated the highway 25 feet, added two lanes, eliminated two traffic signals and installed three miles of median barrier to prevent cross-over collisions along SR 14 between the Northwest Sixth Avenue interchange in Camas and Sixth Street in Washougal. WSDOT plans to put a final layer of asphalt over this entire section of roadway once the weather is warm and dry enough for paving. WSDOT started construction on the \$49 million, gas tax-funded project in June 2011.



Above, an artist's rendering in 2009 showed plans for raising and widening SR 14. Half-interchanges at Union and Second streets eliminate signals, making SR 14 free-flowing from I-5 to Washougal. Compare the rendering to the aerial photo of the completed project below.



Select WSDOT project and program highlights January 1 through March 31, 2013

1 SR 529 Ebey Slough Bridge replacement

WSDOT replaced the 85-year old Ebey Slough bridge on SR 529. The new bridge has improved facilities for cars and bicycles.

2 SR 99 Spokane Street overcrossing project

Contractor crews began replacing an elevated section of SR 99 that is supported by 60-year-old timber piles with a concrete structure.

3 Amtrak Point Defiance Bypass project

The Point Defiance Bypass will allow Amtrak to add two more daily trips between Seattle and Portland and improve reliability.

4 U.S. 101 lighting installation

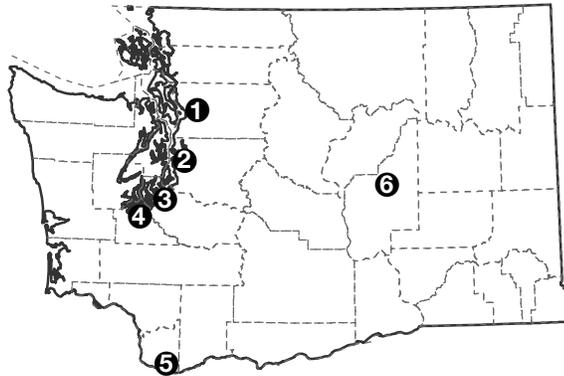
New light-emitting diode lighting along U.S. 101 is expected to save 1.7 million kilowatt hours of electricity over its lifetime compared to old lights.

5 SR 14 Camas-Washougal widening

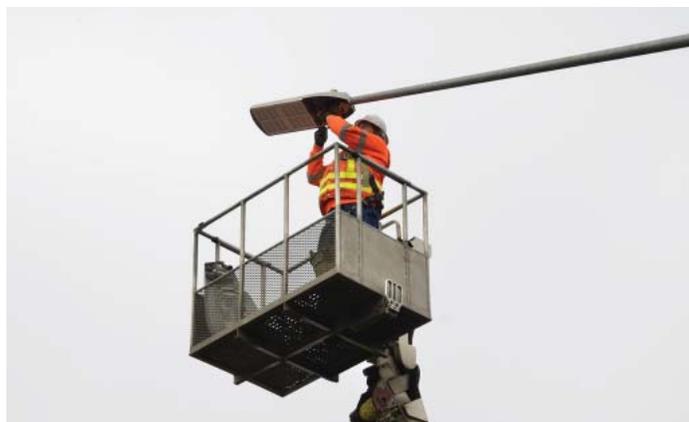
Improvements to SR 14 near Camas and Washougal are expected to improve traffic flow and safety in the area.

6 SR 28 Ephrata to Soap Lake safety restriping

WSDOT is restriping four miles of SR 28 to reduce the potential for collisions while maintaining traffic flow. The project will cost \$53,000.



Technology lights the way to energy savings on state highways



A new state-of-the-art lighting fixture is installed on Black Lake Boulevard in Olympia in February 2013.

Olympia project tests new lighting system

Drivers on U.S. 101 west of Olympia are seeing the Black Lake Boulevard interchange in a whole new light. In February 2013, WSDOT crews replaced the high-pressure sodium highway lighting with the first light-emitting diode (LED) lighting system on a Washington state highway.

Drivers might notice that LED lights appear whiter and brighter than high-pressure sodium lighting, and for some traveling late at night, they could see some lights

New lighting system expected to reduce energy consumption and save money

dimmed or shut off. The LED system uses new, state-of-the-art technology known as an “adaptive system.” This allows WSDOT crews to remotely

adjust the light levels and turn individual light poles off when traffic levels are low. These adaptive features have the potential to decrease costs and energy consumption while maintaining adequate lighting levels.

WSDOT will evaluate the lights’ function and potential cost savings at this location over the next 21 months. This information will help WSDOT create a plan for more LED lights across the state. With close to 60,000 lights on the state highway system, more LEDs could translate into significant energy and cost savings.

WSDOT expects the Black Lake Boulevard LED system to last 15 years and the technology with dimming controls to reduce energy usage to the 88 light poles by 1.7 million kilowatt-hours of electricity, saving more than \$75,000 in maintenance and operating costs over the life of the lights, when compared to a high-pressure sodium system.

Ebey Slough Bridge reopens to four lanes

WSDOT opened all lanes of the new, wider State Route 529 (SR 529) Ebey Slough Bridge to Marysville drivers in March 2013. For the past year, demolition crews have used half of the new bridge as a staging area to rip down the 85-year-old bridge. The two bridges were just feet apart and the highway was limited to one lane in each direction

Crews are awaiting better paving weather to complete the Ebey Slough Bridge project

since the demolition began in April 2012. The new bridge includes four lanes for traffic and a bike lane on each side.

Crews will return when the weather improves, after April, to put down the final layer of asphalt and install permanent lane striping before the project is finished. Crews wanted to get the extra lanes open now, so drivers can take advantage of them while they wait for better weather. Ebey Slough is a \$35.1 million project. See also Completed Projects, p. 58.



A view of the new Ebey Slough Bridge to Marysville, which opened to drivers in March 2013.

Restriping State Route 28 a low-cost way to enhance highway safety

Thanks in part to public feedback, SR 28 near Ephrata has earned its stripes – or more accurately, new stripes. This spring, crews will restripe nearly four miles of the highway from the north end of Ephrata to Soap Lake to accommodate left-turning traffic. The restriping includes a continuous center turn lane and passing lanes in either direction.

Highlights for the Quarter Ending March 31, 2013

Bridge replacement begins; new signals enhance safety

“Restriping the highway was a low-cost way to reduce the chance for collisions while still allowing drivers to get where they’re going efficiently,” said Jenenne Ring, WSDOT regional traffic engineer.

At a public meeting in May 2011, residents reviewed four options and told WSDOT which ones they preferred. This new design was the result. WSDOT awarded a construction contract for \$53,000 in March (about \$10,000 less than estimates), with work expected to begin in early May. The project is scheduled to be complete before Memorial Day.

Timber-bridge replacement underway

Contractor crews began work to bring down and replace an elevated section of SR 99 just south of the West Seattle Bridge in Seattle’s SODO neighborhood in March 2013. The bridge, built in 1956 as a temporary structure, has weathered and splitting wooden crossbeams and 60-year-old timber piles spanning 450 feet over railroad tracks. It will be replaced with a concrete bridge.

The bridge carries four lanes separated by a concrete barrier. It has been moving steadily up the replacement list for 15 years. Crews will demolish and rebuild one side of the bridge at a time to keep traffic moving in both directions at reduced speed until the work is complete. An estimated 45,000 commuters, travelers and trucks carrying freight to and from the Port of Seattle use the route every day. The \$9.2 million construction project is scheduled to be complete in June 2014.



Fifty-foot high scissors snip out old wooden supports from under the SR 99 timber bridge in March 2013 as part of the Spokane Street overpass timber-bridge replacement in West Seattle.

New signal technology to ease congestion at busy state highway intersections

WSDOT brought new technology to major intersections in Woodland and Castle Rock by replacing existing traffic signals with new signals that include a flashing yellow arrow. These signals were installed in January 2013 at two intersections on SR 503 in Woodland, and three intersections in Castle Rock: I-5 and SR 411, I-5 and SR 504, and SR 504 and Old Pacific Highway.

Nationwide studies show that installing flashing yellow arrow signals at low-volume, low-speed intersections reduces congestion and keeps traffic from backing up into the through lanes when the left-turn lane is full. The signals look and work differently than traditional signals, but drivers will experience improved functionality and congestion relief after they are installed.

New signal technology is expected to reduce congestion in Woodland and Castle Rock

The function of the red, green and steady yellow arrow is unchanged for drivers. The flashing yellow arrow signals are designed to give drivers extra notice that they can still turn left, but must yield to oncoming traffic and pedestrians. The signals cost approximately \$2,000 per intersection and are funded through WSDOT’s low-cost safety enhancement program. For more information about technology’s role in easing congestion, see the *2012 Congestion Report*, p. 68.



A handful of wooden support beams holding up the southern section of the SR 99 Spokane Street overpass are splitting or rotted-out. The overpass is located just south of the West Seattle Bridge. Soon, large 4x4x8 foot foam blocks encased in concrete will replace the timber.

Amtrak closer to faster, more frequent service; online tool helps airports



Amtrak Cascades passenger train with the Chambers Bay Golf Course in the background and rocky shore in the foreground.

Shorter trip times, more reliable schedules in Amtrak's future

Amtrak Cascades riders can look forward to shorter trip times and more reliable schedules between Seattle and Portland. This follows federal approval in March 2013 of WSDOT's proposal to reroute the passenger train service to a less congested route.

After reviewing WSDOT's environmental assessment and comments from local municipalities and the public, the Federal Railroad Administration determined that the \$89 million Point Defiance Bypass project would

Rail bypass project gets green light from the federal government

not result in significant adverse environmental impacts. With this approval, WSDOT's project team will advance design work to reroute passenger

trains from the BNSF Railway main line near Point Defiance to an existing, and less congested, rail line that travels through south Tacoma, Lakewood and DuPont. WSDOT expects construction to begin in 2015 and to open the new route for service in 2017.

The current route used by Amtrak Cascades is congested, carrying nearly 50 freight and passenger trains a day. The proposed inland route is shorter and will allow Amtrak Cascades to reduce travel times by avoiding rail congestion and delays. The bypass route also allows Amtrak Cascades to expand the service and add two more daily trains between Seattle and Portland. The new bypass route is located along an existing 18-mile lightly used freight corridor owned by Sound Transit. Part of the bypass route is the same route that Sound Transit uses for Sounder

commuter rail to Lakewood. For more information, see the Rail: Amtrak Cascades Quarterly Update on pp. 24-25 and the Federally-funded Rail Projects Update, p. 67.

Airport decision makers get help to navigate planning process

Airport managers and decision makers are receiving a helping hand when navigating through the State Capital Improvement Program (SCIP), a planning process that helps direct limited state and federal funds to the state's most critical airport investment needs.

New e-learning tool helps airport sponsors use Web application

WSDOT has developed a new State Capital Improvement Program e-Learning tool that allows airport sponsors to learn the SCIP Web-application process at their own pace. The e-Learning module introduces users to the State Capital Improvement Program, explains programming and provides project analysis. A main feature of this new tool is step-by-step instructions on how to enter data into the State Capital Improvement Program Web application. It concludes with suggestions from the Federal Aviation Administration and WSDOT on airport project planning.

WSDOT uses the data that airport sponsors enter into the program to identify the most crucial projects at the state's 136 public-use airports and develops a prioritized five-year list. WSDOT and Federal Aviation Administration then use this list as the basis for airport-investment decision making. See the Aviation Annual Report in *Gray Notebook* 47, pp. 14-16.

Contributors include Ann Briggs and Yvette Wixson

WSDOT forging ahead with Lean projects and training

WSDOT has initiated several Lean projects in the past year to address possible inefficiencies and processes that do not meet customers' needs. These projects have allowed WSDOT to learn about the Lean process and what it has to offer, address systemic issues and improve the way WSDOT does business. WSDOT's Lean Dashboard (starting at the bottom of this page) documents the progress and benefits of 11 Lean initiatives currently underway. Lean provides proven principles, methods and tools for creating more efficient processes in the workplace in a culture that encourages employee creativity and problem-solving. Lean can be applied at all levels of an organization to review processes from a customer's point of view and consider what adds value, and what can be eliminated.

WSDOT employees developing Lean skills

WSDOT continues to train its employees on Lean tools and techniques, using multiple resources including those at the WSDOT Library, online training through Skillsoft, and Lean training from the University of Washington (UW) and the Governor's Office of Accountability and Performance (see *Gray Notebook* 48, p. 66).

Eight WSDOT employees have received certification in Lean Six Sigma through UW Tacoma; one obtained the "black belt" training level. Five more employees received Lean training through the Governor's office,

and completed a Lean Pilot Process Improvement project at WSDOT. Other employees are using Skillsoft to develop and refine their skills. As more employees become familiar with Lean either through a project addressing needs in their work area or through formal training, WSDOT anticipates Lean initiatives will be generated from the employees up through the management team.

What does Lean Six Sigma certification mean?

Multiple educational institutions offer certification in Lean Six Sigma methods, frequently classified as "White Belts," "Green Belts" and "Black Belts." Six Sigma uses statistical methods to reduce process variation resulting in defects (one form of waste); Lean uses a variety of methods to reduce all forms of waste in service to the customers' needs. Lean Six Sigma combines tools from both methods.

White Belt certification is an introductory course for executives and managers who may be overseeing teams using Lean Six Sigma. Green Belt certification provides learners with tools, knowledge, and resources to use the processes and to facilitate team efforts. Black Belt certificate recipients are qualified to provide Lean Six Sigma project management, statistical analysis, facilitation, and project prioritization.

WSDOT's use of Lean certificate recipients varies based on the agency's needs. Currently, Green Belt and Black Belt certificate recipients maintain their regular work duties while facilitating Lean projects on an as-needed basis.

Lean dashboard: WSDOT sees results from 11 projects

As of March 31, 2013

Project, program, and description	Status	Results and progress to date
<p>Streamline sign fabrication process <i>Maintenance Operations (Central Sign Shop)</i> Streamline sign ordering, fabrication, and shipping processes to reduce the number of price adjustments necessary to maintain cost recovery and decrease overall lead time.</p>	Active	<ul style="list-style-type: none"> ■ Manufacturing of signs increased: Total square footage by 42%; total number of signs by 231% ■ Emergency and rush orders reduced from 16% to 1% ■ Increased capacity by 4%, and reduced transportation and manufacturing costs through agreement with Correctional Industries to handle old sign recycling and provide a steady stream of recycled aluminum ■ Initiated design of web-based sign ordering process to reduce errors resulting in rework, and increase ordering process efficiency and volume

Data source: WSDOT Strategic Planning and Development divisions, Washington State Ferries, Maintenance Operations, Office of Equal Opportunity, and Office of Human Resources and Safety.

Lean Dashboard, continued

As of March 31, 2013

Project, program, and description	Status	Results and progress to date
<p>Reduce collision data backlog <i>Strategic Planning (Statewide Travel and Collision Data Office)</i> Supply customers with complete, accurate and timely collision data by streamlining collision data processing and reducing the data backlog.</p>	Active	<ul style="list-style-type: none"> ■ Daily average of processed collision reports improved from 513 in January 2013 to 622 in March 2013 ■ The time until a fully analyzed becomes available to customers dropped from 8.5 months in August 2012, to 5.2 months in April 2013 ■ Modifying the workflow process, reducing the number of times staff handles a collision report from three to one
<p>Research government contracts process <i>Strategic Planning (Office of Research and Library Services)</i> Improve process for research contracts with other government agencies.</p>	Active	<ul style="list-style-type: none"> ■ Completed spreadsheet of contract workload, January 2013 ■ Conducted survey of peer agencies, March 2013 ■ Testing effectiveness of changes to the scope of work development process
<p>Streamline data and information collection and use <i>Strategic Planning (Office of Research and Library Services)</i> Establish efficient governance of data and information management for the WSDOT intranet.</p>	Active	<ul style="list-style-type: none"> ■ Received approval for data and information management principles, initiated scoping governance model ■ Intranet Migration team launched focus groups on system design, taxonomy, and intranet governance
<p>Streamline WSDOT's fish passage program <i>Development Division (Environmental Services Office)</i> Increase efficiency in the collaborative work that WSDOT and the Washington Department of Fish and Wildlife perform to identify, scope, design and construct fish passage barriers corrections.</p>	Active	<ul style="list-style-type: none"> ■ Lean process mapping workshop, February 2013 ■ June 2013 target date to finish planning for implementation ■ Lean project being adapted following federal court ruling in March 2013 to accelerate fish passage barrier removal projects
<p>University of Washington/state agency invoicing <i>Strategic Planning (Office of Research and Library Services) and University of Washington</i> Standardize and streamline invoicing between the University of Washington and state agencies.</p>	Active	<ul style="list-style-type: none"> ■ Value stream mapping workshop completed, March 2013 ■ Work groups formed to address communication, contract development, training, checklists and forms, and information technology ■ "Just do it" steps taken to improve access to information, provide electronic invoice delivery, and reduce the number of invoices sent
<p>Streamline medical bill paying process <i>Office of Human Resources and Safety</i> Reduce the cycle time in receiving, reviewing, processing, and recording payments for medical bills.</p>	Active	<ul style="list-style-type: none"> ■ Trained a staff member to assume more of the work, resulting in fewer people involved in the process and a reduction in labor costs (fewer task trade-offs) ■ Staffing changes delayed implementation until May 2013

WSDOT Lean Quarterly Update

Lean Dashboard, *continued*

As of March 31, 2013

Project, program, and description

Status Results and progress to date

Disadvantaged Business Enterprise (DBE) Certification System

Office of Equal Opportunity and Information Technology (IT) Division, and the Office of Minority and Women's Business Enterprises (OMWBE)
Create electronic filing and tracking system of certification files to increase the quality and timeliness of the DBE certification process and to expedite WSDOT's certification file reviews and annual DBE audit.

Active
New this quarter (new)

- WSDOT's IT department created a DBE Certification System (DBEC) in 2012; OMWBE tested the system in April 2013, and is deploying it by June 2013.
- OMWBE started digitizing files for the DBEC, February 2013. Electronic filing system is expected to reduce paper costs and increase staff capacity for other tasks

Streamline traffic count delivery process to meet customer needs

Strategic Planning (Statewide Travel and Analysis Branch)
Provide reports and data to meet customers' needs for electronic records, saving money and time by eliminating paper records.

Active (new)

- Value stream mapping and Lean training held prior to workshop, March 2013. Implementation team meetings began, April
- Surveyed key customers (metropolitan and regional transit planning organizations) to identify data needs
- Implementing operational changes to deliver data to customers in an electronic format, eliminating up to 75,000 sheets of paper and 120 hours of labor used to make photocopies annually

Streamline traffic count data collection process

Strategic Planning (Statewide Travel and Analysis Branch)
Automate process for collecting traffic counts in the field with a focus on improved data reliability, reduced data loss, and saving time.

Active (new)

- Value stream mapping and Lean training held prior to workshop, April 2013; implementation team meetings began in April
- Captured 18 potential Kaizen Bursts to be reviewed and tested (Kaizen Bursts are hands-on events that target a business problem)

Ferries digital schedule updating

Washington State Ferries Division
Streamline process for publishing and maintaining the sailing schedule.

Initiated (new)

- Project description document in final draft; sent to the Office of Financial Management for approval, March 2013

WSDOT considers opportunities for Lean-principled initiatives

Planning - initiatives include continuing to identify and implement collision data process improvements, Transportation Improvement Program/Statewide Transportation Improvement Program (TIP/STIP) development, travel data and analysis, local plan review, and *Gray Notebook* production.

Traffic Operations - initiatives include evaluating the sign asset management planning process to ensure signs are managed from a lowest life cycle cost perspective while meeting safety and mobility needs.

Maintenance - initiatives include lease consolidation, fleet reduction, and evaluating the cost savings of converting gas-powered vehicles to propane.

Design - initiatives include examining alternative delivery methods, simplifying policy and procedural guidance, organizational restructuring, and evaluation of regionalized teams that deliver statewide programs.

Capital Programming/Pavement Management - initiatives include streamlining contract administration and using the Internet to improve communication, and evaluating reporting mechanisms, equipment calibration methods, prioritizing culvert repair and replacement, and maintenance and replacement processes. Additionally, WSDOT is working to prioritize pavement asset management to focus on reducing backlogs of past-due pavement rehabilitation.

Contributors include Ted Bailey, Jackie Bayne, Dave Bushnell, Kathy Dawley, Mark Finch, Michael Fleming, Kathy Lindquist, Brenda Nnambi, Leni Oman, Warren Stanley, Sayee Vaitheesvaran, Paul Wagner and Anna St. Martin

Worker Safety *continued from page 3***WSDOT helps employees return to work after on-the-job injuries**

In summer 2011, Labor and Industries (L&I) unveiled the Stay at Work Program which encourages employers to keep their injured staff at work during recovery, with medical approval. Returning injured staff to work is optimal for them and WSDOT; it allows employees to retain valuable skills as well as maximize salary and medical benefits. Time loss expenses are reduced for both L&I and WSDOT.

WSDOT recognizes the value of keeping employees at work when medically possible following an on-the-job injury, offering transitional or “light duty” work. The Stay at Work Program provides employers a monetary incentive when they return injured staff in a light duty capacity. Employers are eligible to receive reimbursements for wages, tools, clothing and training costs associated with the transitional work. To date, WSDOT has recovered \$105,000 from the Stay at Work Program.

Contributors include Marlo Binkley, Kathy Dawley, Alana Neal, Ernst Stahn, and Anna St. Martin

Rest Areas Preservation *continued from page 11*

restroom building will be replaced with two new buildings, improving capacity and site operations. The \$1.3 million construction will occur in summer 2013, with completion by fall 2013. It was originally scheduled for construction in 2012, as reported in *Gray Notebook* 45, p. 13.

In order to minimize impacts to the traveling public, the SeaTac and Gee Creek projects had additional engineering analysis and phasing of construction activities, postponing construction from summer 2012 to 2013.

Recreational vehicle preservation projects

Recreational vehicle (RV) dump stations are maintained and preserved with a dedicated state funding source, which is \$917,000 for the 2011-2013 biennium. Major RV projects addressed this biennium included dump station replacements at both Winchester rest areas located on I-90 at milepost 162, and at the Nason Creek rest area on SR 2 at milepost 82. Design work is underway for RV dump station replacements at both Selah Creek rest areas on I-82 at milepost 24, and for RV sewer system modifications at both Smokey Point rest areas on I-5 at milepost 207.

Contributors include Dennis Tate and Sarah Lowry

Ferries Preservation *continued from page 16*

Three projects at the Seattle and Friday Harbor terminals will re-appropriate about \$1 million in the 2013-2015 biennium to accomplish work not completed in the current biennium. Most of the balance remaining is due to savings on projects. Two projects at the Lopez Island and Vashon Island terminals benefited from more economical preservation approaches, saving more than \$5 million. Finally, three projects at the Edmonds, Kingston and Port Townsend terminals were delivered under budget by a combined amount of more than \$5 million.

Vessel preservation need reduced 2.6 percentage points

WSDOT estimated that 28.9 percent of the value of ferry vessel systems would be beyond their life cycle by the end of the 2011-2013 biennium, without preservation investments. Vessel preservation investments completed through March 2013, reduced the percentage of the value of ferry vessel systems beyond their life cycle by 2.6 percentage points to 26.3 percent (compared to the planned reduction of 5.9 percentage points at the end of the biennium). The primary drivers of this reduction were ferry vessel preservation projects on the M/V *Tacoma*, M/V *Walla Walla*, M/V *Kaleetan*, M/V *Sealth* and M/V *Cathlamet*.

Of the \$11.9 million in unspent funds in the biennial vessel preservation budget, more than \$5 million in planned work on three vessels was deferred to the 2013-2015 biennium due to 22 emergency vessel repair jobs that used the shipyard drydock capacity. Shipyard drydocks were unable accommodate both emergency repair jobs and scheduled preservation work. The emergency projects also resulted in a lack of spare vessels to fill in service while other vessels were worked on, particularly when the M/V *Walla Walla* was out of service for most of a year. Needed priority work was still completed on vessels during the reduced drydock availability.

Contributors include Jean Baker, John Bernhard, Tim Browning, Tom Castor, Theresa Greco, Jim Hasselbalch, Ron Logghe, Mehrdad Moini, Dennis Mroczek, Mardell Najdek, Kynan Patterson, Tim Smith, Steve Vonheeder and Anna St. Martin

Ferries connect communities in Washington

Washington State Ferries provides an essential link in the greater Puget Sound area for moving people and freight, providing transit to commuters in eight counties, connecting communities separated by water or long driving distances, and providing access to recreational areas. WSDOT places a high-priority on preserving terminals and vessels in order to provide safe, efficient and reliable ferry operations.

Continuation Pages

Ferries Mobility *continued from page 31*

since it started in June 2012. This marks a four percentage point decrease from last quarter, yet is still an improvement of 25 percentage points since the system was implemented.

A second strategy includes the delivery of the three new Kwa-di Tabil class (64-car) vessels, which has restored capacity on the Port Townsend - Coupeville route since October of 2010, allowing for two vessels to run during the busy summer sailing schedule. The Port Townsend - Coupeville route has seen an increase in on-time performance with the new vessels. In January 2012, the Point Defiance - Tahlequah route gained additional vehicle capacity when the 64-car Motor/Vessel (M/V) *Chetzemoka* replaced the 48-car M/V *Rhododendron*.

Another of Ferries' strategies created a "small car" vehicle fare in October 2011 offering a 10 percent discount to drivers of vehicles less than 14 feet long. After March 2012, the discount was adjusted to 20 percent of the standard vehicle fare. The number of small cars as a percent of all standard vehicles (under 22-foot) increased from 5 to 6 percent when the discount was increased.

Contributors include Theresa Greco, Matt Hanbey, Kynan Patterson and Joe Irwin

Commercial Vehicle Information

Systems Networks *continued from page 46*

A production version of the AIRS operating software was successfully installed at the pilot project site and system testing was conducted in March 2013. User acceptance testing began in April 2013. Following user acceptance, deployment to other CVISN-equipped weigh stations, including four ports of entry, will begin.

The screening system uses infrared sensors and thermal imaging to perform automated brake inspections on commercial vehicles while they are in motion. Trucks directed to pull into the weigh station will be scanned on the entrance ramp. Each vehicle's results are displayed to troopers before they conduct visual inspections for other potential violations.

Preliminary testing in October 2012 resulted in 12 trucks being placed out of service in a two-day period. Violations identified through the automated thermal imaging included leaking brake fluid, a rusted brake drum, a flat tire, and an air brake can that was coming loose.

Contributors include Doug Deckert, Anne Ford and Bradley Bobbitt

Travel Information *continued from page 32*

of "unique users" remained relatively the same. A "unique user" is one who may visit the website once or multiple times daily, but will be counted as a single identity. From April 1, 2012 to March 31, 2013, there were about two million unique users per month, a decrease from 2.1 million in the previous 12 months. At the same time, the number of page views dipped from an average of 23 million to slightly more than 12 million per month. The graph at bottom left on page 32 shows the number of unique users to WSDOT travel and traffic web pages for the last three years.

Mobile devices use increases

The traveling public is relying more on mobile devices to obtain information; as the graphic above shows, 54 percent of visits to the WSDOT website came from mobile devices between April 2012 and March 2013. The previous year, 35 percent of visits came from mobile devices, and the year before that, the figure was 20 percent. WSDOT's Android phone application was downloaded 61,000 times from April 1, 2012 to March 31, 2013, while its iPhone application was downloaded 39,000 times.

Contributors include Jeremy Bertrand, Bill Legg and Yvette Wixson

Watch List *continued from page 66*

pavement, and removing obstructions. When completed, the improvements will improve sight and potentially reduce collisions distance for drivers.

This project is in construction and the operationally complete date has been delayed by eight months from October 2012 to June 2013. As reported in *Gray Notebook* 48, p. 58, progress had already slowed due to a change in design and negotiations for finding a source for rock materials. A two-week fire closure during summer 2012 further delayed the project. The contractor shut down the project due to winter weather, and resumed work this spring.

U.S. 97 traffic was shifted onto the new bridge in late December 2012, using temporary barrier on the bridge and approaches, and a posted speed of 35 mph. A portion of the detour around the work zone remained in place through the winter. The contractor is scheduled to complete the new alignment and paving by June 2013.

The total cost on this combined project decreased by \$700,000 due to favorable bids. This project has been removed from the Watch List.

Contributors include Pat Morin, Theresa Scott and Joe Irwin

Linking performance measures to strategic goals

Through more than 12 years, WSDOT has published a quarterly performance report known as the *Gray Notebook* (GNB). This report links measures to WSDOT's strategic plan, legislative and executive policy direction, as well as federal reporting requirements. It presents articles in a way that clarifies the topics' relationship to the six legislative policy goals and to WSDOT's own strategic business directions.

The *Gray Notebook* is published quarterly (in February, May, August and November) and organized into sections devoted to the strategic goals. Contents include quarterly and annual reports on key agency functions, providing regularly updated system and program performance information. Information pertaining to projects, finance, capital project delivery, workforce, and agency highlights appear in the Stewardship section. The Beige Pages address the delivery of the projects funded in the 2003 Transportation Funding Package (Nickel), 2005 Transportation Funding Package (TPA), and Pre-existing Funds (PEF).

WSDOT publishes a quarterly excerpt of selected performance topics and project delivery summaries from the *Gray Notebook*, called *Gray Notebook Lite*. The folio-style *Lite* allows for a quick review of WSDOT's most important activities in the quarter.

WSDOT strategic plan

WSDOT's 2011-2017 strategic plan *Business Directions* summarizes WSDOT's work plan based on the programs and budgets authorized by the state Legislature and the Governor. The plan describes the agency's strategic directions and initiatives to address critical programs and service delivery mandates. The table on page v illustrates this alignment. WSDOT's 2011-2017 strategic plan is available online at <http://www.wsdot.wa.gov/Accountability/PerformanceReporting/StrategicPlan.htm>.

More easily tracked business plan results

By aligning the *Gray Notebook's* articles with WSDOT's business goals as outlined in the strategic plan, *Business Directions*, WSDOT hopes to make tracking performance results against specific strategic actions more straightforward. *Business Directions* reflects WSDOT's program and project delivery responsibilities with the goal of demonstrating the best possible return for taxpayers' dollars. For a copy of *Business Directions*, please visit <http://www.wsdot.wa.gov/Accountability/PerformanceReporting/StrategicPlan.htm>.

Statewide transportation policy goals

Laws enacted in 2007 established policy goals for transportation agencies in Washington (Chapter 516, Laws of 2007).

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 each transportation policy goal. OFM reports on the attainment of the goals and objectives to the Governor and Legislature each biennium. In 2008, OFM published a "baseline" report. The most recent Attainment Report, for 2012, is available online at <http://www.wsdot.wa.gov/Accountability/PerformanceReporting/Attainment.htm>, or on OFM's performance and results website, <http://www.ofm.wa.gov/performance/>.

Navigating the WSDOT website

An array of detailed information can be found on-line at the WSDOT website, <http://www.wsdot.wa.gov>. WSDOT's online project reporting uses several different tools, including the *Gray Notebook* (as a downloadable PDF), web-based project pages, and Quarterly Project Reports (QPRs). This edition and all past editions are available online at http://www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm.

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)

Gray Notebook subject index is 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.

Americans with Disabilities Act (ADA) information

This material can be made available in an alternative format (large print, Braille, cassette tape, or on computer disc) by emailing the Washington State Department of Transportation Diversity/ADA Affairs Team at wsdotada@wsdot.wa.gov or by calling toll free (855) 362-4ADA (4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

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

It is the Washington State Department of Transportation's (WSDOT) policy to assure that no person shall, on the grounds of race, color, national origin, or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated, may file a complaint with WSDOT's Office of Equal Opportunity (OEO). For additional information regarding Title VI complaint procedures and/or information regarding our non-discrimination obligations, contact OEO's Title VI Coordinators, George Laué at (509) 324-6018 or Jonté Sulton at (360) 705-7082.

Other WSDOT information available

The Washington State Department of Transportation has a vast amount of traveler information available. Current traffic and weather information is available by dialing 511 from most phones. The automated telephone system provides information on Puget Sound traffic conditions and travel times, statewide construction impacts, statewide incident information, mountain pass conditions, weather information, the state ferry system information, and phone numbers for transit, passenger rail, airlines and travel information systems in adjacent states and for British Columbia.

Get WSDOT's mobile application

WSDOT's Android and iPhone applications include statewide traffic cameras, travel alerts, mountain pass reports, ferry schedules and alerts, northbound Canadian border wait times, and more. Use these images to download the application:



Android

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



iPhone

For additional information about WSDOT programs and projects, visit <http://www.wsdot.wa.gov>.

For more information about performance measurement and reporting, visit <http://www.wsdot.wa.gov/accountability/>.

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A guide to understanding quarters and years: Calendar year, state fiscal year and federal fiscal year differences explained

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 49 reports quarterly performance data for January through March 2013, which is the first quarter of the calendar year (Q1 2013). This time period is also considered the third quarter of the state's current fiscal year (Q3 FY2013) as well as the second quarter of the federal fiscal year (Q2 FFY2013).

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 seventh quarter of the 2011-2013 biennium. These quarters are as follows:

2011-2013 biennial quarters

Period	Biennial Quarter	Period	Biennial Quarter
July - September 2011	Q1	July - September 2012	Q5
October - December 2011	Q2	October - December 2012	Q6
January - March 2012	Q3	January - March 2013	Q7
April - June 2012	Q4	April - June 2013	Q8