

The Gray Notebook

WSDOT's quarterly performance report on transportation systems, programs, and department management
Quarter ending June 30, 2012 • Published August 21, 2012

Paula J. Hammond, P.E., Secretary of Transportation

Reaching across the waters:

A closer look at bridge systems

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Building on success:

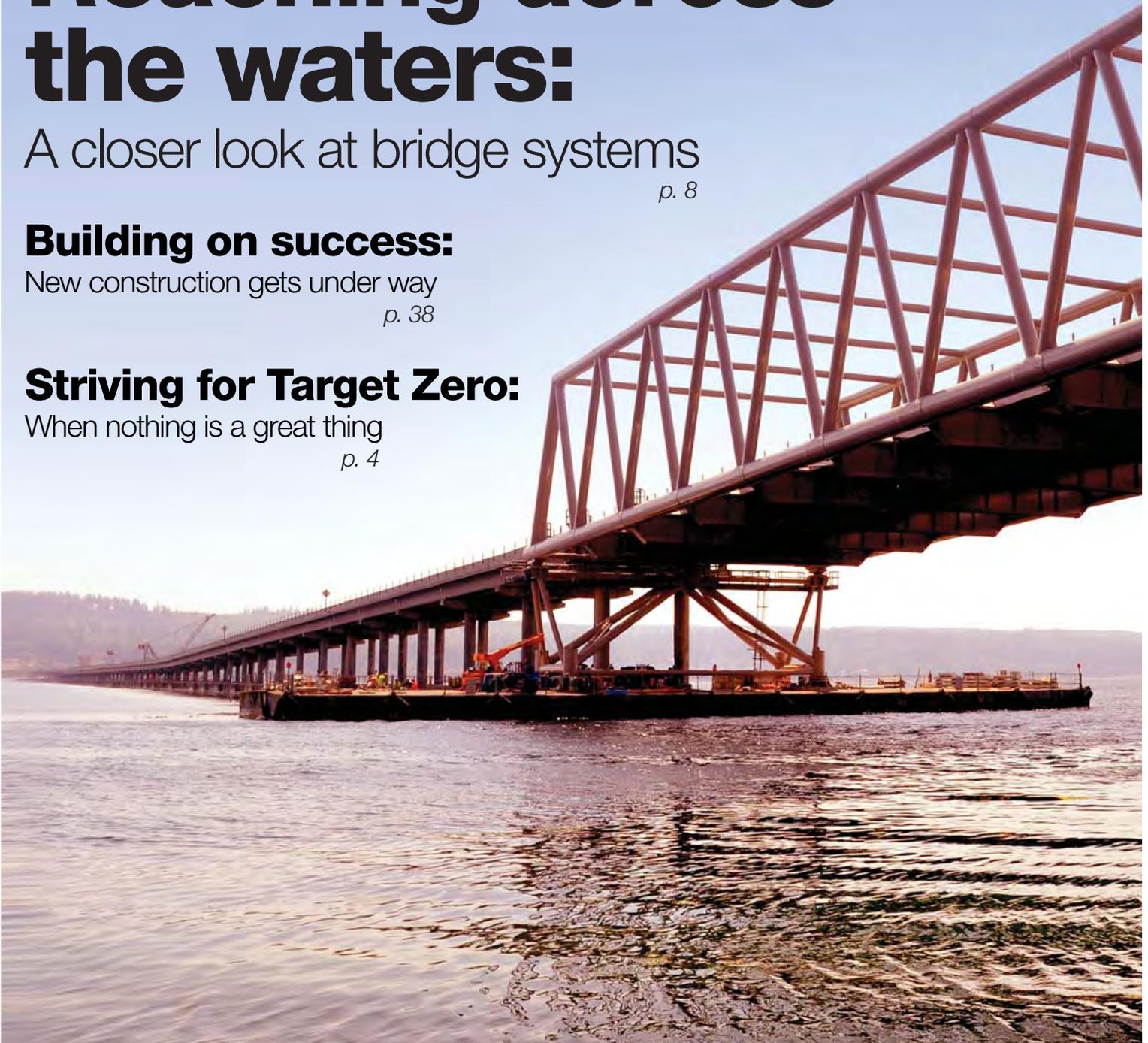
New construction gets under way

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Striving for Target Zero:

When nothing is a great thing

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Executive Summary



Highlights in this edition of the *Gray Notebook*

This edition of the Washington State Department of Transportation's quarterly performance report, the *Gray Notebook* continues the publication's decade-long tradition of comprehensive and clear performance analysis and reporting to support agency-wide accountability and transparency. It also begins to introduce new approaches for content, design and communication as we enter our Third Generation of GNB reporting.

The most notable change in this edition is the new cover. More subtle changes include a focus on identifying the economic benefits of our various strategies and a focus on a "Moving Washington" corridor-based performance analysis. Coming editions will continue to evolve and reflect these new and enhanced Third Generation reporting efforts.

This issue keys in on a number of performance highlights, and also offers in-depth reports on our bridge preservation programs, efforts to reach the Target Zero goal of zero fatalities by 2030 and reviews what new construction contracts are coming down the pipeline.

The following pages present information on WSDOT's performance for the quarter ending June 30, 2012. Selected highlights from this edition include:

- **In 2011, Washington saw the lowest number of traffic fatalities recorded since 1954.** The numbers show a reduction from 2010 and a continuing trend toward Washington's goal of zero traffic fatalities by 2030. (p. 4)
- **Of WSDOT's bridge structures, 95 percent are in good or fair condition for fiscal 2012.** At the same time, one element of the state's bridge conditions is declining. Some 11 percent of the deck area of all bridges is classified as structurally deficient, growing 49 percent since 2007. (p. 8)
- **Between 2009 and 2011, travel delay on state highways saw increases, while vehicle miles traveled held steady.** Statewide congestion data for the past five years shows that 2009 was the least congested year for Washington. (pp. 16-20)
- **WSDOT's Incident Response program saved travelers and businesses \$16.75 million in the second quarter of 2012.** During this time frame, IR teams also assisted with more than 11,200 incidents. (p. 24)
- **Washington State Ferries exceeded its on-time performance goal of 95 percent with 95.5 percent of trips on time in the quarter ending June 30, 2012.** Ridership for the quarter was above projections and farebox revenue higher than projections. (pp. 27-30)
- **Amtrak Cascades has seen ticket revenues increase 1.8 percent in the second quarter, compared to the same quarter in 2011.** Recent ticket increases are not impacting travel on the state-sponsored passenger rail provider. (pp. 31-32)
- **WSDOT estimates programmatic permits saved the agency up to 5,250 hours in staff time in 2011.** More than 100 programmatic agreements negotiated between WSDOT and various consulting parties minimize project impact on cultural resources. (pp. 34-36)
- **WSDOT employed 6,779 permanent full-time workers as of June 30, 2012, 2.4 percent fewer than in 2011.** The agency continues to follow the governor's direction to become leaner, more efficient and effective. (p. 69)

On this quarter's cover:

The world's longest floating bridge over saltwater is Washington's own SR 104 Hood Canal Bridge, which connects Kitsap and Jefferson counties and serves as an economic lifeline of sorts for the entire northern portion of the Olympic Peninsula.

This page: Artist Point in the north Cascades gives the appearance of winter in July. With Mount Baker looming in the background, WSDOT crews work to reopen the roadway, removing tons and tons of snow in the process.

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4 • In 2011, Washington saw two fewer fatalities than in 2010. This was the lowest number of traffic fatalities recorded (458) since 1954 (413).

8 • In FY2012, 95 percent of WSDOT's bridges and of local agency-owned bridges are in good or fair condition. At the same time, one element of the state's bridge conditions, deck area, is declining.

24 • WSDOT's IR program saved travelers and businesses \$16.75 million in the second quarter of 2012.

27 • Washington State Ferries ridership for the quarter was 0.2 percent higher than forecasted for the quarter, with 5.7 million riders.

34 • WSDOT estimates programmatic permits saved the agency up to 5,250 hours (656 eight-hour work days) in staff time in 2011.

38 • WSDOT completed five Nickel and TPA projects to date in the quarter ending June 30, 2012.

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Contributors

The work of many people goes into the writing, editing, and production of the *Gray Notebook* every quarter. This list of contributors reflects the efforts of data analysts, engineers, project leads, and many more individuals behind the scenes. Information is reported 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 www.wsdot.wa.gov/accountability/

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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, please see pages 74-75.

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

Key WSDOT performance measures	Reporting cycle	Last Gray Notebook 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 46, p. 2

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, airports, and equipment, while keeping pace with new system additions.

Key WSDOT performance measures	Reporting cycle	Last Gray Notebook report
Percent of state highway pavement in fair or better condition	annual	GNB 44, 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 44, p. 17
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 45, p. 14

State policy goal: Environment 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	Last Gray Notebook report
Conformance of WSDOT projects and programs with environmental legal requirements	annual	GNB 44, pp. 38-40
Number of fish passage barriers fixed and miles of stream habitat opened up	annual	GNB 44, pp. 36-37
Number of WSDOT stormwater treatment facilities constructed or retrofitted	annual	GNB 45, p. 33
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	Last Gray Notebook report
Travel times and hours of delay on the most congested state highways	annual	GNB 46, p. 17
Reliable travel times on the most congested state highways around Puget Sound	annual	GNB 46, p. 17
Percentage of commute trips while driving alone	annual	GNB 38, p. 31
Average length of time to clear major incidents lasting more than 90 minutes on key highway segments	quarterly	GNB 46, p. 24
Ferry ridership	quarterly	GNB 46, p. 27
Ferry trip reliability	quarterly	GNB 46, p. 28
Percent of ferry trips on time	quarterly	GNB 46, p. 29
Amtrak Cascades ridership	quarterly	GNB 46, p. 32
Percent of Amtrak Cascades trips on time	quarterly	GNB 46, p. 32

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	Last Gray Notebook report
Capital project delivery: on time and within budget	quarterly	GNB 46, pp. 38-40
Recovery Act-funded project reporting	quarterly	GNB 46, p. 40

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 and key performance measures

Performance measures and strategic business directions for the new policy goal "Economic Vitality" are in development as part of the 2011-13 strategic planning process. Information will be added to this table in future editions of the *Gray Notebook*.

Gray Notebook report on Freight	GNB 45, pp. 38-44
Gray Notebook report on Rail Freight	GNB 45, pp. 42-44
Gray Notebook report on Transportation Economic Indicators	GNB 44, p. 42

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 was the lowest since 1954.
Rates of recordable incidents and DART for every 100 WSDOT workers ¹ (calendar quarterly measure: Q1/Q2 2011 & YTD 2012)	4.6 3.0	4.3 2.7	—	—		The rate of worker injuries improved; and incidents requiring days away from work improved
Preservation						
Percentage of state highway pavements in fair or better condition (annual measure, calendar years: 2009 & 2010)	93.0%	92.7%	90.0%			Slight reduction from previous year, as Recovery Act projects wrap up
Percentage of state bridges in fair or better condition ⁷ (annual measure, fiscal years: 2011 & 2012)	95.0%	95.0%	97.0%	—		Deck code ratings criteria continue to be a challenge.
Mobility (Congestion Relief)						
Highways: annual weekday 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% from 2009-2011, with 2009 being the least congested year in past five years.
Highways: Average clearance times for major (90+ minute) incidents on 9 key western Washington corridors (calendar quarterly measure: Q1 2012 & Q2 2012)	163 minutes	143 minutes	155 minutes			Average clearance time improved for the quarter, and exceeded the goal
Ferries: Percentage of trips departing on time ^{3, 7} (quarterly, year to year: Q4 FY2011, Q4 FY2012)	96.2%	95.5%	90%			Performance is less than the same quarter a year ago but still exceeded the goal.
Rail: Percentage of Amtrak <i>Cascades</i> trips arriving on time ^{4, 7} (quarterly, year to year: Q4 FY2011, Q4 FY2012)	67.8%	72.3%	80%	—		WSDOT and Amtrak continue to evaluate projects and other means to improve on-time performance
Environment						
Cumulative number of WSDOT stormwater treatment facilities constructed or retrofitted ⁵ (annual measure: calendar years 2008 & 2009)	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 2010 & 2011)	245	258	N/A	N/A		Eleven fish passage corrections were completed in 2011
Stewardship						
Cumulative number of Nickel and TPA projects completed, and percentage on time ⁶ (calendar quarterly measure: Q1 2012, Q2 2012)	325/ 87%	330/ 88%	90% on time	—		Performance increased this quarter but did not meet goal
Cumulative number of Nickel and TPA projects completed and percentage on budget ⁶ (calendar quarterly measure: Q1 2012, Q2 2012)	325/ 91%	330/ 91%	90% on budget			Competitive bidding and construction environment contribute to controlling costs
Variance of total project costs compared to budget expectations ⁶ (calendar quarterly measure: Q1 2012, Q2 2012)	under-budget by 1.4%	under-budget by 1.3%	on budget			Total Nickel and TPA construction program costs are within 1.4% of budget

Data 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 (RIR) reported as the number of incidents for every 100 full-time employees; the days away, restricted or transfer (DART) rate is a subset of 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%-85% 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.

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 39 for more information on capital projects in the current 2012 Legislative Transportation Budget. As of this quarter, WSDOT now reports on completed on time and on budget for the whole program, including projects completed in earlier biennia.

7 Washington's fiscal year (FY) begins on July 1 and ends on June 30. Q1 FY2012 refers to the quarter ending September 30, 2011.



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Earlier safety-related articles

Find previous articles in these GNB editions:

Rest Areas and Rumble Strips	GNB 45
Pedestrian and Bicycle Safety	GNB 44
Highway System Safety Programs: Focus on Before and After Results of Projects	GNB 43
Highway System Safety Programs: Focus on Traffic Fatalities/ Target Zero	GNB 42

State policy goal

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

WSDOT's business direction

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

Worker Safety Quarterly Update

WSDOT focuses on workplace safety, reduces worker injury rates

Worker Safety Highlights

The recordable incident rate declined 33 percent from the same period one year ago.

The DART or “days away” rate improved by 10 percent from the same period in 2011.

Headquarters and Ferries each improved more than 40 percent.

The number of workdays lost declined 38 percent from Q2 2011 to Q2 2012.

The number of workdays lost by WSF employees declined by more than 67 percent in this time frame; 219 is the lowest number recorded in two years.

WSDOT recordable incident rates¹ by organizational unit

Number of recordable incidents for every 100 full-time employees

Organizational unit	CY 2011	Q1-Q2 2011	YTD ² 2012	YTD ² 2011-2012 % change
Northwest Region	6.6	7.2	3.9	-46%
North Central Region	8.9	12.3	4.7	-62%
Olympic Region	5.2	4.0	4.1	2%
Southwest Region	6.6	4.2	4.1	-2%
South Central Region	7.8	7.8	6.1	-22%
Eastern Region	9.9	8.6	6.2	-28%
Headquarters	2.2	2.6	2.8	8%
All Regions combined	5.8	5.7	4.1	-28%
Ferry System	7.5	8.8	4.7	-47%
Agency-wide	6.2	6.4	4.3	-33%

Data source: WSDOT Safety Office.

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 Year to date percent change for the first two quarters of 2011 compared to the first two quarters of 2012.

WSDOT is committed to improving the safety of its employees as they perform their duties. WSDOT has embarked on a program to transform its employee safety, guided by a core value that every employee should leave at the end of their shift just as healthy as when they started. WSDOT has made progress toward the goal; there were 467 Occupational Safety and Health Administration (OSHA) recordable incidents in 2006, while in 2011 there were 395 recordable incidents. Through the first half of 2012, there were 135 OSHA-recordable incidents reported. WSDOT continues to focus on safety in the workplace.

WSDOT worker injuries, injury severity continue to improve

WSDOT focuses on the agency’s overall recordable incident rate (RIR) as the primary measure to gauge employee safety. This cumulative (year to date) incident rate is the number of OSHA-recordable incidents reported for every 100 full-time employees. “OSHA-recordable incidents” is a standard measure that includes all work-related illnesses and injuries (see *Gray Notebook* 45, p. 2). Tracking the incident rate allows the agency to better address employee safety, and identify problem areas and progress in preventing work-related injuries and illnesses.

A second measure for WSDOT employee safety is the cumulative DART rate, for “days away, restricted, or transferred.” DART is a subset of the overall incident rate, and it measures the rate of recordable incidents that keep employees away from work, on restricted duty, and/or require a job transfer. The days away, restricted or transferred rate indicates the relative severity of incidents; if two regions have equal recordable incident rate but one has a lower days away, restricted, or transferred rate, it shows which region is experiencing more severe injuries that require longer times for employees to recover. The U.S. Coast Guard requires maritime employees to be 100 percent fit for duty before they return to work. Therefore, some Washington State Ferries (WSF) employees are not able to return to work either part-time or in a limited capacity following an injury.

This stipulation typically leads to higher DART rates for WSF employees compared to other WSDOT employees. Measuring DART and RIR allows WSDOT to compare its safety performance to other agencies performing similar work.

Six organizational units decrease incident rates

During the first two quarters of 2012, WSDOT made progress in reducing OSHA-recordable workplace incidents; the incident rate decreased to 4.3 incidents for every 100 full-time employees, an improvement of 33 percent from the same period in 2011, when it was 6.4. Five WSDOT organizational units each improved their incident rates by 22 percent or more in this time frame, and North Central Region led the way with a 62 percent decrease.

Through the second quarter of 2012 compared to the same period in 2011, the Olympic Region and Headquarters organizational units that had higher incident rates, increasing from 4.0 to 4.1 and from 2.6 to 2.8, respectively. While their higher incident rates this quarter are undesirable, the rates for these two organizational units are not out of the norm compared to the other regions in the same time frame. WSDOT is evaluating and monitoring the causes of increased incident rates.

Days away rate drops ten percent; lost workdays down 38 percent from 2011

Headquarters reduces days away, restricted or transferred incidents by 44 percent

In the first two quarters of 2012 the DART rate was 2.7, ten percent better than the same period in 2011 when it was 3.0. The DART rate of 2.7 for this period of 2012 showed a decline from 4.2 for the entire year of 2011, marking a 36 percent improvement. WSF and Headquarters each improved their DART rates by more than 40 percent compared to the same period in 2011.

While the incident rate for Headquarters was worse for the first two quarters of 2012 compared to 2011, the DART rate was better during the same time frame. This is likely due to reduced incident severities.

WSDOT DART rates¹ by organizational unit

Number of recordable incidents involving days away, restricted duty, and/or job transfer for every 100 full-time employees

Organizational unit	CY 2011	Q1-Q2 2011	YTD ² 2012	YTD ² 2011-2012 % change
Northwest Region	2.6	1.9	2.0	5%
North Central Region	6.5	3.1	3.2	3%
Olympic Region	2.0	1.7	2.7	59%
Southwest Region	7.2	1.7	4.2	147%
South Central Region	4.4	3.1	4.1	32%
Eastern Region	3.0	1.9	2.6	37%
Headquarters	1.6	0.9	0.5	-44%
All Regions combined	3.1	1.8	2.2	22%
Ferry System	7.5	7.3	4.3	-41%
Agency-wide	4.2	3.0	2.7	-10%

Data source: WSDOT Safety Office, WSF, Labor and Industries (L&I).

Notes: 1 The 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 Year to date percent change comparing the first two quarters of 2011 and 2012.

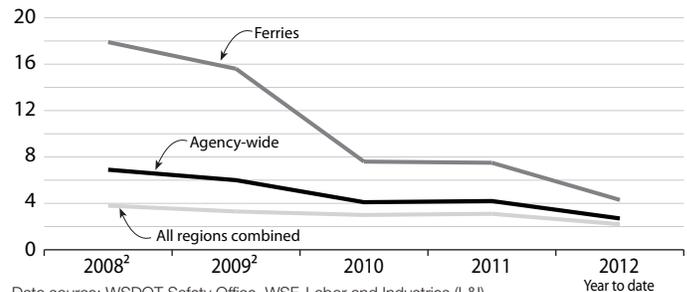
The longer term trend for the DART rates is illustrated in the graph above at right. The DART rate for Ferries showed a 76 percent improvement from 17.9 incidents involving days away, restricted duty, and/or job transfers for every 100 full-time employees in 2008, to 4.3 in the first two quarters of 2012. The six WSDOT regions and Headquarters combined improved more than 42 percent, from 3.8 in 2008 to 2.2 in the first two quarters of 2012.

Lost workdays decline 38 percent from 2011

WSDOT made progress in its efforts to reduce the number of days that employees are unable to report to work from work-related incidents. During the second quarter of 2012, WSDOT employees lost 485 workdays to work-related incidents. This is 38 percent less than during the second quarter of 2011, when employees lost 784 workdays. Highway maintenance workers

WSDOT DART rate¹ trends from 2008 to 2012

Number of recordable incidents involving days away, restricted duty, and/or job transfer for every 100 full-time employees



Data source: WSDOT Safety Office, WSF, Labor and Industries (L&I).

Notes: 1 The DART rate is calculated as 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 The 2008-2009 Ferries DART rates are based on data from the Jones Act claims database and the L&I database.

OSHA-recordable injuries sustained and workdays lost by category of worker

April 1 - June 30, 2012 and comparable calendar quarters

Category	Days away from work	% of all injuries	Number of injuries	Number of injuries for comparison	
	Q2 2012	Q2 2012	Q2 2012	Q1 2012	Q2 2011
Highway maintenance	201	34%	18	36	45
Highway engineering	4	21%	11	16	21
Admin.. staff	61	8%	4	6	6
Ferry system	219	38%	20	14	31
Total	485	100%	53	72	103

Data source: WSDOT Safety Office.

Note: The U.S. Coast Guard requires maritime employees to be 100 percent fit for duty before they may return to work. Therefore, some WSF employees are not able to return to work either part-time or in a limited capacity following an injury.

lost 201 workdays, while engineers reported four lost workdays. Administration reported 61 lost workdays. Ferries maintenance employees lost 219 workdays, a 67 percent decrease from the second quarter of 2011. This is the lowest number of lost workdays for Ferries employees recorded in two years.

Safety Champions set incident reduction goals

The Safety Champions team challenged each region to meet or exceed a full point reduction of their ending 2011 recordable incident rate (RIR). The agency had a RIR of 6.2 at the end of 2011; therefore the goal for the agency is a rate of 5.2 or less at the end of 2012. Each of the regions except Headquarters is on track to achieve their 2012 RIR reduction goal.

Highway System Safety Programs

Quarterly Focus

Washington traffic fatalities at lowest levels since 1954

Highway Safety Highlights

In 2011, Washington saw two fewer fatalities than in 2010. This was the lowest number of traffic fatalities recorded (458) since 1954 (413).

In 2010 and 2011, Washington experienced a fatality rate of 0.8 per 100 million VMT.

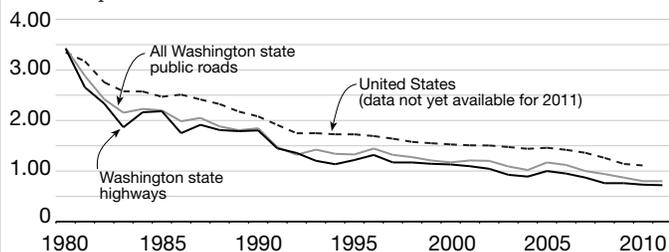
Target Zero: Run-off-the-road fatalities accounted for approximately 43 percent of all traffic fatalities from 2008 to 2011. Intersection-related fatalities accounted for approximately 21 percent.

More information on Target Zero can be found at www.targetzero.com

National strategy resources: www.usroadwaysafety.org
www.strategicsafetyplan.com

Traffic fatality rates in Washington compared to the national average

Fatalities per 100 million vehicle miles traveled; 1980-2011



Data source: U.S. Fatalities/VMT: FARS Encyclopedia, WA Fatalities: FARS; State Hwy Fatalities: WSDOT - Statewide Travel and Collision Data Office (STCDO); WA VMT: WSDOT-STCDO.

Washington turned back the clock on traffic fatalities last year, lowering its numbers to levels not seen in nearly six decades. In 2011, Washington experienced a fatality rate of 0.8 fatalities per 100 million vehicle miles traveled, same as the previous year. The total number of traffic fatalities in 2011, on all public roads and state highways only, is 458 and 227, respectively.

Reducing the factors that contribute to severe or fatal collisions on Washington's highways is a top priority for WSDOT and other state agencies. The countermeasures selected do not always lead to highway modifications, and may focus on issues such as speeding, impaired driving, seat belt use, and other human behaviors. The intent is to put the most direct focus on strategies that help Washington continue to reduce traffic fatalities.

Reduction of traffic fatalities continues

The state has experienced a continuous reduction in the number of traffic fatalities each consecutive year over the past six years. A 29 percent reduction in fatalities has occurred, comparing 649 fatalities in 2005 with 458 fatalities in 2011 (2011 data is considered preliminary).

Although significant fatality reductions have occurred within the six-year period, there were only two less fatalities from 2010 to 2011. In the spirit of the state's

strategic highway safety plan called "Target Zero" it is imperative that the number of fatalities and serious injuries continue to drop in order to meet the goal of zero by 2030.

Washington traffic fatality rate again dips below national fatality rate

Traffic fatality rates are commonly expressed as deaths per 100 million vehicle miles traveled (VMT). In 2003, U.S. Secretary of Transportation Norman Mineta set a national target to lower the fatality rate to 1.00 fatality per 100 million VMT by 2008. In 2007, Washington met the national target with a fatality rate of 1.0, and since then has been consistently below

the national benchmark. In 2011, Washington experienced a fatality rate of 0.8 fatalities per 100 million vehicle miles traveled, which is the same fatality rate posted for 2010. To date, the most available fatality rate information for the nation is 1.11 for 2010. National fatality data for 2010 is not yet available for other states for comparison.

For Washington state highways only, from 1990 to 2011, fatalities were down 46 percent from 417 in 1990 to 227 in 2011 even though state highway vehicle miles traveled increased 32 percent (see graph on p. 5). The number of fatalities has shown a continual decrease for 2009, 2010 and 2011 with 241, 233 and 227 fatalities, respectively. As in *Gray Notebook* 42, this data does not include serious injury collisions due to a

Washington annual traffic fatalities 2005-2011

Year	2005	2006	2007	2008	2009	2010 ¹	2011 ¹
All public roads	649	633	571	521	492	460	458
State highways	316	308	280	234	241	233	227

Data source: Fatal Accident Reporting System (FARS).

Notes: 1 GNB 42 reported the number of traffic fatalities in 2010 for all public roads and state highways as 459 and 232, respectively. These numbers have been updated to 460 and 233 due to updates made to FARS. The 2011 numbers are considered to be preliminary until January 2013.

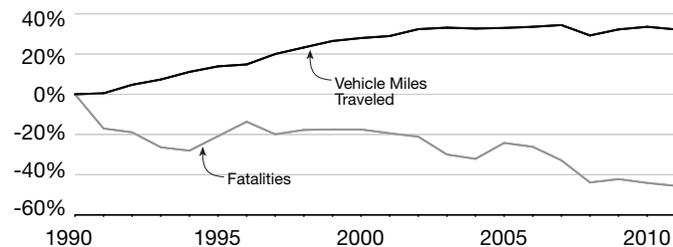
Washington aims for no traffic fatalities with Target Zero program

lag in processing collision records. Recently, WSDOT conducted a Lean review (see gray box on p. 6 for definition) to examine opportunities to reduce lag time. As the *Gray Notebook* goes to press, the most complete month of processed collision data is October 2011.

In *Gray Notebook* 42, the graph below showed fatal and serious injury collisions instead of fatalities. For consistency beginning with this edition, WSDOT will report the number of actual traffic fatalities that are caused by the collisions rather than number of collisions that had at least one fatality.

Washington's fatalities and vehicle miles traveled

Washington state highways; Percent change from 1990 through 2011



Data source: WSDOT Statewide Travel and Collision Data Office.

Target Zero: Washington's goal of zero traffic deaths and zero serious injuries by 2030

Washington's Strategic Highway Safety Plan, "Target Zero" is recognized nationally for its goal of zero fatal and serious injury crashes, and for the success that the state has achieved. Washington's success has helped build a consensus at the national level, as more states realize that working together with partner and stakeholder groups sharing a "zero fatal crash" vision is the appropriate thing to do. In fact, a national safety plan called "Toward Zero Deaths: A National Strategy on Highway Safety" is being developed by the Federal Highway Administration and draws on Washington's experiences.

Top two Target Zero priorities

Target Zero is composed of various focus areas, Priorities One through Four, which are largely based on available collision data. Upon review of the current Target Zero Priority One focus areas (impairment, speeding and run-off-the-road), as well as the Priority Two focus areas (young driver, unrestrained passenger vehicle occupant, distracted driver, intersection-related and traffic data systems), the number of fatalities shows a continual reduction in these areas when comparing preliminary 2011 data with data from 2009 and 2010. For a traffic data systems definition see gray box on page 6.

Washington State Target Zero - Priorities One & Two 2009-2011; Number of traffic fatalities

Priority One	2009	2010	2011 ¹
Alcohol and/or drug impaired driver-involved	265	240	178
Run-off-the-road ²	226	205	190
Speeding-involved	210	176	165
Priority Two			
Young driver age 16-25-involved	177	164	146
Unrestrained passenger vehicle occupant	144	102	103
Distracted driver-involved	161	132	124
Intersection-related ²	96	105	88
Traffic data systems ³	**	**	**

Data source: Fatality Analysis Reporting System (FARS).

Notes: 1 2011 data is preliminary. 2 Run-off-the-road and intersection related collisions from WSDOT collision data. 3 Data currently unavailable for this measure. Categories are not mutually exclusive as collisions may involve several factors, i.e., speeding and impaired driving.

Analysis of Target Zero's Priorities One and Two traffic-related fatalities from 2008 to 2011

Run-off-the-road related fatalities

There were 1,930 total traffic fatalities between 2008 and 2011. Of these, 1,367 (70.8 percent) involved driver impairment, speeding, run-off-the-road, or a combination of these factors that constitute Target Zero Priority One issues. There were 315 fatalities (16.3 percent) that involved all three factors (see Venn diagram on the next page). Each factor's contribution to fatalities has remained fairly steady for the last four years, with impaired driving occurring in almost half of the fatalities, while speed and run-off-the-road apparent in around 40 percent of all fatalities.

WSDOT continually addresses collision outcomes resulting from these factors, largely with cable barrier and/or rumble strips. The *Gray Notebook* 45 (p. 5) featured an article which notes WSDOT is studying the effects of using a combination of centerline rumble strips and shoulder rumble strips to reduce fatal and serious injury collisions.

Intersection-related fatalities

The diagram on the next page depicts the same factors of driver impairment or speeding with the factor of "intersection-related" (a Target Zero Priority Two issue) rather than "run-off-the-road" (a Target Zero Priority One issue). Among the same 1,930 fatalities noted, 1,435 (74.4 percent) involved driver impairment, speeding, intersection-related, or a combination of these factors.

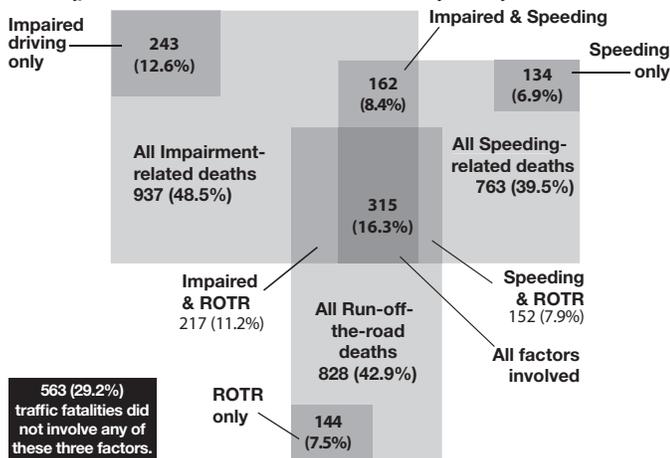
Highway System Safety Programs

Quarterly Focus

Target Zero and seat belt usage driving toward state goals

The role of impairment, speed, or run-off-the-road in traffic fatalities, 2008-2011

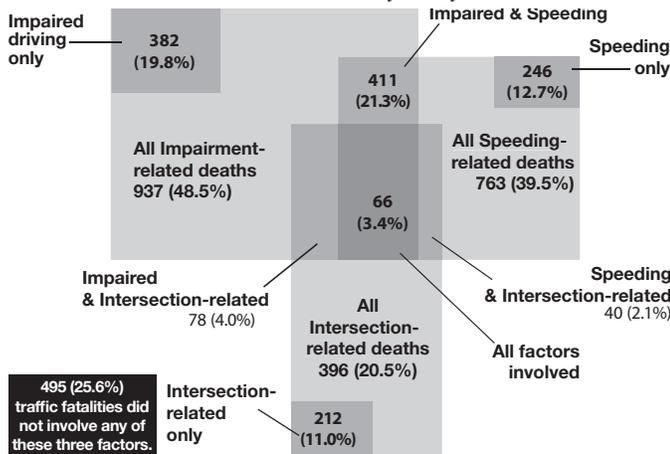
Data derived from 1,930 total traffic fatalities; 70.8%, or 1,367 deaths involved driver impairment, speeding, or run-off-the-road (ROTR), or a combination of these factors



Data source: Fatal Accident Reporting System (FARS) and WSDOT Statewide Travel and Collision Data Office (STCDO).
Prepared by: WA Traffic Safety Commission on 05/09/2012.
Notes: 2011 FARS data preliminary and may change until January 2013. Run-off-the-road crashes were identified using WSDOT collision data.

The role of impairment, speed, or intersection-related in traffic fatalities, 2008-2011

Data derived from 1,930 total traffic fatalities; 74.4%, or 1,435 deaths involved driver impairment, speeding, or intersection-related, or a combination of these factors



Data source: Fatal Accident Reporting System (FARS) and WSDOT Statewide Travel and Collision Data Office (STCDO).
Prepared by: WA Traffic Safety Commission on 05/09/2012.
Notes: 2011 FARS data is preliminary and may change until January 2013. Intersection-related crashes were identified using WSDOT collision data.

There were 66 fatalities (3.4 percent) that involved all three factors simultaneously. Intersection-related fatalities account for approximately 20 percent of all fatalities.

Like the run-off-the-road collisions, intersection-related collisions represent another area of engineering focus for WSDOT. *Gray Notebook* 43 (p. 8) refers to the increased emphasis on Target Zero Priority Two items, including intersections.

Seat belt use tops 97 percent in Washington

Even though the problem of unrestrained vehicle occupants has moved from Priority One to Priority Two with the 2010 Target Zero plan, WSDOT and Washington Traffic Safety Commission continue to measure progress and compliance with seat belt laws. Washington's seat belt usage rate has been above 90 percent since 2002, when the "Click it or Ticket" seat belt program began.

The "Click it or Ticket" program model calls for stepped-up enforcement and publicity warning motorists that the patrols are happening. WSDOT supports this effort by putting the seat belt message on lighted variable message road signs visible on more than 150 highways throughout the state. In 2011, Washington continued to experience a high seat belt use rate (97.5 percent), which is based on observation studies. As remarkable as this percentage is, 34 percent of vehicle occupants killed in crashes last year were not wearing a seat belt.

Washington State seat belt use rates

By road type

Type of road	2009	2010	2011
Interstate highways	97.38%	98.32%	98.21%
State routes	95.45%	97.10%	97.36%
U.S. routes	96.68%	97.32%	97.38%
County roads	92.81%	93.76%	94.40%
City streets	93.98%	95.62%	95.83%

Data source: Washington Traffic Safety Commission.

Defining "Traffic Data Systems" and "Lean"

Traffic Data Systems refers to Washington's information and decision support systems comprised of the hardware, software, and accompanying processes that capture, store, transmit, and analyze various types of data such as collision, roadway, driver citation, and injury treatment data.

Lean: A Lean review involves systematic process improvement, with the goal of eliminating waste and inefficiency, creating more value for customers while using fewer resources.



In Preservation:

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Quarterly Report on Capital Projects	38
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Earlier Preservation-related articles

Find previous articles in these GNB editions:

Asset Management: Washington State Ferries Vessel and Terminal Preservation Annual Report	GNB 45
Safety Rest Areas Annual Report	GNB 45
Asset Management: Pavement Conditions Annual Report	GNB 44
Asset Management: Capital Facilities Annual Report	GNB 43
Asset Management: Bridge Assessment	GNB 42

State policy goal

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

WSDOT's business direction

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

Asset Management: Bridge Assessment Annual Report

Bridge condition ratings just shy of Governor's performance goal

Bridge Preservation Highlights

In FY2012, 95 percent of WSDOT's bridges and local agency-owned bridges are in good or fair condition.

WSDOT's bridge inventory increased from 3,695 to 3,759 structures between FY2011 and FY2012.

Eleven percent of the state's total bridge deck area was considered structurally deficient in 2011.

FHWA list of structurally deficient bridges

All publicly owned bridges in Washington State, 2007-2011

Year	Number of SD bridges	SD deck area (square feet)	Percentage of SD deck area
2011	391	8,046,191	11.0%
2010	394	6,706,707	9.1%
2009	405	6,202,863	8.5%
2008	422	5,904,672	8.2%
2007	400	5,403,983	7.5%

Data source: WSDOT Bridge and Structures Office, FHWA.

Bridge structural condition ratings

Condition ratings by fiscal year

Description	2007	2008	2009	2010	2011	2012
Good No problems to some minor deterioration of structural elements.	88%	88%	89%	90%	86%	86%
Fair All primary structural elements are sound; may have deficiencies such as minor section loss, deterioration, cracking, spalling, or scour.	9%	9%	8%	8%	9%	9%
Percent of bridges in good or fair condition	97%	97%	97%	98%	95%	95%
Poor Advanced deficiencies such as section loss, deterioration, scour, or seriously affected primary structural components. May have truck weight restrictions.	3%	3%	3%	2%	5%	5%

Data source: WSDOT Bridge and Structures Office.

Note: As of FY2011 NBIS deck codes are included as part of the "good/fair/poor" measure. Previously only superstructure and substructure codes were included. The addition of deck codes brings WSDOT's "good/fair/poor" ratings into alignment with FHWA's structurally deficient metric.

Ninety-five percent of WSDOT bridges are in good or fair condition while structurally deficient deck area grows 49 percent since 2007

Ninety-five percent of WSDOT's bridge structures and Washington state's local agency-owned bridge structures are in good or fair condition for fiscal 2012 (FY2012). At the same time, one element of the state's bridge conditions is declining. Some 11 percent of the deck area of all bridges is classified as structurally deficient, growing 49 percent since 2007.

The goal of WSDOT and the Governor's Government Management Accountability and Performance program is to maintain 97 percent of all bridges statewide at a rating of good or satisfactory (fair). This measure is consistent with data in the Office of Financial Management's Comprehensive Annual Financial Report. For FY2012, 86 percent of WSDOT's bridge structures were in good condition and nine percent were fair, totaling 95 percent in good or fair condition. This is just shy of the Governor's 97 percent goal.

The Federal Highway Administration's national inventory shows Washington has 7,743 bridges, which includes both state and local agency-owned structures. In 2011, there were 391 bridges (11 percent of deck area of all bridges) classified as structurally deficient, 152 of which are WSDOT bridges. The percentage of structurally deficient deck area in the state increased by 20 percent between 2010 and 2011 and 49 percent between 2007 and 2011. This increase is mostly the result of several large bridges now having deficiencies. Washington's percentage of structurally deficient bridge deck area is ranked 14th highest nationally.

WSDOT is responsible for managing state-owned bridges and related structures on state highways. These bridges carry a wide variety of freight and goods. WSDOT's performance measure to classify bridges as being in good, fair, or poor condition comes from the National Bridge Inspection Standards (NBIS) bridge superstructure, substructure, and deck codes, providing the best way to classify the overall structural condition of a bridge. WSDOT reports on bridge conditions in accordance to Washington's Office of Financial Management Governmental Accounting Standards Board. There are 3,244 WSDOT bridge structures rated for this performance measure, including 3,070 vehicular bridges longer than 20 feet, 118 culverts greater than 20 feet, and 56 ferry terminal structures carrying vehicles.

Asset Management: Bridge Assessment Annual Report

Number of bridges in poor condition drops, inventory increases in FY2012



The SR 529 Ebey Slough Bridge replacement in Marysville.

Number of bridges in poor condition drops slightly in FY2012

In FY2012, five percent of WSDOT's bridge structures were rated in poor condition. There were 147 bridges in poor condition in FY2012 compared to 152 bridges in FY2011. Thirty bridges from FY2011 were no longer classified as poor in FY2012 due to preservation projects, but 122 bridges remained in poor condition both years, and 25 bridges were newly classified as poor.

In FY2012, 83 bridges were in poor condition due to the deck code inspection rating alone, comprising more than half of the 147 bridges rated poor and 2.6 percent of all WSDOT bridges. In FY2012, bridges in poor condition totaled 4.1 million square feet of deck area (8.9 percent of total WSDOT bridge deck area), a drop from 4.2 million square feet of deck area in FY2011 (9.6 percent).

Bridge inventory increases during FY2012

WSDOT's vehicular bridges 20 feet or longer has increased by 31 bridges, from 3,039 to 3,070 since July 2011. This is primarily due to the construction of new bridges in the highway system. WSDOT manages other types of structures within the bridge program as well, totaling 3,759 total bridge structures (see table below). These include 68 ferry terminal structures (56 that carry vehicles and 12 that do not carry vehicles). Construction of two new pedestrian bridges in 2011 increased the number of these structures from 72 to 74.

The average age of all WSDOT vehicular bridges is 43 years, with 233 bridges that are 75 years or older. The oldest documented state bridge is the earth-filled concrete arch on SR 290 over the Spokane River, built in 1910.

WSDOT inventory of bridges and structures

As of June 2012

Category	Number	Square feet ¹
Vehicular bridges longer than 20 feet	3,070	45,489,689
Structures shorter than 20 feet	374	N/A
Border bridges maintained by border state ²	6	N/A
Culverts longer than 20 feet	118	N/A
Pedestrian structures	74	345,580
Tunnels and lids	43	N/A
Ferry terminal structures	68	751,480
Buildings (I-5 Convention Center)	1	N/A
Railroad bridges	5	N/A
Totals of all structures	3,759	46,586,749

Data source: WSDOT Bridge and Structure Office.

Notes: 1 Categories with N/A do not have an amount of square feet due to the structure type compared to a WSDOT bridge that carries vehicular traffic. 2 WSDOT provides 50 percent of the funding to maintain and preserve these border bridges shared with Oregon or Idaho.

Bridge preservation maintains a safe bridge network through cost-effective actions

Bridge preservation ensures state-owned bridges remain safe and operational. Trained WSDOT inspectors determine future preservation needs and priorities. Preservation projects are designed by engineers in the Bridge and Structures Office and then advertised to contractors for construction. State maintenance crews complete some repairs to preserve the state's bridge network. Bridge preservation activities include:

- Inspection – Perform federally-required inspections on state-owned bridges and other structures.
- Asset management – Identify, prioritize, and plan in order to preserve the bridge and structure network based on review of the inspection data.
- Replacement and rehabilitation – Rehabilitate and replace bridges when needed. Repair deteriorated bridge elements such as concrete columns, expansion joints, or anchor cables.
- Preservation – Extend bridge service life by repainting steel structures; also repair and overlay concrete bridge decks.
- Risk reduction – Seismic retrofit and scour repair of bridge piers to minimize earthquake and flood damage.

Asset Management: Bridge Assessment Annual Report

Bridge inspections balance impacts to drivers and the environment

Bridge inspection program helps WSDOT manage bridge assets

For 2012, WSDOT scheduled 1,371 bridges to be inspected. Under-bridge inspection trucks (UBIT) will be required on 256 inspections. WSDOT will perform 31 inspections for local agency bridges. There are 75 underwater inspections for bridges and 45 for ferry terminals planned this year. WSDOT will also inspect 175 sign structures.

Although bridges have regular inspection cycles, scheduling the appropriate dates for each bridge to be inspected takes coordination to minimize impacts. Bridge inspections requiring a UBIT in urban areas or on interstates are often done during a weekend traffic window from daylight to 10 a.m., and may require crews to use closures on several days to complete one inspection. Another restriction on bridges is for migratory birds: about 20 bridges on state highways require inspections to be scheduled outside of migratory birds' nesting periods. Federal Highway Administration (FHWA) inspection performance measures require a bridge to be inspected very close to its current inspection cycle. For example, if a bridge is on a 24-month cycle, it needs to be inspected as close as possible to the two-year anniversary date of its previous inspection.

Inspecting the state's bridges and structures ensures public safety, determines the condition of the asset, and provides a basis to determine future maintenance and preservation needs. The Federal Highway Administration, WSDOT, and cities and counties work together to ensure the quality of inspections. Joint agency bridge inspection classes are available each year to train and update bridge inspectors. The FHWA also conducts National Bridge Inspection quality assurance inspection reviews of a few local agencies one week each year.

About 60 WSDOT engineers and staff, including specialized teams, inspect state-owned bridges and structures. The latter includes pedestrian bridges, short-span bridges and culverts (shorter than 20 feet), sign support (cantilever and sign bridges), high mast luminaries, ferry terminals, and radio towers along state highways.

Bridge load ratings are used to ensure public safety

A bridge's design is based on a predetermined truck load when it is originally built. Engineers perform a load rating on the structures to verify they can safely carry legal and permitted loads. As structures get older and deteriorate, bridges are re-analyzed based on their condition in the field. If results show the structures are not safe to carry certain loads, traffic on the bridges is restricted to vehicles below the allowable weight.

Total number of bridges with weight restrictions FY2010 to FY2012

Type of weight restriction		FY2010	FY2011	FY2012
Load posted bridges	Allowable weight of trucks is restricted below typical legal weight limits.	12	17	15
Load restricted bridges	Trucks must comply with reduced axle weights for a specific bridge.	129	125	133
Total		141	142	148

Data source: WSDOT Bridge and Structure Office.

Replacement and rehabilitation

As of June 2012, 147 bridges that are longer than 20 feet were classified as structurally deficient (SD). Twenty-four of these have been prioritized for future replacement/rehabilitation based on their truck volumes, structural condition, and any load restrictions in place. The total estimated cost to replace or rehabilitate these 24 bridges is about \$285 million.

To qualify for federal funds for replacement, bridges must have a sufficiency rating of less than 50 and be classified as SD or functionally obsolete (FO). For rehabilitation, the sufficiency rating must be less than 80. (Definitions of SD and FO are available in the June 2009 *Gray Notebook* 34, p. 22).

WSDOT is investing in bridge preservation through two mobility projects that replace the existing seismically vulnerable Alaskan Way Viaduct and the Evergreen Point Floating Bridge with new structures built to current seismic codes. The costs to rebuild the structure portions of these projects are estimated as:

- The Alaskan Way Viaduct is estimated to cost \$2 billion for replacement of the bridge structure. Costs for non preservation work such as electrical relocation, waterfront sea wall, and transit are not included in this estimate. Federal Bridge Funds for this project are about \$233 million.
- The SR 520 Evergreen Point Bridge Replacement is estimated to cost \$1.5 billion for bridge and approach span replacement. Federal Bridge Funds for this project are about \$121 million.

WSDOT slates \$101.1 million for bridge replacement and rehabilitation in the 2011 - 2013 biennium

In the 2011-2013 biennium, \$101.1 million is slated for bridge replacement and rehabilitation. This is primarily funded through the Federal Bridge Replacement Rehabilitation Account, including Federal Bridge Funds for the Alaskan Way Viaduct. The South Holgate Street to South King Street section of the

Asset Management: Bridge Assessment Annual Report

Meeting the needs to replace and repair WSDOT's bridges

Alaskan Way Viaduct is \$72.5 million. The costs for bridge replacement/rehabilitation projects currently under contract total \$67.6 million, including:

- SR 529 Ebey Slough (Marysville) - \$42.3 million
- U.S. 97 Satus Creek (Toppenish) - \$8.4 million
- U.S. 2 Wenatchee River (Leavenworth) - \$6.7 million
- U.S. 2 Chiwaukum Creek (Leavenworth) - \$5.8 million
- SR 10 Bristol Fill (Cle Elum) - \$4.4 million

WSDOT prioritized bridge replacement/rehabilitation

Ten-year plan FY2013 - FY2023; Dollars in millions

Category	Number of bridges	Total cost
Prioritized bridges on T1/T2 ¹ freight routes	11	\$178
Prioritized bridges not on T1/T2 ¹ freight route	13	\$107
Ten-year total	24	\$285

Data source: WSDOT Bridge and Structures Office.

Note: 1 T1/T2 freight routes are routes with high truck volumes.

WSDOT invests \$17.4 million in 2011 - 2013 biennium for bridge repairs and movable bridge rehabilitation

In order to stay on top of the repair needs of its aging bridges, WSDOT develops a prioritized contract list each biennium. Prioritized future repair needs are estimated to cost \$100 million and with a budget of nearly \$20 million per biennium, it will take WSDOT about ten years to complete the work on this list (see table below). Emergency contracts may be warranted for unexpected problems requiring immediate repairs on a bridge. The major repair category for bridge preservation includes corrective work that must be done through contracts. This work addresses specific bridge elements needing repair and is not intended to upgrade all deficiencies to current standards. The most common repair types include: expansion joint replacement, concrete column repair, floating bridge anchor cable replacement, and mechanical/electrical rehabilitation for movable bridges.

WSDOT bridge repair and moveable bridge rehabilitation needs

Ten-year plan FY2013 - FY2023; Dollars in millions

Category	Total cost
Bridge repairs	\$73.5
Movable bridges	\$26.5
Ten-year total	\$100

Data source: WSDOT Bridge and Structures Office.

Summary of 10-year WSDOT bridge funding needs

Dollars in millions

Category	Allocated for 2011 - 2013 biennium	Projected needs for fiscal years 2013 - 2023
Bridge replacement/rehabilitation	\$101.1	\$285
Bridge repairs, movable bridges	\$17.4	\$100
Steel bridge painting	\$39.1	\$566
Concrete deck rehabilitation	\$13.4	\$156
Seismic retrofit*	\$22.4	\$152
Scour mitigation	\$3.2	\$15
Total	\$196.6	\$1,274

Data source: WSDOT Bridge and Structures Office.

Note: *Seismic retrofit needs are for prioritized structures on the I-5 corridor between Joint Base Lewis-McChord and I-90.

SR 508 South Fork Newaukum River Bridge closure

Built in 1930, the South Fork Newaukum River Bridge is located near Onalaska and has a main steel pony truss span with timber approach span. In December 2008, bridge engineers restricted the maximum truck load on the bridge to 18 tons, 29 tons, and 36 tons based on the type of truck and



The SR 508 South Fork Newaukum River Bridge.

number of axles. An in-depth inspection in June 2012 found advanced corrosion in critical areas, prompting bridge engineers to close the bridge until temporary repairs could be completed by bridge maintenance crews. Once the repairs are complete, the bridge will be restricted to seven tons with no trucks allowed to cross the bridge.

SR 142 Klickitat River Bridge requires severe load restriction (three tons)

Built in 1954, the Klickitat River Overflow Bridge was the first in the state to use precast pre-stressed concrete girders. The bridge has concrete slabs supported by rebar between each girder. The steel reinforcing has advanced corrosion and is unable to safely carry truck loads. The bridge's load was restricted to three tons in May 2012. Bridge maintenance crews installed a single-lane, temporary "Bailey" bridge over the existing bridge (open to traffic on June 28) to allow trucks and buses up to 52.5 tons to cross the bridge.

Asset Management: Bridge Assessment Annual Report

Preservation projects repaint and repair state bridges



WSDOT and ODOT equally share the cost to paint the U.S. 101 Astoria Bridge, near Astoria, Oregon. ODOT awarded the \$17.5 million contract to paint the main truss on the Oregon side in 2012.

Steel bridge painting and rehabilitation

There are 104 WSDOT steel bridges currently due or past due for painting (including the Oregon-owned border bridges) and 160 total steel bridges needing painting work in the next ten years.

Painting the main truss on the Lewis and Clark Bridge (the final project phase) was awarded in June 2010 and will be completed in 2013. WSDOT has a \$39.1 million budget for the 2011 - 2013 biennium to paint steel bridges. Ninety-four percent of this budget (\$36.9 million) will be used to repaint two bridges over the Columbia River (the SR 433 Lewis and Clark Bridge and the U.S. 101 Astoria Bridge).

WSDOT owns 289 steel bridges requiring routine painting and shares painting costs for steel bridges on the Oregon and Idaho borders. Protective paint coatings on steel bridge elements are essential to prevent corrosion and extend their service life. Bridge painting is a major project with significant costs due to the complexity of safety, environmental, and containment system requirements. Bridge inspection data is used to determine the condition of the paint coatings on steel bridges.

WSDOT steel bridge painting needs

Ten-year plan FY2013 - FY2023; Dollars in millions

Category	Number of bridges	Cost to repaint
Past due for painting	28	\$150
Due for painting	74	\$200
Steel trusses – due within next ten years	51	\$192
Unpainted weathering steel	5	\$3
Oregon-owned border bridges	2	\$21
Ten-year total	160	\$566

Data source: WSDOT Bridge and Structures Office.

Nearly all the bridges on WSDOT's future paint list need full paint removal, requiring the construction of a containment system around the bridge to keep old paint and the abrasive material used to remove it from entering the environment. An emerging issue is how to balance the added weight of the containment system with the need to maintain traffic.

Bridge deck repair and overlay

WSDOT has been working since the early 1980s on a program to prevent concrete deck deterioration, which is generally caused by winter salt applications. Region maintenance crews provide temporary repairs, typically lasting a few years, in the form of quick-cure patching materials to keep bridges in service. A bridge deck rehabilitation and overlay can add more than 25 years of service life with minimal maintenance.

Bridges with concrete decks built after 1980 are constructed with epoxy-coated rebar that resists corrosion caused by winter de-icing salts. Bridge inspections identify pre-1980 bridges with deteriorated concrete deck areas that can be rehabilitated with a concrete overlay. The average cost to repair and apply a traditional modified concrete overlay to a bridge deck is nearly \$80 a square foot (about 25 percent of the cost to completely replace a bridge deck and 10 percent of the cost to replace an entire bridge). WSDOT will schedule a bare concrete deck for repair and overlay when two percent or more of the deck area is deteriorated or has had previous maintenance repairs.

WSDOT primarily uses modified concrete overlays to rehabilitate concrete bridge decks. The first such repair was made in 1979. The average service life of a concrete overlay on bridges is about 25 years. It is very likely that more of these concrete overlays will require replacement in the future.

Concrete bridge deck rehabilitation projects under contract are:

- South Central Region (five bridges) - \$2.0 million
- U.S. 395 Columbia River (Kettle Falls) - \$1.9 million
- I-90 SR 18 Overcrossing (North Bend) - \$700,000

WSDOT concrete bridge deck rehabilitation needs

Ten-year plan FY2013 - FY2023; Dollars in millions

Category	Number of bridges	Total cost
Past due for concrete overlay	43	\$52
Due for concrete overlay	38	\$40
Due within ten years	10	\$64
Ten-year total	91	\$156

Data source: WSDOT Bridge and Structures Office.

Note: Bridges that are past due and due for concrete overlay have had significant or small amounts of maintenance patching work, respectively.

Asset Management: Bridge Assessment Annual Report

Bridge risk reduction efforts minimize flood and earthquake damage

Seismic retrofit of selected bridges and scour repair of bridge piers in rivers are proactive approaches to minimize the risk of damage to bridges due to earthquakes and flooding.

Seismic retrofit bolsters bridges

The bridge seismic retrofit budget for the 2011 - 2013 biennium is \$22.4 million. WSDOT has identified and prioritized bridges in the Puget Sound region that require a future seismic retrofit to minimize the risk of significant damage or collapse following a 1,000-year earthquake.

Bridge engineers perform a seismic analysis of each bridge to determine the exact scope of the retrofit. The most common type of retrofit for most bridges includes adding steel jackets around the columns and adding more concrete and steel reinforcing to the pier caps (also known as a “bolster”).

WSDOT bridge seismic retrofit status

FY2012

Category	Number of bridges
Completely retrofitted	272
Partially retrofitted	134
Needs retrofitting	485
Under contract	10
Total	901

Data source: WSDOT Bridge and Structures Office.

WSDOT's long-range bridge seismic retrofit needs

Total remaining bridges statewide; Dollars in millions

Category	Number of bridges	Total cost
Bridges with single columns	11	\$9
Special bridges	3	\$11
Mainline I-5 Tacoma to I-90	34	\$186
Mainline I-5 Everett to I-90	16	\$184
Undercrossings I-5 Tacoma to I-90	15	\$36
Undercrossings I-5 Everett to I-90	10	\$20
I-405 bridges	27	\$45
Remaining bridges with PGA ¹ greater than 0.35	257	\$615
Bridges with single columns and PGA less than 0.35	43	\$24
Remaining bridges with PGA less than 0.35	213	\$311
Total	629	\$1,441

Data source: WSDOT Bridge and Structures Office.

Note: 1 PGA is Peak Ground Acceleration. PGA measures the intensity of an earthquake; the lower the PGA the more vulnerable a bridge structure is to earthquake movement.

Scour mitigation keeps bridges on solid footing

Nationally, as in Washington state, more bridges have collapsed from the scour of bridge foundations than from any other cause. The planned bridge scour repair budget for the 2011-2013 biennium is \$3.2 million. The projected need for scour mitigation repair is \$15 million for FY2013 - FY2023.

“Scour” is the eroding away of stream bed material from under bridge foundations. Scour generally happens when a river is experiencing high water flows.

- More than 1,500 WSDOT bridges and culverts longer than 20 feet in length are over water.
- There are 315 WSDOT bridges and culverts longer than 20 feet that are classified as “scour critical.”

The term “scour critical” is used by the FHWA to classify bridges with a potential scour depth that is lower than the existing bridge foundations. WSDOT has developed a plan of action for each of these bridges. Once funding has been authorized for repairs, it generally takes two to four years to design a scour repair and obtain the environmental permits to complete the work.

Historical summary of WSDOT bridge failures

The most common cause of bridge failure is by scour of the bridge foundations during a flood. The most recent bridge failure in Washington due to scour occurred in 1999 on the old U.S. 101 Nolan Creek Bridge (replaced in 2004).

Historical bridge failures in Washington State

Category	Number of bridges
Unknown	2
Tsunami	2
Storm	3
Overload	3
Collision	4
Mt. St. Helens	5
Fire	9
Flood (scour)	43
Total	71

Data source: WSDOT Bridge and Structures Office.

Asset Management: Bridge Assessment Annual Report

Local agency bridge condition mirror state ratings

Of the state's local agency-owned bridges, 95 percent are in good or fair structural condition. As of July 2012, Washington has more than 3,900 locally owned and maintained bridges that support an average of 10 million crossings a day. The number of bridges fluctuates annually as new bridges are added to the system as part of construction projects and some older bridges are permanently removed. All bridges in Washington are designed and constructed for one primary goal: safety for the traveling public. Additional considerations include longevity, contributions to the community, and regional economic vitality. Local agencies follow the same guidelines for inspections as the state and bridges are inspected at least once every two years. WSDOT conducts field reviews and provides training and technical assistance to municipalities for inspecting bridges on city streets and county roads. WSDOT and local governments closely follow federal guidelines in bridge inspection and maintenance procedures.

Conditions of Washington's locally managed bridges

FHWA requires all states to report annual state, city, and county data concerning the structural condition and adequacy of all bridges statewide. A structurally deficient bridge is safe as long

as all restrictions are obeyed, but it may need costly repairs or replacement in order to carry current legal loads. Following a thorough review, bridges are assigned a sufficiency rating between zero and 100. The rating takes into account some 75 factors reviewed during an inspection and considers a bridge's age, length and width, and the average traffic the bridge handles.

Top five challenges for locally managed bridges in Washington

- **Age and deterioration:** Modern bridges are usually built to last 75 years or more. However, many older bridges were not intended for 75 years of service life. About 30 percent of locally owned bridges are more than 50 years old. Several bridges constructed before the 1960s need major repair or replacement.
- **Congestion:** Some of Washington's bridges have become bottlenecks for both freight and general traffic, particularly at interchanges and major river crossings.
- **Construction costs:** The money available for bridges buys less in the marketplace as construction costs have increased. The costs of steel, asphalt, concrete, and earthwork have risen. Additionally, replacing smaller bridges can result in construction of larger bridges in order to reduce impacts to streams and rivers and ensure environmental standards are met.
- **Maintaining bridge safety:** Nearly every state faces funding shortages which prevent them from applying the kind of ongoing preventive maintenance, rehabilitation, seismic strengthening, and replacement that would keep their bridges sound.
- **Regionally significant bridge replacement needs:** Rising costs of replacing bridges and related intersections exceed available resources, preventing cities and counties from making the larger bridge improvements that are needed to address congestion and serve economic growth.

Structural condition ratings of Washington's locally managed bridges

July 2012

Rating	County owned		City owned		Total	
	% of bridges	% of deck area	% of bridges	% of deck area	% of bridges	% of deck area
Good	84%	85%	77%	75%	82%	81%
Fair	12%	11%	16%	12%	13%	11%
Percent of good and fair bridges					95%	92%
Poor	4%	4%	7%	13%	5%	8%

Data source: WSDOT Highways and Local Programs Office.

Note: The percent of deck area of bridges in each rating category is calculated out of total deck area of all county or city owned bridges.

Indicators of the condition of local bridges

July 2012

Condition	Number of bridges	Percent of bridges	Deck area (square feet)	Percent of deck area
Total inventory	3,978		14,711,000	
Sufficiency rating less than 30 and Structurally Deficient	66	1.7%	390,926	2.7%
Sufficiency rating less than 50 and Structurally Deficient	135	3.4%	920,050	6.3%
Sufficiency rating less than 50 and load posted	65	1.6%	305,895	20.8%

Data source: WSDOT Highways and Local Programs Office.

Note: The percent deck area in each condition category is calculated out of the total deck area of all locally managed bridges (14,711,000 square feet).



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Earlier Mobility-related articles

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Travel Time Trends	
Six Month Update	GNB 44
Aviation Annual Report	GNB 43
Measuring Delay and	
Congestion Annual Report	GNB 42

State policy goal

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

WSDOT's business direction

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

Measuring Delay and Congestion Annual Report

2012 Congestion Report Executive Summary looks at 2011 and 2009 data

Highlights from the Annual Congestion Report

Statewide congestion data shows that 2009 was the least congested of the last five years.

The 2011 vehicle miles traveled (VMT) on Washington public roads took a 1 percent dip from 2010 levels, while VMT on state highways took a 0.4 percent dip.

Washington's 2011 VMT is back to 2009 levels. VMT on all public roads saw a 0.9 percent increase, while state highways VMT showed no change compared to 2009.

Delay on state highways in 2011, measured at maximum throughput speeds, was 16 percent higher than in 2009 but only 3 percent higher than in 2010.

In 2011, the cost of delay to drivers and businesses in Washington was estimated to be \$780 million at maximum throughput speeds, and \$1.142 billion at posted speeds.

Nonrecurring congestion, caused by incidents, weather and work zones, contributed to 50 percent of roadway congestion in 2011.

Congestion increasing since 2009, still below pre-recession levels

The increasing congestion and delay trends that prevailed from 2009 through 2010 have leveled off in 2011. Between 2009 and 2011, travel delay on state highways saw a substantial increase, while vehicle miles traveled held steady. Statewide congestion data for the past five years shows that 2009 was the least congested year for Washington. Many indicators of economic growth and activity are still lagging from pre-recession levels; 2011 began to show some promise with lower unemployment rates and an uptick in Washington real personal income.

Congestion performance metrics reveal measurable increases this year (2011) compared to 2009; when compared 2011 to 2010 data, these increases are mostly marginal.

- In 2011 delay on state highways — when measured at maximum throughput speed — was 16 percent greater than in 2009, but only 3 percent higher than in 2010. Similar trends were seen when the delay metric was calculated at posted speed limits.
- Each Washingtonian spent 14 percent more time in traffic in 2011 than in 2009, but only 2 percent more than in 2010; again, the person delay trends were similar when calculated at posted speed threshold.
- Compared to 2009, annual vehicle miles traveled (VMT) saw a modest increase in 2011 on all roads (by 0.9 percent) and held steady on state highways.
- Compared to 2010, annual vehicle miles traveled saw a modest decrease in 2011 on all roads (by -0.4 percent) and on state highways (by -1.0 percent).
- Vehicle miles traveled on all public roads shows that the average Washingtonian drove 50 fewer miles in 2011 than in 2009 and 88 fewer miles than in 2010.

Vehicle miles traveled in Washington in 2011 match 2009 levels; higher fuel prices in 2011 may have caused Washingtonians to carefully consider transportation costs when making travel decisions.

Numerous factors influence congestion in our state

As Washington's economy rebounds, more people will spend more time on the road, driving to work, to school, to shopping centers and on other errands. Congestion metrics' leading performance indicators show an increase in such travel in 2011 compared to 2009 and 2010, even though the magnitude of this increase is within pre-recession levels. The Federal Highway Administration's (FHWA) Office of Operations acknowledges that roughly half of the congestion experienced by Americans recurs virtually every day. Recurrent congestion happens when the number of vehicles exceeds the roadway capacity. The other half of congestion is caused by temporary disruptions that take away part of the roadway's capacity; this is known as "nonrecurring" congestion. Incidents like flat tires and overturned hazardous material trucks make up 25 percent of congestion. Two other main causes of nonrecurring congestion are weather (15 percent), and work zones (10 percent).

Although increased congestion can indicate economic growth, it also has negative economic consequences. Delay costs money — for example, when drivers waste fuel in stop-and-go traffic or when businesses suffer lost productivity due to shipments arriving late. Estimated against posted speeds, statewide travel delay cost drivers and businesses in Washington \$1.142 billion in 2011; the cost of this delay in 2009 and 2010 was \$1.046 billion and \$1.126 billion, respectively. When measured at maximum throughput speed, delay remains expensive. It cost drivers and businesses \$780 million in 2011 — 16 percent more than the \$674 million it cost in 2009 and 3 percent more than the \$760 million it cost in 2010.

Measuring Delay and Congestion Annual Report

Congestion Report Dashboard of Indicators

2012 Congestion Report Dashboard of Indicators

Dollar values are inflation-adjusted, measured in 2011 dollars

	2007	2008	2009	2010	2011	Difference '10 vs. '11	Difference '09 vs. '11
Demographic and economic indicators							
State population (thousands)	6,525	6,608	6,672	6,725	6,768	0.6%	1.4%
Population density (persons per square mile)	98.1	99.3	100.3	101.2	101.8	0.6%	1.6%
Gasoline price per gallon (annual average)	\$3.18	\$3.54	\$2.68	\$3.10	\$3.72	20.2%	39.1%
Washington unemployment rate (annual)	4.6%	5.4%	9.4%	9.9%	9.2%	-0.8%	-0.2%
Washington rate of annual economic growth ¹	5.2%	0.8%	-2.8%	1.8%	2.0%	2.0%	3.8%
Washington real per capita income ²	\$45,287	\$45,816	\$43,675	\$43,761	\$44,350	1.4%	1.6%
System-wide congestion indicators							
Vehicle miles traveled							
All public roads vehicle miles traveled (VMT), in billions	56.96	55.45	56.46	57.19	56.97	-0.4%	0.9%
All public roads per capita VMT, in miles	8,780	8,417	8,467	8,505	8,417	-1.0%	-0.6%
State highways VMT, in billions	31.97	30.74	31.46	31.76	31.46	-1.0%	0.0%
State highways per capita VMT, in miles	4,928	4,667	4,717	4,724	4,648	-1.6%	-1.5%
System congestion							
Total state highway lane miles	18,425	18,500	18,571	18,630	18,642	0.1%	0.4%
Lane miles of state highway system congested	1,032	962	966	1,025	1,007	-1.8%	4.2%
Percent of state highway system congested ³	5.6%	5.2%	5.2%	5.5%	5.4%	-0.1%	0.2%
Delay on state highways							
Total vehicle hours of delay, in millions of hours ⁴	35.1	34.8	28.1	31.7	32.5	3%	16%
Annual hours of per capita delay on state highways ⁴	5.4	4.9	4.2	4.7	4.8	2%	14%
Cost of delay on state highways (2011 dollars in millions)							
Measured at maximum throughput speeds ⁴	\$842	\$835	\$674	\$760	\$780	3%	16%
Measured at posted speeds	\$1,230	\$1,200	\$1,046	\$1,126	\$1,142	1%	9%
Corridor-specific congestion indicators							
Congestion on 52 commute routes in the central Puget Sound region							
Annual Maximum Throughput Travel Time Index (MT ^{3I}) ⁵	1.45	1.25 ⁷	1.30	1.37	1.35	-1%	4%
Number of commute routes with MT ^{3I} > 1 ⁵	46	41 ⁷	43	45	44	N/A	N/A
WSDOT congestion relief projects							
Number of completed Nickel and TPA mobility projects as of December 31st of each year (cumulative)	33	43	65	73	82	9	17
Cumulative project value (dollars in millions)	\$963	\$1,289	\$2,212	\$2,596	\$2,802	\$206	\$590

Data source: Washington state Office of Financial Management; Economic and Revenue Forecast Council; Bureau of Economic Analysis, U.S. Department of Energy - Energy Information Administration; Bureau of Labor Statistics - Consumer Price Index; WSDOT State highway log.

Notes: Analysis in the 2012 Congestion Report examines 2009 and 2011 annual data; five years of data is provided here for information only. All dollar values are inflation-adjusted using the Consumer Price Index (CPI). 1 Measured as the percent change in annual Washington Real Gross Domestic Product (GDP). Values shown in the Difference 2010 vs. 2011 and Difference 2009 vs. 2011 columns reflect the percent change in the real GDP. 2 Measured as total statewide personal income in chained dollars divided by state population. 3 Based on below 70% of posted speed. 4 Based on maximum throughput speed threshold (85% of posted speed). 5 MT^{3I} greater than one means the commute route experiences congestion (for definition see the 2012 Congestion Report, p. 24). 6 2008 data not available for four of the 52 routes. For more information see gray box on page 15 of the 2009 Congestion Report.

Measuring Delay and Congestion Annual Report

2012 Congestion Report Executive Summary: Looking at 2011 data

The 2012 *Congestion Report* examines 2011 calendar year data and focuses on the most traveled commute routes in the central Puget Sound region; when data is available statewide, performance data is included. The 2012 *Congestion Report's* detailed analysis shows where congestion occurs, how much congestion occurs, and state highway system congestion trends.

Calendar year 2011 congestion spikes over 2009 travel trends, but has moderate hike from 2010

The downward congestion trend in Washington ended in 2009, as 2010 and 2011 data shows moderate to slight increases in delay and vehicle miles traveled on state roadways. Statewide congestion data for the past five years shows that 2009 was the least congested year for Washington state. With the rebounding

economy and stabilization of gas prices, congestion on the state highway system was on the rise beginning in 2010, and continued to see increases in 2011.

In 2011, travel delay on state highways, when measured at maximum throughput speeds, is 3 percent higher than 2010 and 16 percent higher than 2009. In the central Puget Sound region, 73 percent of the monitored commute routes (38 of 52 routes) have shown modest changes in average travel times – within two minutes. More than half of these commutes showed a modest change in 95 percent reliable travel times, while 21 percent saw improvement (11 of 52 routes) and 27 percent saw a worsening (14 routes) in 95 percent reliability, beyond two minute fluctuations.

2012 Congestion Report Executive Summary of measures and results



Trend is moving in a favorable direction.



Trend is holding.



Trend is moving in an unfavorable direction.

Trend

Congestion Report Page #

Statewide indicators: Percent system congested, hours of delay, and vehicle miles traveled

Total statewide delay Statewide delay, relative to both posted speeds and maximum throughput speeds (calculated at 85% of posted speed), increased by 9% and 16% respectively. The increase in delay indicates that many highways across the state became more congested between 2009 and 2011. The statewide delay, relative to posted speeds and maximum throughput speeds, rose slightly in 2011 compared to 2010 by 1% and 3%, respectively.	Total statewide vehicle hours of delay was increased by 16% between 2009 and 2011 relative to maximum throughput speeds.		18
Per person delay Statewide, delay was increased from about 4.2 hours per person annually in 2009 to 4.8 hours per person annually in 2011, when measured using maximum throughput speeds. Statewide per capita delay in 2010 was 4.7 hours per person annually.	Per person delay increased by 14% between 2009 and 2011 relative to maximum throughput speeds.		19
Percent of the system delayed Roughly 11.5% of state highways (in lane miles) were delayed in 2009, meaning traffic flow dropped below 85% of posted speeds. This metric improved to 11.3% in 2011. As expected, most of the traffic delay on state highways is in urban areas.	The percent of state highways with delay decreased between 2009 and 2011.		19
Percent of the system congested Roughly 5.2% of state highways (in lane miles) were congested in 2009, meaning traffic flow dropped below 70% of posted speeds. This measure rose to 5.4% in 2011. As expected, most of the congested state highways are in urban areas.	0.2% more state highways are congested, up from 2009 (5.2%) to 2011 (5.4%).		19
Vehicle miles traveled (VMT) Between 2009 and 2011, total VMT increased by 0.9% on all public roads and remained steady on state highways. Per person VMT decreased statewide, by 0.6% on all public roads and by 1.5% on state highways.	Total VMT on all public roadways increased by 0.9% between 2009 and 2011.		22

Central Puget Sound corridors: Hours of delay and vehicle miles traveled

Vehicle hours of delay on major central Puget Sound region corridors Between 2009 and 2011, vehicle hours of delay relative to the posted speeds (60 mph) and maximum throughput speeds increased by approximately 0.5% and 9% respectively. Most of the surveyed corridors saw an increase in delay.	Travel delay in the central Puget Sound area is up 9% relative to maximum throughput speeds.		21
Vehicle miles traveled (VMT) remained steady in the central Puget Sound area in 2011 On selected major Puget Sound region corridors, VMT remained steady in 2011 compared to 2009. Most major corridors except I-90 saw no significant percent change in VMT.	VMT in the central Puget Sound area remained steady in 2011 compared to 2009.		21

Measuring Delay and Congestion Annual Report

Executive Summary of measures and results, *continued*

2012 Congestion Report Executive Summary of measures and results



Trend is moving in a favorable direction.



Trend is holding.



Trend is moving in an unfavorable direction.

Trend

Congestion Report Page #

Central Puget Sound corridors: Throughput productivity

Throughput productivity compares the observed average vehicle flow (vehicles per hour per lane – vphp) in each commute direction for a selected location to the observed highest average five minute vehicle flow at that location. Between 2009 and 2011, for 16 selected Puget Sound monitoring locations, six showed improvements in vehicle throughput, while eight worsened, one did not change, and one did not experience any productivity loss.

Between 2009 and 2011, eight out of 16 monitored locations either improved or remained the same while eight got worse.



24-26

Travel times analysis: 40 high-demand Puget Sound commute routes

Average peak travel times Between 2009 and 2011, 27 of 40 surveyed high-demand commute routes saw changes in average peak travel time no more than two minutes. Thirteen routes changed by more than two minutes: four showed shorter travel times and nine routes saw longer travel times.

Average peak travel times on 27 of 40 routes changed by less than two minutes between 2009 and 2011, nine worsened, four improved.



28

Duration of congested period The duration of congestion—defined as the period of time in which average speeds fall below 45 mph—improved on 16 routes between 2009 and 2011, with improvements ranging from five minutes to 1 hour 35 minutes. The duration of congestion was unchanged on two routes, and average speeds on two routes did not fall under the 45 mph threshold. The remaining 20 routes have a worsened duration of congestion ranging from five minutes to 1 hour 45 minutes.

Between 2009 and 2011, the duration of congestion worsened on 20 routes, improved on 16 routes and was unchanged on two; two routes had no congestion.



30-31

95% reliable travel times Between 2009 and 2011, 18 of the 40 high-demand commutes saw modest changes (less than or equal to two minutes) in 95% reliable travel time. Thirteen commutes saw reliable travel times worsen between three and 11 minutes, while reliable travel times improved on nine commutes ranging from three minutes to ten minutes.

Reliable travel times improved on nine commutes, saw no significant change on 18, and worsened on 13, when comparing 2011 to 2009.



37-38

Additional performance analyses for the 40 high-demand Puget Sound commute routes

Range of percentiles reliability analysis Reliability percentile analysis looks at travel times at the 50th percentile (median), 80th percentile, 90th percentile, and 95th percentile values for the 40 high demand routes. The percentile analysis also provides a way to track changes in travel times over the years at a finer level, in order to evaluate operational improvements.

37-38

Percentage of days when speeds were less than 36 mph – Stamp graphs The most visual evidence of how peak periods changed in 2011 can be seen in the graphs on pp. 40-41 of the 2012 *Congestion Report*. These “stamp graphs,” comparing 2009 and 2011 data, show the percentage of days annually that observed speeds are below 36 mph (threshold for severe congestion).

39-41

Travel time comparison graphs The bar graphs on pp. 57-59 of the 2012 *Congestion Report* show four of the travel time performance indicators during the peak five minutes interval for weekdays: travel times at posted speeds, travel time at maximum throughput speeds (50 mph), average peak five minute travel times, and 95% reliable travel times. For each of the surveyed high-demand commutes, both general purpose (GP) and high occupancy vehicle (HOV) travel times are shown. The graphs also illustrate the travel time advantages HOV lane users have compared to GP lane users.

57-59

Travel time analysis: 12 additional Puget Sound commutes

In addition to the 40 high-demand commute routes, WSDOT tracks 12 other commutes in the central Puget Sound region where data are available. Average travel times for 11 of 12 routes saw a negligible change between 2009 and 2011. In terms of the 95% reliable travel time, nine of the 12 routes saw modest changes (within two minutes), while travel times were seven minutes longer on one route and shorter on the remaining two routes by three minutes.

95% reliable travel times deteriorated on one of 12 commutes. Average travel time change between 2009 and 2011 were negligible on 11 of 12 routes.



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Measuring Delay and Congestion Annual Report

Executive Summary of measures and results, *continued*

2012 Congestion Report Executive Summary of measures and results

 Trend is moving in a favorable direction.	 Trend is holding.	 Trend is moving in an unfavorable direction.	Trend	Congestion Report Page #
Travel time analysis: Spokane commutes				
Average travel times on I-90 EB and I-90 WB between Argonne Road and Division Street have shown modest changes (less than a minute). 95th percentile travel times improved eastbound by 24% and deteriorated westbound by 47%.			95th percentile reliable travel time deteriorated on westbound by 47%.	 43
HOV Lane performance				
HOV Lane reliability standard The reliability standard requires the HOV lane to maintain a speed of 45 mph for 90% of the peak hour. In 2009, eight of 14 HOV commute corridors met the reliability standard; seven of 14 corridors met the standard in 2011. Of the seven that did not, five are during the evening peak commutes and two are during the morning peak commutes.			In 2011, the HOV lane reliability standard was met on one less corridor than 2009.	 46
Person throughput Most HOV lanes continue to be more effective at moving more people during peak periods than general purpose (GP) lanes. At the monitoring locations, the average HOV lane carries about 34% of the people on the freeway in the morning and evening peak periods. At eight of the ten monitoring locations, HOV lanes moved more people than adjacent GP lanes.			In 2011, the HOV lanes carried more people than the adjacent GP lanes at one more location than 2010.	 48
HOV Lane travel times Average travel times and 95% reliable travel times are almost always faster in HOV lanes than in general purpose (GP) lanes. In 2011, average HOV lane travel times performed better than GP lane travel times on 40 of 46 routes and were unchanged on the remaining six routes. Forty-five HOV routes provide better reliability (95% reliable travel time) than their respective GP counterparts and one remained the same.			In 2011, 40 routes showed travel time benefit for HOV compared to adjacent GP lanes. Six of the routes remained at par.	 50
Ongoing tracking of performance for operational strategies				
Operate efficiently: Incident Response (IR) annual report Between 2009 and 2011, statewide average incident clearance time improved by 6%. The Incident Response program in 2011 has provided an annual economic benefit of \$72 million.			Average incident clearance time improved by 6%.	 69
Travel time analysis: January-June 2012 semi-annual report				
The trends described in the article result from a comparison of traffic conditions in the first six months of 2012 to those from the same time periods in 2010 and 2011. On non cross-lake routes, vehicle volume changes were noticeable, while travel time changes were modest. Cross-lake routes using SR 520 saw major reduction in vehicle volumes and improvement in average and reliable travel times. On the other hand, cross lake routes using I-90 saw vehicle volume increases up to 10% and reliable travel times changes were more mixed.			Travel time changes, for ten non cross-lake commute routes monitored, were modest between 2011 and 2012. Routes using SR 520 saw improved reliability, while I-90 saw mixed results.	 35

Travel Time Trends Semi-Annual Report

WSDOT tracks, compares Seattle-area travel time trends for the first halves of 2010, 2011 and 2012

This semi-annual travel time analysis provides up-to-date insights on traffic patterns in the Puget Sound area for the first six months of 2012 compared to first six months of 2011. Key findings include:

Non cross-lake routes (2012 vs. 2011):

- Noticeable changes were observed in peak period and daily volumes ranging 0.0 to -6 percent.
- Travel time changes were modest on seven out of ten non cross-lake routes.
- Federal Way to Seattle and Everett to Bellevue morning commutes saw more than two minute increases in average travel times.
- Extreme January weather had a significant impact on the six month average volumes.
- Excluding January data the five month average volume was higher by 2 to 4 percent in 2012 than in 2011.

Cross-lake (SR 520, I-90) routes (2012 vs. 2011):

- Significant changes were observed on commute routes involving SR 520 and I-90.
- SR 520 tolling resulted in traffic volume reductions ranging between 18 and 38 percent.
- As a result of SR 520 tolling, I-90 saw increases in traffic volumes up to 10 percent
- Routes using SR 520 saw up to a three minute improvement in average travel times, and up to nine minutes in reliable travel times.
- Routes using I-90 saw a one minute increase in average travel times while reliable travel times were more mixed, based on direction of travel and time of day.
- Extreme January weather had a significant impact on the average six month volumes.

This article focuses on a sample of 18 key commute routes in the Seattle area, and highlights the 2012 annual Congestion Report. Cross-lake routes are defined as those which include SR 520 and I-90 across Lake Washington.

SR 520 tolling causes significant traffic changes on cross-lake routes

The table on page 22 summarizes the travel time and vehicle volume changes that occurred for selected routes in the central Puget Sound region in the first six months of 2012, compared to the same period in 2010 and 2011.

Peak, daily volumes alter from first halves of 2011-12 on non cross-lake routes

Noticeable differences were observed in year-over-year volume changes when comparing routes that cross Lake Washington with those that do not. On the sampled routes that do not cross Lake Washington on SR 520 or on I-90, vehicle volumes during the first six months of 2012 were unchanged or somewhat lower during the morning and evening peak commuting periods, compared to the same days in 2011; changes on those routes ranged from 0.0 percent to -6 percent. Daily volumes showed similar patterns, with changes ranging from 0 percent to -3 percent. These changes in vehicle volumes on the non-lake routes are somewhat larger than the corresponding changes from 2010 to 2011, which ranged from 0.0 percent to -2 percent (peak period) and +1 percent to -3 percent (daily volumes). However, there is an important mitigating factor regarding the changes from 2011 to 2012, involving the effect of unusual weather events in January 2012 (see p. 23).

Cross-lake routes see significant volume changes in first half of 2012

By far the most significant changes in peak period and daily vehicle volumes were observed on the I-90 and SR 520 corridors across Lake Washington, where some traffic changes were

Travel Time Trends Highlights

Volume changes were noticeable in non cross-lake routes (0.0 percent to -6 percent).

Cross-lake routes saw significant volume changes (double digits) as expected due to SR 520 tolling.

Vehicle volumes on cross-lake routes using SR 520 saw reductions due to tolling ranging between 18 and 38 percent. While cross-lake routes using I-90 saw an increase in vehicle volume by no more than ten percent.

Extreme January winter weather contributed to the reduction in overall semi-annual vehicle volume on Puget Sound routes.

Travel time changes were modest on non cross-lake routes.

Cross-lake routes using SR 520 saw big improvements in average (up to three min.) and reliable (up to nine min.) travel times.

I-90 average travel times increased by one minute or less and reliable travel times were more mixed based on travel direction and time of day.

[www.wsdot.wa.gov/Tolling/SR 520/](http://www.wsdot.wa.gov/Tolling/SR520/)

Travel Time Trends Semi-Annual Report

Charting large peak period and daily volume changes on cross-lake routes

Travel time performance for Jan-June in 2010-2012 on a sample of 18 high demand commute routes

Morning (AM) peak is between 5 am and 10 am; Evening (PM) peak is between 2 pm and 8 pm; Length of route in miles; Travel times in minutes

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	30	30	34	0	4	4	-1%	-1%	-2%	-2%
I-5 Everett to Seattle (24)	SB	32	31	31	-1	0	-1	0%	0%	-3%	-1%
I-5/I-405 Everett to Bellevue (24)	SB	33	33	36	0	3	3	-1%	-3%	-1%	-3%
I-405 Tukwila to Bellevue (13)	NB	20	21	23	1	2	3	-1%	-4%	0%	-2%
SR 167 Auburn to Renton (10)	NB	13	13	14	0	1	1	-1%	-6%	1%	-3%
I-405/I-90/I-5 Bellevue to Seattle (10)	SB/WB/NB	12	12	13	0	1	1	1%	5%	1%	8%
I-405/SR 520/I-5 Bellevue to Seattle (10)	NB/WB/SB	14	13	12	-1	-1	-2	-4%	-31%	-5%	-31%
I-5/I-90/I-405 Seattle to Bellevue (11)	SB/EB/NB	12	13	13	1	0	1	0%	7%	0%	10%
I-5/SR 520/I-405 Seattle to Bellevue (10)	NB/EB/SB	15	14	11	-1	-3	-4	-4%	-27%	-5%	-37%
Evening commutes											
I-5 Seattle to Federal Way (22)	SB	26	26	27	0	1	1	-2%	0%	-3%	-1%
I-5 Seattle to Everett (23)	NB	30	29	30	-1	1	0	0%	-2%	-1%	-2%
I-405/I-5 Bellevue to Everett (23)	NB	30	30	30	0	0	0	-2%	0%	-2%	0%
I-405/I-5 Bellevue to Tukwila(13)	SB	23	24	23	1	-1	0	-1%	-2%	0%	-1%
SR 167 Renton to Auburn (10)	SB	13	13	13	0	0	0	0%	-3%	1%	-2%
I-405/I-90/I-5 Bellevue to Seattle (10)	SB/WB/NB	16	16	17	0	1	1	0%	2%	1%	8%
I-405/SR 520/I-5 Bellevue to Seattle (10)	NB/WB/SB	21	19	16	-2	-3	-5	-2%	-18%	-5%	-31%
I-5/I-90/I-405 Seattle to Bellevue (11)	SB/EB/NB	12	13	14	1	1	2	-2%	6%	0%	10%
I-5/SR 520/I-405 Seattle to Bellevue (10)	NB/EB/SB	14	14	13	0	-1	-1	-4%	-38%	-5%	-37%

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

Note: Travel time and volume data for weekdays only. 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. Travel time table values are based on six-month comparison (January – June 30 for 2010, 2011, 2012). A negative change in travel times indicates faster travel times. 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.

anticipated following the start of tolling operations on the SR 520 bridge. Overall, SR 520 vehicle volumes were down significantly in the first half of 2012 on a year-over-year basis, while I-90 volumes were up somewhat. This was the case for both peak period volumes and daily weekday volumes.

During the morning commute, SR 520 corridor vehicle volumes just east of the SR 520 bridge were down by 31 percent westbound, and 27 percent eastbound, on a year-over-year basis. During the evening commute, SR 520 volumes were down by 18 percent westbound, and 38 percent eastbound. There were volume increases on the (non-tolled) I-90 cross-lake route, with westbound volumes up by 5 percent during the morning peak period and up by 2

percent in the evening peak period, and eastbound volumes up by 7 percent in the morning and up by 6 percent in the evening. Daily volumes were similarly affected, with SR 520 volumes down by 31 percent (westbound) and 37 percent (eastbound), and I-90 volumes up by 8 percent (westbound) and 10 percent (eastbound). The cross-lake traffic volumes were also affected by the previously mentioned weather conditions in January 2012 (see p. 23).

Non cross-lake routes see modest travel time changes during the first half of 2012 vs. 2011

On most of the sampled routes, first half of 2012 travel times changed modestly during the morning and evening peak commuting periods, compared to the same days in 2011. Of the ten

SR 520 sees travel performance and reliability improvements

non cross-lake commute routes sampled for this analysis, seven routes showed little to no change in travel times during the past year. Of the other three routes, the largest year-over-year travel time change occurred on the Federal Way to Seattle morning peak period route. Travel times on this route increased by about four minutes from the first half of 2011 to the first half of 2012. In addition, the two morning trips on I-405 heading toward Bellevue both experienced slower travel times, year-over-year: Tukwila to Bellevue (northbound), experienced a two-minute increase in travel time, while Everett to Bellevue (southbound), experienced a three-minute increase.

Comparing cross-lake travel performance and reliability for the first halves of 2012 and 2011

The eight remaining trips use the I-90 and SR 520 bridges. Two of the trips between Bellevue and Seattle via the SR 520 bridge experienced a three-minute year-over-year improvement in travel times: the eastbound direction during the morning peak period, and westbound direction during the evening peak period. The other two SR 520 trips (westbound morning and eastbound evening) showed slightly faster travel times in the first half of 2012. On I-90, trips show slightly slower travel times thus far in 2012. The cross-lake trips have routes that start in downtown Bellevue and stop in downtown Seattle, or vice versa, and therefore include some segments of the I-5 and I-405 freeways. As a result, the travel times for the cross-lake routes include the effects of any congestion on those other freeway facilities.

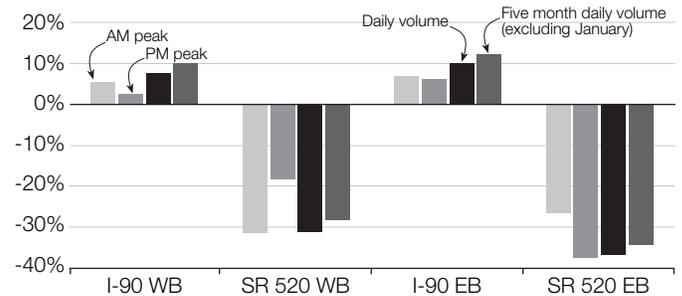
In addition to changes in average peak period travel times, the Lake Washington cross-lake routes experienced some change in travel reliability as well. One way to measure reliability is to observe changes in the day-to-day variability of travel times, using the reliable (90th percentile) travel time as an indicator. In the case of SR 520, the 90th percentile travel time was down by seven to nine minutes (morning peak), and two to five minutes (evening peak) from 2011 to 2012. In fact, for every combination of peak period and travel direction, travel times on SR 520 were lower for the 50th (median), 80th, 90th, and 95th percentiles, suggesting improved reliability of travel times on that route. On I-90 routes, the 90th percentile travel time changes were mixed, ranging from +4 to -2 minutes, depending on travel direction and time of day.

Other factors that influence travel trends

Employment: The first six months of 2012 saw employment levels grow in the region compared to the same period the year before. Average employment levels were up by 2.4 percent in King and Snohomish counties in the first half of 2012 compared to the same period in 2011, while in Pierce County employment was up

Percent change in cross-lake vehicle volume

First half of 2012 vs. first half of 2011



Data source: Washington State Transportation Center (TRAC).

by 2.6 percent. A review of longer-term trends helps to clarify the relative significance of these recent employment patterns. In 2007 and 2008, employment levels were still growing; however, this was followed by a year of region-wide declines in employment. Employment levels continued to drop across the region in 2010 though the percentage change was smaller than in the previous year. The past year saw the trend level off, with smaller changes than 2011 followed by upward movement in the first half of 2012.

Gasoline Prices: Another factor that influences travel demand is the price of gasoline. Statewide, the average gas price for the first half of 2012 was up about 7 percent compared to the first half of 2011, at \$3.93 per gallon. This represents the highest average gas price for the first half of a calendar year in the past eight years. During the first half of 2012, prices have fluctuated from \$3.48 per gallon in January 2012, to \$4.21 per gallon in May.

Extreme Weather: During January 2012 the Puget Sound area faced snow and freezing temperatures that affected traffic flow for nearly a week, from Jan. 15 through Jan. 20, 2012. The traffic levels during this period were low enough to have a noticeable effect on the overall average weekday vehicle volumes for the first half of 2012. In fact, if January is excluded from the data used to estimate the average vehicle volumes for the first half of 2012, the resulting values are 2 to 4 percent higher than the full six-month average (depending on location). This has a noticeable effect on the year-over-year changes from 2011 to 2012; peak period volumes based on five months of 2012 change by +2 percent to -4 percent, and the change in daily volumes varies from -1 percent to +2 percent. The magnitude of these revised changes is comparable to what was seen the previous year from 2010 to 2011, with 2012 volume changes slightly higher compared to those in the first half of 2011. This example shows how individual “outlier” events, such as unusual weather, can affect average vehicle volumes.

Incident Response Quarterly Update

Incident Response program provides about \$17 million in economic benefits

Incident Response Highlights

WSDOT's IR program saved travelers and businesses \$16.75 million in the second quarter of 2012.

In Q2 2012, statewide average incident and roadway clearance times were 11.6 and 17.4 minutes, respectively.

In Q2 2012, average clearance times for the 61 GMAP over-90-minute incidents was 143 minutes, meeting the 155 minute goal.

WSDOT's Incident Response (IR) program responded to 11,292 incidents in the second quarter of 2012, saving travelers and businesses in Washington about \$9.25 million by reducing the time and gas they would have wasted in travel delay due to congestion (see table on page 25). In addition, IR teams provided an estimated \$7.5 million (see gray box on page 26) in quarterly benefits from 2,258 avoided secondary crashes due to the team's safe quick clearance of primary incidents. The total second quarter benefits from the WSDOT IR program is \$16.75 million. The IR program estimated quarterly benefit to cost ratio is about 15:1.

The IR program's mission is the safe, quick clearance of traffic incidents to minimize congestion, restore traffic flow, and reduce the risk of secondary collisions. Incident Response teams are trained and equipped to provide emergency response and assistance to motorists and the Washington State Patrol (WSP) at collisions and other traffic emergencies. In addition to providing emergency response for blocking and life safety incidents, IR teams report on abandoned vehicles and offer a variety of motorist assistance services such as changing flat tires and providing a jump start or a gallon of gas. These services keep roadways and shoulders clear, traffic moving, and reduce the risk of collisions caused by distracted driving.

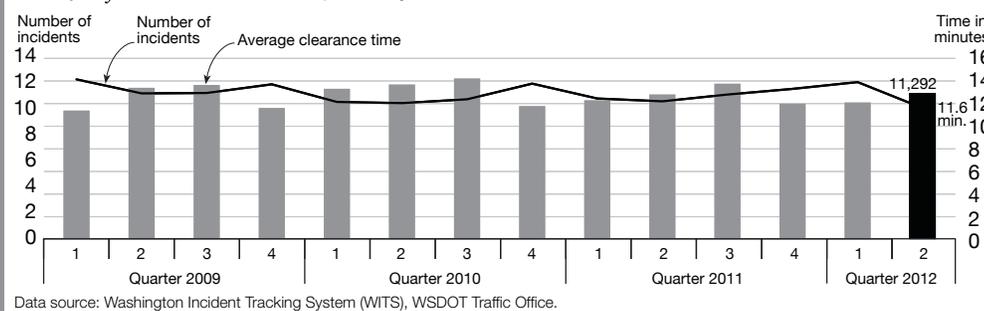
WSDOT teams respond to 11,292 incidents in second quarter of 2012

WSDOT IR teams responded to 11,292 incidents statewide (preliminary data as of July 13, 2012) during the second quarter (Q2) of 2012, with an average incident clearance time of 11.6 minutes. This is two minutes less than the average clearance time during Q1. Severe winter weather conditions in January contributed to extended clearance times and more

than usual over-90-minute incidents during Q1. The second quarters of 2011, 2010, and 2009 experienced 11,204, 11,974, and 11,721 incidents, respectively, with average statewide incident clearance times of 12.2, 12.0, and 12.9 minutes. In Q1 2012, IR teams responded to 10,588 statewide incidents with an average clearance time of 13.3 minutes.

Statewide IR responses and average overall clearance time

January 1, 2009 – June 30, 2012; Number of incidents in thousands; Clearance time in minutes



Defining Incident Response performance measures

Performance measures	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 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 at which the last responder has left the scene.	Time in minutes
Secondary incidents ¹	These incidents are identified as 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 the opposite direction, resulting from the original incident.	Number of incidents

Data source: FHWA Traffic Incident Management Handbook.

Notes: 1 Number of secondary incidents avoided as a result of the IR team's presence is a nationally recommended performance measure. Neither WSDOT nor the State Patrol collect this data at this time. WSDOT is estimating secondary incidents and associated benefits – see gray box on page 26.

Incident Response helps clear collisions to save travelers time and money

Blocking and non-blocking average clearance times by incident duration

April 1 – June 30, 2012; Time in minutes; Cost and economic benefits in dollars

Incident type	Number of incidents	Average IR response time	Average roadway clearance time	Average incident clearance time	Incident-induced delay costs	Economic benefits from the IR program
Incident duration less than 15 minutes						
Blocking	1,322	2.5	5.0	6.8	\$3,089,820	\$772,455
Non-blocking	7,487	0.7	–	5.2	\$9438,652	\$2,359,663
<15 Total	8,809	1.0	5.0	5.4	\$12,528,472	\$3,132,118
Incident duration ranging between 15 and 90 minutes						
Blocking	917	10.7	25.4	32.9	\$10,397,610	\$2,599,403
Non-blocking	1,481	6.7	–	26.5	\$9,590,420	\$2,397,605
>=15-<90 Total	2,398	8.3	25.4	29.0	\$19,988,030	\$4,997,008
Incident duration greater than 90 minutes						
Blocking	69	20.6	147.1	166.0	\$3,952,320	\$988,080
Non-blocking	16	17.6	–	137.6	\$537,044	\$134,261
>=90 Total	85	20.0	147.1	160.7	\$4,489,364	\$1,122,341
Grand Total	11,292	2.6	17.4	11.6	\$37,005,866	\$9,251,467

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

Note: The total number of incidents statewide is 11,292. Of these, 494 incidents are “unable to locate” (UTL) incidents: IR personnel were en route to respond, but the incident cleared before the team reached it. The average times in the table above do not include UTL incidents.

WSDOT clearing roads of blocking and non-blocking incidents in about 11 minutes

Of all incidents statewide between April 1 and June 30, 2012, 20.4 percent (2,308 incidents) blocked traffic, while 79.6 percent (8,984 incidents) were non-blocking. The average statewide clearance time for blocking and non-blocking incidents was 21.9 minutes and 8.9 minutes respectively.

An incident is defined as blocking when at least one of the travel lanes is closed, while a non-blocking incident is usually on the shoulder leaving all the travel lanes open.

Incident induced delay costs rose in winter months

The cost of delay was about \$12.5 million for incidents lasting less than 15 minutes; \$20 million for incidents lasting 15-90 minutes, and \$4.5 million for over-90-minute incidents. The cost of incident-induced delay for incidents lasting over 90 minutes has shrunk by more than 50 percent from the last quarter’s \$9.2 million due to the severe winter weather. The number of

over-90-minute incidents decreased by 68 incidents in Q2 2012 compared to the previous quarter.

During Q2 2012, the cost of delay for the 2,308 blocking incidents at \$345 per minute of lane closure was about \$17.4 million, while the cost of 8,984 non-blocking incidents, at \$244 per minute of incident, is \$19.6 million.

Statewide roadway clearance time improved by 27 percent

The table above shows the statewide average response and clearance times by incident duration. For Q2 2012, the statewide average response time was 2.6 minutes while the statewide average roadway clearance time was 17.4 minutes and statewide incident clearance time was 11.6 minutes. The Q2 2012 roadway clearance time was 27 percent less than the previous quarters 23.7 minutes average roadway clearance time. This was mainly due to the severe winter storm experienced during January 2012 that led to a greater number of over-90-minute incidents and longer than usual clearance times.

Extraordinary incidents on nine key Western Washington routes (six hours or more)

April 1 – June 30, 2012; Duration in minutes

Date & time	State route & location	Duration	City	Incident Summary
May 31, 2012 4:47 AM	I-5 SB at 272nd	497	Federal Way	Non-injury collision/Rollover - Semi rolled over knocking down guard rail and landing on a light pole, 53-foot trailer had cans of soda that had to be off-loaded by hand before the trailer could be righted to reopen the roadway

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

Notes: Extraordinary incidents take hours to clear due to unique circumstances. WSDOT had three such incidents in Q1 2012 (*Gray Notebook* 45, p. 25).

Incident Response Quarterly Update

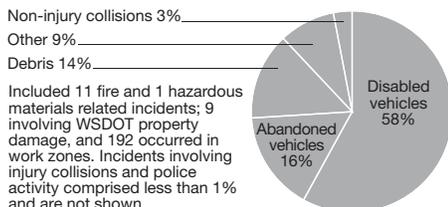
GMAP over-90-minute incidents: Helping drivers avoid “secondary crashes” reaps economic benefits

Number and percentage of responses by duration: Total of 11,292 IR incidents statewide

April 1 – June 30, 2012

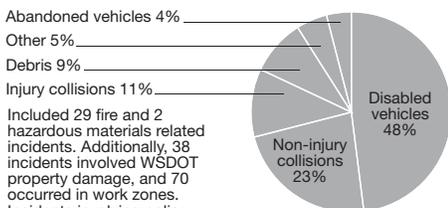
Incidents lasting less than 15 minutes (8,809)

Estimated cost for incidents less than 15 minutes: about \$12.5 million



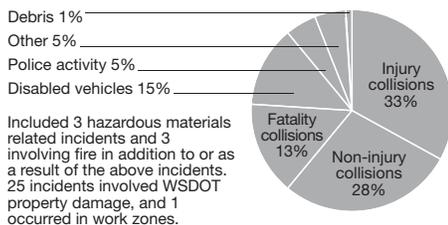
Incidents lasting 15 to 90 minutes (2,398)

Estimated cost for incidents lasting 15 to 90 minutes: about \$20 million



Incidents lasting 90 minutes and longer (85)

Estimated cost for incidents lasting 90 minutes and longer: about \$4.5 million



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

WSP and WSDOT work to reduce the duration of over-90-minute incidents

WSDOT and WSP have a formal agreement in the Joint Operations Policy Statement (JOPS) to clear blocking traffic incidents in 90 minutes or less, if possible. Incidents with complicating factors may require more time to clear. Through her Government Management Accountability and Performance (GMAP) program, Governor Gregoire has charged the agencies with lowering the average duration of these over-90-minute incidents on nine key highway corridors in the state.

In GMAP corridors, there were 61 over-90-minute incidents in Q2 2012, with an average clearance time of 143 minutes. This is 12 minutes faster than the 155-minute goal and 20 minutes faster than last quarter (163 minutes).

Extraordinary incidents lasting more than six hours

The table on page 25 shows an extraordinary incident this quarter that lasted more than six hours. Excluding this extraordinary incident, the average over-90-minute incident clearance time in the GMAP area was 137 minutes.

Estimated quarterly IR benefits from avoiding “secondary crashes”

Secondary crashes are identified as the number of unplanned incidents beginning with the time of detection of the primary incident where a collision occurs either a) within the incident scene or b) within the queue, including the opposite direction, resulting from the original incident.

Based on national case studies identified by FHWA, WSDOT estimates that the IR program provided \$7.5 million in economic benefits from avoided secondary crashes alone, during the second quarter of 2012.

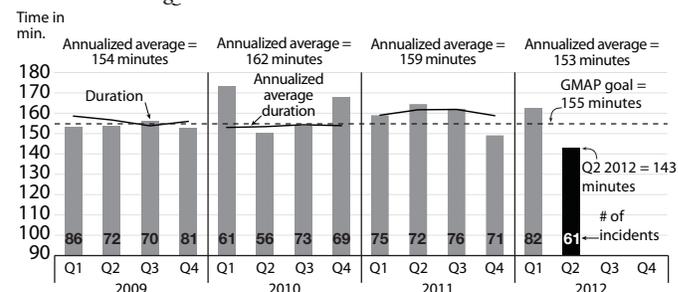
Methodology

FHWA acknowledges that on average there are 20 percent or more secondary crashes occurring on the system due to the primary incidents. WSDOT Incident Response research phase 3 conducted by Washington State Transportation Center (TRAC) at the University Washington found on average it costs \$286 per minute of crash scene duration. The complete research report can be found on WSDOT website at www.wsdot.wa.gov/Research/Reports/700/761.1.htm.

Based on these two findings, the quarterly estimate of economic benefits from avoiding secondary crashes due to the proactive work of Incident Response teams is: (estimated secondary crashes)*(average incident duration in minutes)*(cost per minute of crash scene duration) = (11,292 * 0.2) * 11.6 * \$286 = \$7.5 million.

Progress in reducing average clearance times for over-90-minute incidents on nine key western Washington highway segments

January 1, 2009 – June 30, 2012; Number of responses per quarter vs. annualized average duration in minutes



Data source: Washington State Patrol and WSDOT Traffic Office.

Note: The nine GMAP corridors are I-5 from the Oregon border to the Canadian border, I-205, I-405, I-90 from Seattle to North Bend, SR 16 from Tacoma to Purdy, SR 18 from Federal Way to I-90, SR 167, SR 512, and SR 520.

Washington State Ferries Quarterly Update

Farebox revenue and ridership are on track

Washington State Ferries (WSF) exceeded its 95 percent on-time performance goal with 95.5 percent of trips on time in the fourth quarter, 2012. In the fourth quarter of 2012, ridership was 5.7 million, just above projections, and farebox revenue was \$42 million, 3.7 percent above quarterly projections.

WSF strategies to address ridership and revenue challenges

Washington State Ferries serves as a critical link to communities separated by water or longer driving distances, and is essential to moving goods and people in the Puget Sound region. It is the largest operating auto-ferry fleet in the world, carrying 10 million vehicles and 22.5 million ferry passengers each year.

Washington State Ferries faces a number of challenges maintaining ridership at or near projections. Demographics and work patterns in the Puget Sound region have shifted in the last several years. For example, the 65-and-older population of Island County has grown at a faster rate than the total population; people in this age group tend to have more discretion in their travel choices and are less likely to be daily commuters. Higher than average unemployment rates due to the nationwide recession also contribute to the decline in the number of daily ferry commuters. Other ridership challenges WSF faces include competition from other travel options, and fare increases. Strategies implemented by WSF to maintain ridership include:

- A reservation system to spread demand to off-peak times making ferry travel more predictable.
- New vessels allow for improved capacity and service reliability on the Port Townsend - Coupeville route.
- A new fare structure as of October 2011 that adds a “small” car category and allows for more capacity within the current fleet and existing service schedule.

Ridership and revenue above projections

Ridership for the fourth quarter of fiscal 2012 was 5.7 million. This is about 0.2 percent higher (or about 10,000 more riders) than projected for the quarter. Compared to the same quarter one year ago, WSF ridership increased by 0.1 percent, with about 7,000 more riders in the fourth quarter of FY2012 than in the fourth quarter of FY2011. Overall WSF carried about 4,000 more riders in FY2012 than in FY2011.

Farebox revenue was \$42 million for the fourth quarter, 2012. This is 3.7 percent higher (\$1.5 million more) than projected. The higher than projected farebox revenue was largely due to a three percent fare increase effective in May 2012, which had not yet been approved by the legislature when the revenue forecasts were developed in June of 2011.

Compared to the same quarter last year, farebox revenue was about \$2.9 million higher in the fourth quarter of FY2012, a 7.3 percent increase. Overall Washington State Ferries had a \$7.6 million (5.2 percent) increase in revenue for fiscal 2012 compared to fiscal 2011.

Washington State Ferries Highlights

Ridership was 0.2 percent higher than forecasted for the quarter, with 5.7 million riders.

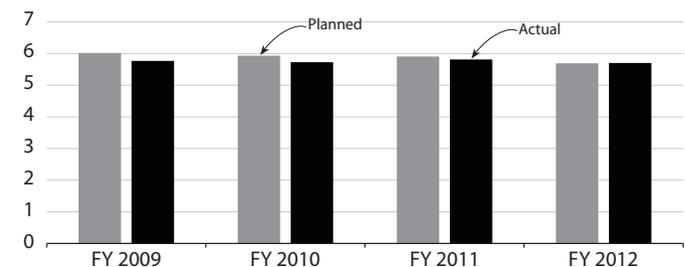
Farebox revenue was \$42 million, 3.7 percent higher than projected for the quarter.

On-time performance was 95.5 percent and the average sailing delay was 2.2 minutes for the quarter, matching the same quarter in FY2011.

WSF planned and actual ridership by fiscal year

Fourth quarter (April 1 - June 30), FY2009 - FY2012

Ridership in millions

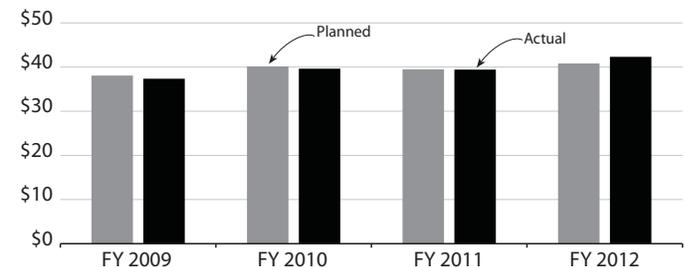


Data source: WSDOT Ferries Division.

WSF planned and actual farebox revenue by fiscal year

Fourth quarter (April 1 - June 30), FY2009 - FY2012

Dollars in millions



Data source: WSDOT Ferries Division.

Washington State Ferries Quarterly Update

Service reliability declines in the fourth quarter of fiscal 2012

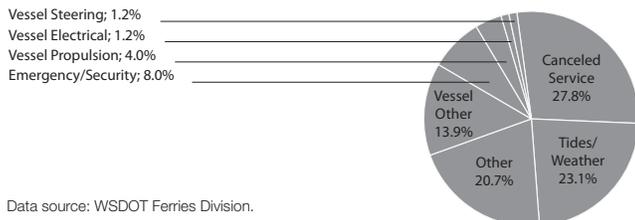
WSF's missed trips and cancellations increase compared to the same quarter in FY2011

Washington State Ferries missed 169 net trips in the fourth quarter of FY2012. This was 84 more net missed trips than in the fourth quarter of FY2011. Net missed trips are the number of trips canceled that were not replaced. In the fourth quarter of FY2012, 40,757 regular service trips were scheduled. Of those, 324 were canceled and 155 were replaced, resulting in 169 net missed trips and 40,588 total trips for the quarter. (40,757 scheduled – 324 canceled + 155 replacement trips = 40,588 net trips). This net trips figure represents 99.6% of total scheduled trips, exceeding Washington State Ferries trip reliability goal of 99 percent.

Washington State Ferries trips may be canceled for a variety of reasons, including tide, weather conditions, mechanical problems, and cancellations when a ferry is diverted for

Reasons for missed trips

Fourth quarter (April 1 - June 30), FY2012



Data source: WSDOT Ferries Division.

Note: 67 canceled trips classified as "Other" did not fit the established cancellation categories. A Schedule Reset due to the need for emergency repairs on the MV Sealth accounted for 49 cancellations. Crewing issues accounted for an additional 16, and delays in service, the final four cancellations.

emergency transport. Trips are also missed when vessels fall too far behind schedule to make all the trips for that day.

There were 185 more cancellations in the fourth quarter of FY2012 than in the same quarter of 2011. The increase included 90 canceled trips on the Fauntleroy - Vashon Island - Southworth route. Service was reduced from a three boat to a two boat schedule on this route when the MV Klahowya had emergent maintenance needs and a service reduction was required to perform maintenance work on the vessel. The same route experienced an additional 49 cancellations cataloged as "other" when the MV Sealth was removed from service for emergency repairs. Twenty six cancellations occurred in the quarter because WSF assisted emergency personnel responding to medical emergencies.

Ferries' on-time performance declines slightly compared to previous quarter

The percentage of sailings system-wide that departed on time decreased by 2.6 percent compared to the previous quarter. In the fourth quarter of FY2012, 95.5 percent of trips were on time compared to 98.1 percent in the third quarter of FY2012. Washington State Ferries on-time performance goal is 95 percent.

On-time performance defined

A trip is delayed when a vessel does not leave the terminal within 10 minutes of the scheduled departure time. The quarterly average delay is the average delay past 10 minutes of the scheduled departure. Automated tracking systems record when a vessel leaves the ferry terminal.

Washington State Ferries missed trip reliability comparison

Fourth quarters of FY2011 and FY2012

Route	Fourth quarter, FY2011			Fourth quarter, FY2012		
	Scheduled trips	Missed trips ¹	Reliability average ²	Scheduled trips	Missed trips ¹	Reliability average ²
San Juan Domestic	6,705	14	99.8%	6,739	0	100.0%
International Route	206	0	100.0%	210	0	100.0%
Edmonds - Kingston	4242	24	99.4%	4242	0	100.0%
Fauntleroy - Vashon - Southworth	10295	13	99.9%	10312	66	99.4%
Keystone - Port Townsend	1820	30	98.4%	2310	44	98.1%
Mukilteo - Clinton	6632	0	100.0%	6648	6	99.9%
Pt. Defiance - Tahlequah	3458	4	99.9%	3458	45	98.7%
Seattle - Bainbridge Island	4121	0	100.0%	4121	0	100.0%
Seattle - Bremerton	2717	0	100.0%	2717	8	99.7%
Total	40,196	85	99.8%	40,757	169	99.6%

Data source: WSDOT Ferries Division.

Note: 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.

Busy seasons, high demand can sink WSF's on-time performance average

Washington State Ferries on-time performance comparison

Fourth quarters of FY2011 and FY2012

Route	Fourth quarter, FY2011			Fourth quarter, FY2012		
	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	6,075	91.9%	2.9	5,686	85.6%	4.3
International Route	190	92.7%	2.9	180	86.1%	4.2
Edmonds - Kingston	4,152	98.7%	1.7	4,215	99.4%	1.4
Fauntleroy - Vashon - Southworth	10,021	97.8%	2.1	9,657	95.3%	2.7
Port Townsend - Coupeville	1,278	77.7%	6.8	2,117	94.8%	2.6
Mukilteo - Clinton	6,586	99.4%	1.6	6,576	99.0%	1.1
Pt. Defiance - Tahlequah	3,368	97.9%	2.5	3,302	99.4%	1.3
Seattle - Bainbridge Island	3,954	96.1%	1.7	4,021	97.9%	1.2
Seattle - Bremerton	2,661	98.0%	1.8	2,681	99.1%	1.7
Total	38,285	96.2%	2.2	38,435	95.5%	2.2

Data source: WSDOT Ferries Division.

Note: 1 About one percent of trips are not detected by the automated tracking system due to marine and atmospheric conditions which prevent a trip from being detected 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.

There is a seasonal drop in on-time performance in the spring and summer seasons when terminal and vessel capacities are reached. The additional loading and unloading of vehicles limits the ability to stay on schedule when delays occur.

On-time performance compared to the same quarter in FY2011 declined by 0.7 percent. The average sailing delay remained the same with an average 2.2 minutes of delay for the fourth quarter of FY2012 and the fourth quarter of FY2011.

Only three routes showed measurable declines in on-time performance between the fourth quarters of FY2012 and FY2011: San Juan International (seven percent decline), San Juan domestic (six percent decline), and Fauntleroy – Vashon – Southworth (three percent decline). The Port Townsend – Coupeville route showed the largest increase in on-time performance (17 percent) as compared to the fourth quarter of FY2011.

On-time performance stabilizes above 95 percent

On-time performance has stabilized at higher levels over the past year, with fiscal 2012 ending at 96 percent on-time performance, compared to 91 percent for fiscal 2011. The restoration of two boat service on the Port Townsend – Coupeville route, service schedule changes on the Edmonds – Kingston and Point Defiance – Tahlequah routes, and clarification of a two minute cut-off time for vessel loading on the Seattle – Bainbridge route have improved on-time performance.

Customer compliment

"I wanted to say thank you for all your assistance with organizing my truck/trailer reservation for March 29th, on the WA Ferry from Sidney, BC to Anacortes, WA. On the day I made my reservations through you ... your timely call back to advise me of the confirmation and special fare details went above and beyond all my expectations... I want to commend you for your attention to service. You represent the kind of dedicated employee DOTWA needs... I am very grateful for all your help."



Washington State Ferries welcomed the new ferry Kennewick on the Keystone – Port Townsend route in early 2012.

Washington State Ferries Quarterly Update

WSDOT introduces additional WSF performance measures in 2012

New WSF performance measures to be published in November 2012 *Gray Notebook*

In January 2012, the Office of Financial Management (OFM) and WSDOT presented a baseline report to the Joint Transportation Committee (JTC) of the legislature, establishing 17 performance measures for the Washington State Ferry system. These measures were developed to fulfill legislative requirements passed into law during the 2011 session. The January presentation to the JTC can be accessed at http://www.leg.wa.gov/JTC/Meetings/Documents/Agendas/2012%20Agendas/JTC_010412/ferriesperformance.pdf

Several of these measures are the same as already reported in the *Gray Notebook*, like the on-time performance and service reliability and customer feedback compared to historical data. OFM and WSDOT also presented performance targets for the 17 measures to the Joint Transportation Committee, and the first annual report will be delivered to the Legislature in December 2012.

In October 2012, WSDOT will present information based on OFM's report at the Government Management, Accountability and Performance (GMAP) Forum. WSF's performance for the new and existing measures will be published in the November 2012 *Gray Notebook*.

A closer look at the new WSF performance measures

The performance measures established by the Legislature are grouped into four subject areas, and will complement WSDOT's existing ferry measures. These four subject areas are safety performance, service effectiveness, cost containment, and maintenance and capital program effectiveness. Some of the performance measures are:

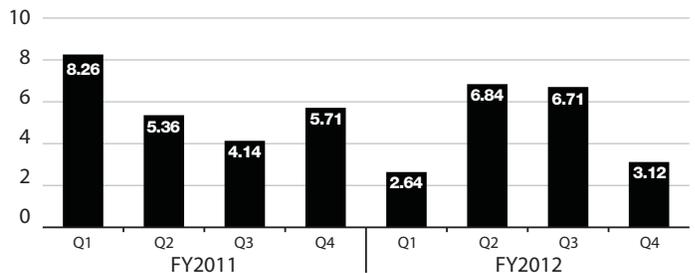
- Passenger injuries per one million passenger miles,
- Occupational Safety and Health Administration (OSHA) recordable crew injuries per 10,000 revenue service hours,
- Passenger satisfaction of interactions with ferry employees,
- Cleanliness and comfort of vessels and terminals,
- Satisfactory response to requests for assistance,
- Operating cost per passenger mile,
- Operating cost per revenue service mile,
- Discretionary overtime as a percentage of straight time,
- Gallons of fuel consumed per revenue service mile,
- Project delivery rate as measured by the number of projects completed on time and within budget,
- Vessel and terminal design and engineering costs as measured by a percentage of the total capital program, and
- Total vessel out-of-service time.

Customer complaints decrease compared to the previous quarter

Customer complaints dropped 53 percent in the fourth quarter of FY 2012 compared to the previous quarter, from 6.7 to 3.1 per 100,000 customers (see the graph on the right, this page). The largest drop was for complaints about employee behavior, with 17 fewer than in the previous quarter (45 compared to 62). The largest increase in complaints was about reservations with four more than the previous quarter (13 compared to nine). WSF also received 23 compliments and ten suggestions during the fourth quarter of FY2012.

Average number of complaints per 100,000 customers

By fiscal quarter, July 1, 2011 - June 30, 2012



Data source: WSDOT Ferries Division.

Rail: Amtrak Cascades Quarterly Update

Amtrak Cascades ticket revenue trend continues upward

Amtrak Cascades rode successful rails in the second quarter of 2012, where it saw upswings in ticket revenues of 1.8 percent to \$5.9 million, compared to the same quarter in 2011. This revenue growth is driven mainly by an effective ticket pricing strategy and the addition of a second train to Vancouver, B.C.

Second fare hike in 2012 not expected to deter riders from taking Amtrak Cascades trains

Passengers saw a six percent overall hike in fares this year, with the out-of-pocket cost about \$1 to \$2 more per ticket. The increase is not anticipated to have a major impact on ridership. Amtrak implemented the first three percent increase on March 6, and a second three percent increase went into effect June 12, 2012.

Rather than increasing ticket prices across the board, Amtrak Cascades used a “stretch increase” which did not impact the lowest-priced seats on its trains. The strategy was designed to capture additional revenues through higher fares, while limiting the potential loss in riders.

As a result, mid-priced seats increased by two percent, while the highest-priced seats increased by five percent, for an average three percent increase across all ticket prices.

Federal grant backs innovative state rail plan

A \$400,000 Federal Railroad Administration grant will help WSDOT develop an integrated state rail plan, consistent with federal requirements. WSDOT obtained federal approval for its work plan this spring, and started work in May 2012. The rail plan will serve as a strategic blueprint for future public investment in the state’s freight and passenger rail network. This plan is needed to:

- Prepare for the federal requirement that WSDOT and the Oregon Department of Transportation assume complete funding for operations and maintenance of the entire Amtrak Cascades service, effective October 2013.
- Refresh forecasts and update data to comply with federal and state statutes, regulations and planning guidance.
- Combine freight and passenger rail plans to provide a single comprehensive, policy level planning document that integrates intercity passenger rail, freight rail and commuter rail.
- Guide implementation of the recent agreement between Washington and Oregon to manage the Pacific Northwest Rail Corridor as one continuous corridor.
- Serve as a reference for other states and contribute to the National Rail Plan.

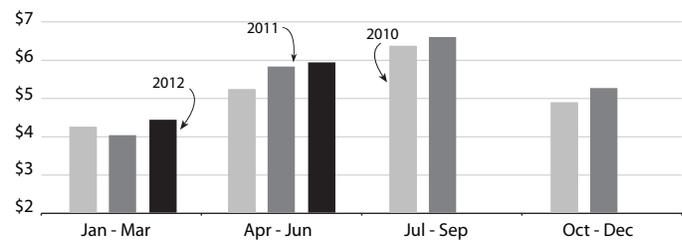
Amtrak Cascades Program Highlights

Ticket revenues increased 1.8 percent to \$5.9 million in the second quarter of 2012 compared to the same quarter in 2011.

More than 72 percent of Amtrak Cascades trains were on time in the second quarter of 2012.

State-supported Amtrak Cascades ticket revenues by quarter

2010 - 2012; Dollars in millions



Data source: Amtrak and WSDOT State Rail Office.

Note: Ticket revenue for Washington-funded trains only.



Amtrak Cascades got on board supporting the King Tut exhibit in Seattle, promoting rail travel to the event.

Rail: Amtrak Cascades

Quarterly Update

Amtrak Cascades trains getting to the station on time

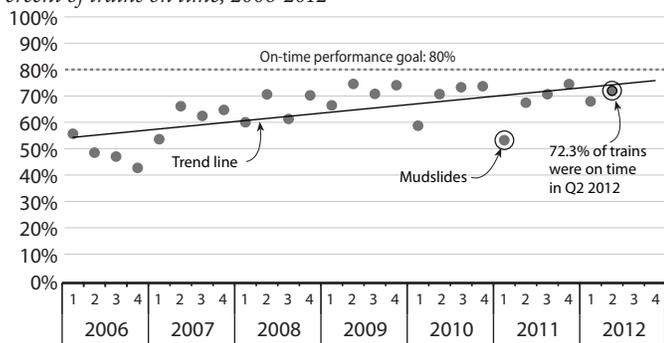
Second quarter on-time performance improves

On-time performance for state-supported Amtrak Cascades trains was 72.3 percent for the second quarter; marking a 4.5 percent increase compared to the same quarter in 2011, and a 1.3 percent boost over the second quarter of 2010. The goal for on-time performance is 80 percent.

On-time performance is affected by a number of natural and operational conditions that vary daily. WSDOT examines these issues with Amtrak and the host railroad, BNSF Railway, to determine the causes of delay. Contributing factors include freight train and passenger train service disruptions caused by limited track capacity, signal issues, and mechanical failures.

Amtrak Cascades on-time performance

Percent of trains on time, 2006-2012



Data source: Amtrak and WSDOT State Rail Office.

Notes: On-time performance for Washington-funded trains only. A basic indicator of on-time performance, "percent of trains on time," is calculated by dividing the number of trains that arrive at their endpoint on time by the total number of trains operated during a specific period. Amtrak's daily "percent on time" reports incorporate the former Interstate Commerce Commission's (ICC's) tolerance for lateness in the calculations. These ICC allowances consider trains 10 to 30 minutes late as on time, depending on the route length. The tolerance time is 10 minutes for Seattle-Portland trains and 15 minutes for Portland-Vancouver, B.C. trains.

First quarter ridership up 9.9 percent in 2012

Ridership on Amtrak Cascades remained steady during the first part of 2012. The total number of riders on the state-supported train service was up 9.9 percent to more than 124,000 people in the first quarter of 2012, compared to the first quarter of 2011. Second quarter ridership for 2012 marked a four percent decline with approximately 154,000 riders when compared to the second quarter of 2011.

Partnering for passenger rail service

Washington is one of 13 states to provide operating funds to Amtrak for intercity passenger rail service. Amtrak Cascades train operations span 466 miles of rail between Eugene, Oregon, and Vancouver, B.C.

Amtrak Cascades service is jointly funded by the states of Washington and Oregon, and Amtrak. Washington State funds two round trips between Seattle and Portland, one round trip between Portland and Vancouver, B.C., and one round trip between Seattle and Vancouver, B.C.; Oregon funds two round trips between Eugene and Portland, and Amtrak funds one round trip between Portland and Seattle.

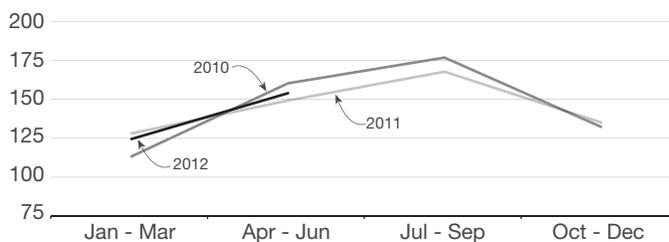
Washington and Oregon are creating a new partnership and will develop a plan for managing passenger rail service between Eugene, OR, and Vancouver, B.C. as one continuous rail corridor rather than two separate state operations. Transportation officials for each state signed an agreement in April 2012 as another step toward offering faster, more frequent Amtrak Cascades service.

The states will work in partnership to develop a Pacific Northwest Rail Corridor management plan. This plan will guide development of the corridor and position both states for the best opportunities for funding and contract performance.

Amtrak Cascades quarterly ridership

Number of passengers per quarter, 2010 - 2012

Riders in thousands



Data source: Amtrak and WSDOT State Rail and Marine Office.

Note: Ridership for Washington-funded trains only.



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Earlier Environment-related articles

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Water Quality Annual Report	GNB 45
Noise Quality Annual Report	GNB 44
Endangered Species Act	
Compliance Annual Report	GNB 43

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

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

Programmatic Permits Annual Report

Programmatic permits save agency resources

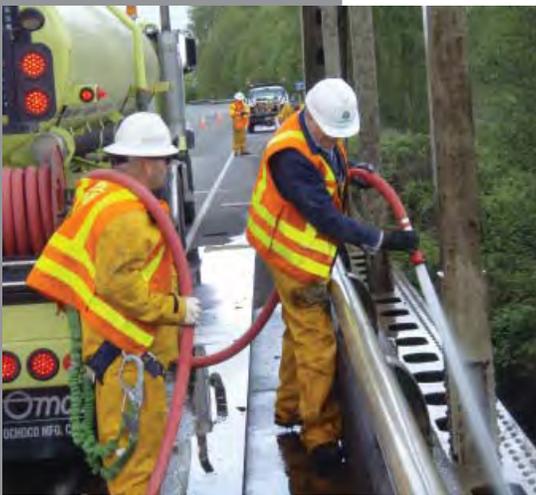
Programmatic Permits Highlights

WSDOT holds four programmatic permits from Department of Ecology and nine from Washington Department of Fish and Wildlife.

The Department of Ecology reissued one permit in 2011.

WSDOT estimates programmatic permits saved the agency up to 5,250 hours (656 eight-hour work days) in staff time in 2011.

More than 100 programmatic agreements are negotiated between WSDOT and consulting parties to minimize project impacts on cultural resources.



Programmatic permits save time in the maintenance of over-water structures, like the one pictured above on the SR 12 Satsop River Bridge.

WSDOT estimates programmatic permits saved about 5,250 hours of WSDOT staff time in 2011. WSDOT develops these programmatic permits with the state's water resource regulatory agencies, Washington State Department of Ecology (Ecology) and Washington State Department of Fish and Wildlife (WDFW), to help simplify and expedite regulatory processes. These permits cover routine environmental activities that present minimal risk in the construction and maintenance of state transportation facilities.

Fish and Wildlife permits save 4,476 hours of WSDOT staff time

In 2011 WDFW programmatic permits covered 1,119 separate activities, saving WSDOT an estimated 4,476 staff hours that would have been spent completing the required permit applications. The real savings to WSDOT lies in the ability to perform maintenance and construction projects when needed, without a long lag time between the planning and the project phases. Programmatic permits allow maintenance projects to be performed expeditiously, without having to wait up to 45 days to receive a permit from WDFW. Staff hours saved are calculated as four hours per individual Hydraulic Permit Approval. Most of the permits with WDFW are individual Joint Aquatic Resource Permit Applications for specific in-water activities. The table on the following page shows the types of activities permitted. Notification requirements are typically reduced for programmatic permits because the work is routine in nature and has minimal impact on the environment. Notification prior to starting work ranges from no notification to three days for WDFW programmatic permits. WSDOT takes the step to notify WDFW of where maintenance will occur on an annual basis.

Department of Ecology permits save 760 hours of WSDOT staff time

Programmatic permits issued by Ecology cover activities such as washing and painting bridge structures, aquatic herbicide applications, and mosquito control. Again, an Ecology programmatic permit helps WSDOT better utilize resources. For example, seeking coverage for each separate aquatic plant or mosquito control activity could take up to 100 WSDOT staff hours without programmatic permits. WSDOT's "washing and painting bridges and ferry terminals" permit issued by Ecology saved an estimated 760 hours of staff time in 2011. The permit covers washing or painting ferry terminals and metal bridge structures. Staff hours saved are calculated as 40 hours per National Pollutant Discharge Elimination System permit. The notification period for the activities covered under the Ecology permit ranges from no notification to 10 days. Obtaining individual permits to perform these activities could take 45 days to six months (or longer) depending on the specific permit.

Programmatic permits improve efficiency by reducing the number of staff hours otherwise spent processing individual permits. They also provide standards that WSDOT can design its projects to meet. The two tables on the following page display the activities covered by active programmatic permits issued to WSDOT by the Department of Ecology and by WDFW.

Programmatic Permits Annual Report

Inventory of programmatic permits issued by state agencies

Programmatic permits issued by Washington State Department of Ecology

Activity covered	Description and guidance	Effective ¹	Expires	Number of activities using permit				
				2007	2008	2009	2010	2011
Washing and painting bridges and ferry terminals	Covers the following activities: Bridge washing and painting Ferry terminal washing and painting Spot cleaning for inspection	1/12/2010	1/12/2015	21	6	11	24	19
Aquatic mosquito control	Allows application of pesticide to control mosquito species in WSDOT's right of way	6/18/2010	6/18/2015	16	103	92	49	13
Aquatic plant and algae management general permit	Allows the application of herbicide to control non-noxious invasive plant species within WSDOT's right of way	3/18/2011	3/18/2016	2	1	0	0	0
Noxious aquatic plant control	Allows the application of herbicides to control noxious invasive plant species within WSDOT's right of way	1/16/2008	2/16/2013	0	1	4	4	11
Total				39	111	107	77	43

Data source: WSDOT Environmental Services Office.

Note: 1 Effective dates represent the most recent permit re-issue date, and not the original permit issue date.

Programmatic permits issued by Washington State Department of Fish and Wildlife

Activity covered	Description and guidance	Effective ¹	Expires	Number of activities using permit				
				2007	2008	2009	2010	2011
Channelized stream maintenance	Allows sediment removal to pre-existing conditions	6/02/2009	6/01/2014	31	25	12	42	27
Fishway structures in fresh waters statewide	Allows removal of sediments and other debris from fishways as well as minor structural repair	6/02/2009	6/01/2014	1	2	9	3	6
Statewide culvert maintenance in freshwater ²	Allows structural repair and sediment removal	6/02/2009	6/01/2014	54	39	94	120	377
Debris removal from WSDOT bridge structures	Allows the removal and relocation of non-embedded large woody debris and material from WSDOT bridges	6/02/2009	6/01/2014	50	13	17	18	26
Statewide bridge and ferry terminal maintenance ³	Covers bridge and ferry terminal maintenance and repair on over-water structures	6/02/2009	1/21/2013	1089	547	816	769	538
Beaver dam removal	Allows the removal of beaver dams within WSDOT's right of way	6/02/2009	5/01/2013	56	53	63	133	138
Freshwater sediment test boring	Covers freshwater sediment test boring activities	6/09/2009	6/09/2013	12	3	5	0	2
Marine sediment test boring	Allows test boring and sediment sampling for WSDOT projects in all state marine waters	2/13/2009	2/13/2014	7	3	4	4	2
Marine pile removal and replacement	Allows the replacement and removal of up to 40 piles per project in marine waters	2/18/2010	2/17/2015	2	2	1	5	3
Total				1,302	687	1,021	1,094	1,119

Data source: WSDOT Environmental Services Office.

Notes: 1 Effective dates represent the most recent permit re-issue date, and not the original permit issuance. 2 Culvert maintenance activities have increased due to WSDOT's culvert inspection program. It also reflects additional water bodies in Eastern Washington that have been determined to be seasonal or ephemeral streams by WSDOT and WDFW. 3 The number of bridge and ferry terminal maintenance activities is decreasing as WSDOT works with WDFW to determine which bridge maintenance activities warrant coverage under the General Hydraulic Permit Approval.

Programmatic Permits Annual Report

Programmatic agreements efficiently protect our cultural resources

More than 100 memorandums of agreement have been negotiated to avoid, minimize, or mitigate negative effects of WSDOT projects on cultural resources under terms of the programmatic agreements since 2003. These include prehistoric and historic archaeological sites, underwater sites, historic buildings and ferry terminals, and historic bridges.

Programmatic agreements save time and facilitate project delivery by streamlining the review process for environmental compliance. Programmatic agreements allow WSDOT to “exempt” activities from further review if they are determined to have little or no potential effect on historic resources. In agreement with the Department of Archaeology and Historic

Preservation, WSDOT may exempt state-funded transportation projects based on the Statewide Section 106 programmatic agreement exemptions criteria.

The Statewide Section 106 programmatic agreements help facilitate environmental compliance by allowing WSDOT cultural resources specialists to consult directly with other federal, state, and tribal agencies, thereby greatly reducing the time it would take if FHWA or U.S. Forest Service staff had to act on every action between WSDOT and consulting parties.

Programmatic agreements explained

FHWA, WSDOT, the Washington State Department of Archaeology and Historic Preservation (DAHP), and the Advisory Council for Historic Preservation (ACHP) signed a revised statewide programmatic agreement in 2012 delegating WSDOT to conduct compliance with Section 106 of the National Historic Preservation Act on behalf of FHWA.

WSDOT signed a similar agreement in 2012 with the U.S. Forest Service, FHWA, ACHP, and DAHP to delegate Section 106 responsibilities for federal highway transportation projects on Forest Service land.



Section 106 protects historic resources like the Pilchuck Creek Bridge (built in 1916), eligible for listing on the National Register of Historic Places.

Programmatic agreements for Section 106 of the National Historic Preservation Act

Number and percentage¹ of activities exempted under programmatic agreements

Programmatic agreement	Description and guidance	Effective ²	Amended	Expires	2007-2009	2009-2011	2011-2013
Statewide Section 106 FHWA	FHWA has delegated Section 106 responsibilities to WSDOT for FHWA transportation projects statewide. Under this agreement, certain undertakings may be exempt from Section 106 review that have little or no potential effect on cultural resources.	2003	2007, 2012	2017	123 (41%)	95 (27%)	39 (46%)
Governor's Executive Order (GEO) 05-05	In agreement with DAHP, WSDOT may apply the exemption criteria in the FHWA Statewide Section 106 Programmatic Agreement to state funded highway projects under GEO 05-05.	2005		does not expire	69 (23%)	43 (12%)	17 (20%)
USFS/ FHWA	The USFS has delegated Section 106 responsibilities to WSDOT for FHWA projects on USFS land. Undertakings subject to this agreement that have little or no effect on cultural resources may be exempt from Section 106 review.	2012		2017	N/A	N/A	2 (2%)

Data source: WSDOT Environmental Services Office.

Notes: 1 Number and percents are calculated per biennium. Percentages are the total exempted projects divided by the total number of projects during a biennium. 2 The Effective date represents the year the agreement was first enacted. 2011-2013 totals reflect available data through June 2012.



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Earlier Stewardship-related articles

Find previous articles in these GNB editions:

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Construction Contracts	
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State policy goal

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

WSDOT's business direction

To 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.

WSDOT's Capital Project Delivery Programs

Highway construction: WSDOT completes five more Nickel and TPA projects

Project Delivery Highlights

WSDOT completed five Nickel and TPA projects on time and on budget in the quarter ending June 30, 2012.

Of the 330 Nickel and TPA program projects completed to date:

- 88 percent were early or on time,
- 91 percent were completed on or under budget

WSDOT Nickel and TPA program project status

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	\$373,000
Projects completed that <i>are</i> included in the current Transportation Budget	249	\$4,453,403
Completed projects Subtotal:	330	\$4,826,403
Projects included in the current Transportation Budget that are not yet completed	91	\$11,516,775
Total:	421	\$16,343,178

Data source: WSDOT Capital Program Development and Management.

Cumulative delivery performance¹ of completed Nickel and TPA projects

July 1, 2009 - June 30, 2012

Calendar year	2009		2010				2011				2012	
	Q3	Q4	Q1 ²	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Number of projects	215	240	264	272	282	296	300	304	310	325	325	330
On-time %	88%	88%	89%	89%	90%	91%	90%	89%	89%	87%	87%	88%
On-budget %	87%	88%	91%	92%	93%	93%	92%	91%	91%	91%	91%	91%
On-time and on-budget %	78%	78%	82%	83%	84%	84%	84%	82%	82%	81%	81%	81%

Data source: WSDOT Capital Program Development and Management.

Notes: 1 WSDOT defines a project as "on time" if it is operationally complete within the quarter planned in the biennial budget, and "on budget" if the budget is within 5% of the current approved budget. 2 Unbundled project counts started in Q1 2010; total projects increased from 391 to 421.

WSDOT edged closer to its total of 421 Nickel and Transportation Partnership Account (TPA) projects, completing five more during the quarter ending June 30, 2012. WSDOT completed all five on time and on budget for a combined total of \$405.4 million.

Reporting on the delivery of Nickel and TPA projects in the cumulative program report is only part of the story in this section of the *Gray Notebook* 46. The *Gray Notebook* also provides a current Legislative budget report that follows these projects until they are removed from the budget, with all activities completed and all expenses billed to, and paid from, the projects' accounts. This can take months or even years, and is typically preceded by a project being "operationally complete," or open to traffic.

There are 249 completed projects in the current transportation budget. Of these, 85 percent were on time, 92 percent were on budget, and 80 percent were both on time and on budget for the quarter ending June 30, 2012. The cumulative capital program delivery performance shows that 88 percent of the 330 Nickel and TPA projects were completed early or on time, 91 percent were completed on or under budget, and 81 percent of these completed projects were both on time and on budget.

Projects in construction phase increase by 10 to 36 in second quarter

WSDOT advertised ten Nickel and TPA projects since April 1, 2012, for a total of 36 projects in construction phase as of June 30 (pp. 43-46). Three additional projects are in the delivery pipeline and are scheduled to be advertised during the next six months (p. 46).

Nickel and TPA revenue forecasts still gloomy

Revenues generated through the 2003 Nickel and 2005 TPA continued to come in well below forecast amounts in June 2012. Current forecasted revenues include the most recent actual revenue collection data available as well as updated projections based on new and revised economic variables. The \$1.73 billion June forecast for Nickel gas tax receipts, licenses and permits puts revenues at 11.2 percent less than the projected 2003 cumulative baseline total of \$1.92 billion.

Likewise, as of June 2012, the 16-year revenue projections for the TPA are 26.1 percent below the 2005 cumulative baseline total. There is more than a \$1 billion dollar difference from the \$4.94 billion in anticipated gas tax revenues and the \$3.92 billion forecast for June 2012.

This reduction is due primarily to continued lower gasoline consumption. Because Washington state's gas tax is based on gallons sold rather than price, reduced consumption results in reduced revenues.

WSDOT's Capital Project Delivery Programs

Current 2012 Legislative Transportation Budget Performance Dashboard: Highways

Highway construction performance dashboard

As of June 30, 2012; 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	\$373,000
Projects completed that <i>are</i> included in the current Transportation Budget	249	\$4,453,403
<i>Subtotal of completed projects</i>	330	\$4,826,403
Projects included in the current Transportation Budget but not yet completed	91	\$11,516,775
Total number of projects¹ in Improvement & 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.	2011-2013 Biennium Budget	Current Legislative Budget	Cumulative Program
Number of projects completed	26	249	330
Percent completed early or on time	69%	85%	88%
Percent completed under or on budget	85%	92%	91%
Percent completed on time and on budget	65%	80%	81%
Baseline estimated cost at completion	\$700,611	\$4,453,403	\$4,826,403
Current estimated cost at completion	\$690,144	\$4,390,450	\$4,765,519
Percent of total program over or under budget	1% under	1% under	1.3% under

Advertisement Record: Results of projects entering into the construction phase or under construction detailed on pp. 43-46.	Combined Nickel & TPA
Total current number of projects in construction phase to date, July 1, 2003 – June 30, 2012	36
Percent advertised early or on time	78%
Total number of projects advertised for construction in 2011 - 2013 biennium to date (July 1, 2011 – June 30, 2012)	13
Percent advertised early or on time	92%

Projects To Be Advertised: Results of projects now being advertised for construction or planned to be advertised, detailed on p. 46.	Combined Nickel & TPA
Total projects being advertised for construction bids July 1, 2012 - December 31, 2012	3
Percent on or better than anticipated advertisement schedule	33%

Budget status; 2011-2013 biennium

Dollars in thousands

Budget amount for 2011-2013 biennium	WSDOT biennial budget
Actual expenditures to date 2011-2013 biennium (July 1, 2011 – June 30, 2012)	\$1,327,496
<i>Total 2003 Transportation Funding Package (Nickel) expenditure</i>	\$167,608
<i>Total 2005 Transportation Partnership Account (TPA) expenditure</i>	\$365,547
<i>Total Pre-Existing Funds (PEF) expenditure³</i>	\$794,340

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 the June 30, 2010, *Gray Notebook* 38, p. 55, for more details. 2 Cumulative projects completed from 2003 to June 30, 2012. See p. 38 for definitions of the Current Legislative Budget and the Cumulative Program delivery performance metrics. 3 For full details of the PEF program, see pp. 51-54.

WSDOT's Capital Project Delivery Programs

Current 2012 Legislative Transportation Budget Performance Dashboard: Rail and Ferries

Eleven Nickel and seven Transportation Partnership Account (TPA) rail construction projects have been delivered on time and on budget as of June 30, 2012, for \$103.3 million. Four projects (two Nickel-funded, two TPA-funded) in construction have award amounts of \$25.4 million.

To date, WSDOT's Rail program has advertised eight projects overall, including two funded by the American Rehabilitation and Recovery Act (ARRA) that are budgeted for \$4,370,000. Rail has seven ARRA projects being or scheduled to be advertised between July 1 - December 31, 2012.

Rail construction performance dashboard

As of June 30, 2012; Dollars in thousands

	Nickel (2003)	TPA (2005)	Combined Nickel & TPA	Federal - ARRA
Schedule, scope, and budget summary: completed projects				
Cumulative to date, 2003 – June 30, 2012	11	7	18	0
% Completed early or on time	100%	100%	100%	
% Completed within scope	100%	100%	100%	
% Completed under or on budget	100%	100%	100%	
% Completed on time and on budget	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	
% Of total program on or under budget	100%	100%	100%	
Advertisement record: projects under construction or entering construction phase				
2011-2013 Biennium to date (July 1, 2011 – June 30, 2012)				
Total advertised	2	2	4	2
% Advertised early or on time	100%	100%	100%	100%
Total award amounts to date	\$17,549	\$7,872	\$25,421	\$4,370
Advertisement schedule: projects now being advertised or planned to advertise				
July 1, 2012 through December 31, 2012				
Total being advertised for construction	0	0	0	7
% On schedule or earlier	N/A	N/A	N/A	100%

Ferries construction performance dashboard

As of March 31, 2012; Dollars in thousands

	Nickel (2003)	TPA (2005)	Combined Nickel & TPA	Federal - ARRA
Schedule, scope, and budget summary: completed projects				
Cumulative to date, July 1, 2003 – June 30, 2012	7	9	16	
% Completed early or on time	100%	100%	100%	
% Completed within scope	100%	100%	100%	
% Completed under or on budget	100%	100%	100%	
% Completed on time and on budget	100%	100%	100%	
Baseline estimated cost at completion	\$35,114	\$209,343	\$244,457	
Current estimated cost at completion	\$35,114	\$209,343	\$244,457	
% Of total program on or under budget	100%	100%	100%	
Advertisement record: projects under construction or entering construction phase				
Cumulative to date, July 1, 2003 – June 30, 2012				
Total advertised	2	1	3	
% Advertised early or on time	100%	100%	100%	
Total award amounts to date	\$6,908	\$115,345	\$122,253	

Data source: WSDOT Capital Program Development and Management.

Notes: N/A means not applicable. The projects' count under the ferry program was revised to reflect changes made by the Legislature in the 2012 Legislative Session. The project on the advertisement record above represents the contract for construction of the first 144-car vessel project. The reported amount represents the total award to Vigor Shipyard. The completed projects record includes the three 64-car vessels, the *Chetzemoka* which started service in November 2010, the *Salish*, which started service in July 2011, and the *Kennewick*, which started service in February 2012.

WSDOT's Capital Project Delivery Programs

Schedule and budget summaries

Biennial summary of all projects completed 2003 - 2012

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	4 TPA	4 on time	5 on time	5	\$406,139	\$405,423	5 on budget	5 on time and on budget
This information is updated quarterly throughout the biennium. May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .								
2009 - 2011 reporting on capital project delivery								
2009 - 2011 Biennium summary	16 Nickel	73 on time	80 on time	90	\$1,641,605	\$1,596,970	85 on budget	76 on time and on budget
See <i>Gray Notebook</i> issues 35 through 42 for project listings. May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .								
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 are 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	42 Nickel	91 on time	96 on time	111	\$1,685,749	\$1,685,219	102 on budget	90 on time and on budget
See <i>Gray Notebook</i> 34 for the quarter ending June 30, 2009, for project listing. May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .								
2005 - 2007 Biennium summary	52 Nickel	71 on time	68 on time	76	\$673,858	\$668,778	67 on budget	59 on time and on budget
See <i>Gray Notebook</i> 26 for quarter ending June 30, 2007, for project listing. May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .								
2003 - 2005 Biennium summary	27 Nickel	25 on time	27 on time	27	\$124,580	\$124,409	25 on budget	25 on time and on budget
See <i>Gray Notebook</i> 19 for quarter ending September 30, 2005, for project listing. May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .								

Data source: WSDOT Capital Program Development and Management.

Washington leading the country in ARRA performance

The Federal Highway Administration congratulated WSDOT in early August 2012 for its exemplary performance in delivering American Recovery and Reinvestment Act (ARRA) projects. Washington leads the nation in the percent of ARRA projects vouchered (86.67 percent). The state also quickly obligated 99.79 percent of its ARRA funds, got its ARRA projects under construction, has spent 99.5 percent of the funding it received, and is working hard to complete its remaining projects, according to the Federal Highway Administration. Read more about ARRA projects on page 40.

WSDOT's Capital Project Delivery Programs

Schedule and budget summaries

Current quarter

Five projects completed as of June 30, 2012

Nickel and TPA projects, costs estimated at completion; Dollars in thousands.

Project description	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
I-5/36th Street Vicinity to SR 542 Vicinity - Ramp reconstruction	TPA	√	√	\$22,357	\$22,345	√	√
U.S. 12/SR 124 intersection - Build interchange	TPA		√	\$21,995	\$21,308	√	√
SR 823/Selah Vicinity - Re-route highway	TPA	√	√	\$9,311	\$9,303	√	√
U.S. 395/North Spokane Corridor - U.S. 2 to Wandermere and U.S. 2 Lowering - New alignment	Nickel	√	√	\$128,003	\$128,003	√	√
I-405/NE 8th Street to SR 520 Braided Ramps - Interchange improvement	TPA	√	√	\$224,473	\$224,464	√	√

Data source: WSDOT Capital Program and Delivery Management.



New ramps constructed during the I-405/NE 8th Street to SR 520 Braided Ramp project mean drivers can travel to and from I-405 and SR 520 more safely and more quickly.



Selah Mayor Bob Jones and Senator Jim Clements join hundreds of residents to celebrate the opening of the SR 823/Selah Vicinity project to reroute commercial truck traffic away from the downtown corridor.

WSDOT's Capital Project Delivery Programs

Advertisement Record

Thirty-six projects in construction phase as of June 30, 2012

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

Project description Cumulative to date	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.						
U.S. 2/Chiwaukum Creek – Replace bridge (Chelan)	TPA	Late	Apr-11	Selland Construction, Inc.	Sep-13	\$4,190
U.S. 2/Wenatchee River Bridge – Replace bridge (Chelan)	TPA	Late	Apr-11	Selland Construction, Inc.	Sep-13	\$3,912
Advertisement was delayed to allow time for processing a shoreline permit. This project was combined with the U.S. 2/Chiwaukum Creek project for construction efficiencies.						
SR 500/St. Johns Blvd. – Build interchange (Clark)	TPA	Late	Jan-11	Tapani Underground, Inc.	Nov-13	\$27,237
Advertisement date was delayed due to delays in gaining environmental permitting approval.						
I-5/NE 134th St. Interchange (I-5/I-205) – Rebuild interchange (Clark)	Nickel	√	May-11	Moore Excavation, Inc.	Dec-14	\$17,791
SR 14/Camas Washougal – Add lanes and build interchange (Clark)	TPA	Late	Mar-11	Tapani Underground, Inc.	Nov-12	\$28,619
Advertisement date was delayed due to prolonged right of way negotiations.						
SR 28/Jct U.S. 2 and U.S. 97 to 9th St., Stage 1 – New alignment (Douglas)	TPA	√	Sep-09	Selland Construction, Inc.	Oct-12	\$4,565
This is a multi-contract project with several significant stages.						
I-405/South Renton Vicinity, Stage 2 – Widening (King)	Nickel/ TPA					
• I-405/Thunder Hills Creek Culvert – Emergency repairs	TPA	√	Mar-12	Scarsella Bros., Inc.	Dec-12	\$3,164
WSDOT and key parties are working together to develop an acceptable long term solution to this failed culvert.						
• I-405/SR 167 to SR 169 – Northbound widening (King)	TPA	√	Oct-08	I-405 Corridor Design Builders	Dec-10	\$83,599
• I-405/SR 167 to SR 169 – Add new southbound lane (King)	Nickel	√		<i>Combined with project above for construction efficiencies.</i>		
• I-405/SR 515 – New interchange (King)	TPA	√		<i>Combined with project above for construction efficiencies.</i>		
SR 99/Alaskan Way Viaduct – Replacement (King)						
This project replaces an aging viaduct with a tunnel in downtown Seattle and replaces the south end of the viaduct.						
• SR 99/S. Massachusetts Street to Union Street – Electrical line relocation	TPA	√	May-08	Frank Coluccio Construction	Nov-09	\$17,040
• SR 99/S. Holgate Street to S. King Street – Viaduct replacement	TPA	√	Oct-09 May-10	Signal Electric, Inc. 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 begins removal of the southern portion of the viaduct.						
• SR 99/Battery St. Tunnel – Fire and safety improvement	TPA	√	Nov-09	Signal Electric, Inc.	Nov-10	\$2,409
Additional sign-bridges have some elements that were not initially planned. New environmental right of way siting work and review was needed.						
• SR 99/S. King Street vicinity to Roy Street – Viaduct replacement	Nickel/ TPA	√	May-10	Seattle Tunnel Partners	Dec-15	\$1,089,700

WSDOT's Capital Project Delivery Programs

Advertisement Record

Thirty-six projects in construction phase as of June 30, 2012

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

Project description	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)						
• I-90/Snoqualmie Pass East, Phase 1A Hyak to Crystal Springs — Detour (Kittitas)	TPA	Early	Feb-09	KLB Construction, Inc.	Oct-09	\$3,298
• I-90/Snoqualmie Pass East Phase 1B Hyak to snowshed vicinity — Add lanes and bridges (Kittitas)	TPA	√	Nov-09	Max J. Kuney Co.	Oct-13	\$76,699
• I-90/Snowshed to Keechelus Dam Phase 1C — Replace snowshed and add lanes (Kittitas)	TPA	Late	Apr-11	Guy F. Atkinson Construction, LLC	Oct-17	\$177,144
<i>Advertisement date changed to allow additional design and review.</i>						
SR 520/Bridge Replacement and HOV (King)						
• SR 520 Pontoon Construction (Grays Harbor)	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
I-5/SR 161/SR 18 — Interchange improvements (King)						
	Nickel/TPA	√	Apr-10	Mowat Construction, Inc.	Oct-12	\$50,779
<i>The award amount for this project was incorrectly reported as \$3,702 in Gray Notebook 38.</i>						
SR 99/Aurora Ave. — George Washington Memorial Bridge — Seismic (King)						
	TPA	√	Jan-11	Massana Construction, Inc.	Jan-13	\$6,157
SR 518/Bridges — Seismic (King)						
	TPA	√	Mar-11	Graham Construction and Management, Inc.	Apr-12	\$3,708
I-5/Tacoma HOV improvements (Pierce)						
	Nickel/TPA					
• I-5/Port of Tacoma Road to King County Line — Add HOV lanes (Pierce)	Nickel	Late	Jun-09	Tri-State Construction, Inc.	May-11	\$31,015
<i>Advertisement date was delayed due to design challenges associated with stormwater and floodplain issues; a formal consultation with U.S. Fish & Wildlife (USFW) and National Oceanic & Atmospheric Administration (NOAA) was required. Inflation factor applied in early July 2008 added \$6.6M to project cost estimate. This project has received federal Recovery Act stimulus funds.</i>						
• I-5/SR 16 Interchange — Rebuild interchange (Pierce)	TPA	√	Jul-08	Guy F. Atkinson Construction, LLC	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 St. E to Jovita — Add lanes (Pierce)						
	Nickel	Late	Feb-11	Tri-State Construction, Inc.	Jun-12	\$11,928
<i>Advertisement date was delayed to coordinate with local agencies.</i>						
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, Inc.	Dec-15	10,694
• I-405/NE 195th Street to SR 527 — Northbound widening (Snohomish, King)	TPA	Early	May-09	Kiewit Pacific Co.	Jun-10	\$19,263

WSDOT's Capital Project Delivery Programs

Advertisement Record

Thirty-six projects in construction phase as of June 30, 2012

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

Project description	Fund type	On time advertised	Ad date	Contractor	Operationally complete date	Award amount
SR 9/212th Street SE to 176th Street SE, Stage 3 – Add lanes (Snohomish) <i>Advertisement was delayed to allow time for utility relocation and permit approval.</i>	Nickel	Late	Apr-11	Northwest Construction, Inc.	Aug-13	\$24,297
SR 522/Snohomish River Bridge to U.S. 2 – Add lanes (Snohomish)	Nickel	√	Apr-10	Scarsella Bros., Inc.	Nov-14	\$88,653
SR 529/Ebey Slough Bridge – Replace bridge (Snohomish) <i>Advertisement date was delayed due to delays in gaining environmental permitting approval after seismic code changes and for wetland mitigation.</i>	TPA	Late	Apr-10	Granite Construction Co.	May-13	\$21,541
U.S. 395/North Spokane Corridor (NSC) – Francis Avenue to Farwell Road – New alignment (Spokane) <i>The advertisement delay on this project was due to delays in the right-of-way acquisition.</i>	Nickel	Late	Jan-04		Oct-12	
• NSC-Farwell Road lowering	Nickel		Jan-04	Max J. Kuney Company	Jul-05	\$4,976
• NSC-Gerlach to Wandermere – Grading – Construction	Nickel		Nov-04	KLB Construction, Inc.	Sep-06	\$9,987
• NSC-Francis Avenue to U.S. 2 Structures – Rebid	Nickel		May-06	Max J. Kuney Company	Jul-08	\$17,236
• U.S. 395/NSC-Freya Street to Fairview vicinity – Grading and Structures	Nickel		Jan-07	Steelman-Duff	Apr-09	\$10,571
• U.S. 395/NSC-Freya St. to Farwell Rd. – PCCP Paving	Nickel		Feb-07	Acme Concrete Paving	Aug-09	\$19,490
• U.S. 395/NSC – BNSF railroad tunnel	Nickel		Sep-07	Scarsella Bros., Inc.	Aug-09	\$17,295
• U.S. 395/NSC – Freya to Farwell Road – Southbound additional lanes	TIGER/ Nickel		Jun-10	Graham Construction & Management, Inc.	Jun-12	\$21,456
<i>This project was reported as complete in Gray Notebook 35 - September 30, 2009. Subsequent to that date, the project received a TIGER grant from the American Recovery and Reinvestment Act. Those funds were combined with remaining Nickel funds to add the project shown above.</i>						
I-5/Grand Mound to Maytown – Add lanes and replace intersection (Thurston)						
• I-5/Grand Mound to Maytown, Stage One – Add lanes	Nickel	√	Dec-07	Scarsella Bros., Inc.	Jun-10	\$61,495
• I-5/Grand Mound to Maytown, Stage Two – Replace interchange	Nickel	Late	Aug-10	Tri-State Construction, Inc.	Sep-12	\$15,518
<i>Advertisement was delayed due to negotiations with the railroad on the placement of a culvert under the tracks.</i>						
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 (Thurston, Lewis)	TPA	√	Feb-10	Tri-State Construction, Inc.	Dec-11	\$19,731
• I-5/Mellen Street to Blakeslee Junction – Add lanes, interchange Improvements (Thurston, Lewis)	TPA		Jun-12	Cascade Bridge, LLC.	Oct-13	\$21,596
• I-5/Mellen Street Interchange – Interchange improvements (Thurston, Lewis)	TPA		<i>Combined with project above for construction efficiencies.</i>			
SR 9/SR 531 - 172nd Street NE – Improve intersection (Snohomish)	TPA	√	Oct-11	Interwest Construction, Inc.	Oct-12	\$4,770
SR 530/Fortson Creek Culvert – Fish Barrier (Snohomish)	TPA	√	Mar-12	Ram Construction General Contractors, Inc.	Oct-12	\$812
I-5/Chehalis River Flood Control (Lewis)	Nickel	√	Mar-12	Cascade Bridge, LLC.	Oct-13	\$21,596

WSDOT's Capital Project Delivery Programs

Advertisement Record

Thirty-six projects in construction phase as of June 30, 2012

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

Project description	Fund type	On time advertised	Ad date	Contractor	Operationally complete date	Award amount
U.S. 101/Bone River Bridge – Replace Bridge	TPA		Apr-12	Cascade Bridge, LLC	Nov-13	\$5,715
NSC-North Spokane Corridor Design and Right of Way – New Alignment	TPA	√	Apr-12	Max J. Kuney Company	Nov-15	\$13,255
U.S. 97/North of Goldendale – Wildlife Habitat Connectivity	TPA	√	Apr-12	Rotschy, Inc.	Oct-14	\$2,113
SR 112/Unnamed Tributary to Pysht River – Fish Barrier	TPA	√	Apr-12	Bruch & Bruch Construction, Inc.	Dec-12	\$417
SR 112/Nelson Creek – Fish Barrier	TPA	√	Apr-12	Delhur Industries, Inc.	Dec-12	\$1,155
SR 502/I-5 to Battle Ground – Add Lanes	TPA	√	Apr-12	Tapani Underground, Inc.	Oct-15	\$5,194
SR 285/W End of George Sellar Bridge – Intersection Improvements	TPA	√	Apr-12	Selland Construction, Inc.	Nov-13	\$9,787
SR 105/North River Bridge – Replace Bridge	TPA	√	Jun-12	Award pending	Sep-14	Pending
SR 105/Smith Creek Bridge – Replace Bridge	TPA	√	Jun-12	Award pending	Sep-14	Pending
U.S. 101/Middle Nemah River Bridge – Replace Bridge	TPA	√	Jun-12	SB Structures, LLC	Aug-14	\$3,253

Data source: WSDOT Capital Program Development and Management.

Projects to be advertised

Three projects in the delivery pipeline for July 1, 2012 through December 31, 2012

Nickel and Transportation Partnership Account (TPA) projects now being advertised for construction or 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 9/Pilchuck Creek – Replace Bridge (Snohomish) This project is delayed due to a late determination of wetland impacts.	TPA	Mar-12	Jul-12		\$19,604	\$19,989
SR 99/Spokane St. Bridge – Replace Bridge Approach	TPA	Oct-12	Oct-12	√	\$14,471	\$14,466
SR 161/Clear Lake N Rd. to Tanwax Creek – Realign Roadway (Pierce) This project was redesigned to a lower cost solution.	TPA	May-11	Jul-12		\$4,679	\$1,609

Data source: WSDOT Capital Program Development and Management.

WSDOT's Capital Project Delivery Programs

Original 2003 and 2005 Transportation Funding Packages (Nickel and TPA) Performance Dashboard

WSDOT provides a quarterly update on the delivery of the highway capital programs in the *Gray Notebook* and on the web (at www.wsdot.wa.gov) through the Project Pages and Quarterly Project Reports.

Since the original passage in 2003 and 2005, the Legislature has approved changes to the funding package and assigned funds to different projects. As a result, the data below will not match what is being presented on the current budgets on pp. 39-40.

The dashboards below and on the following page provide a status report on how WSDOT is delivering the program compared to the original Legislative intent as presented in the 2003 and 2005 Legislative Evaluation & Accountability Program (LEAP)

lists. These dashboards include all budget items including pre-construction and environmental studies that were included in the original funding packages.

The first two columns in the first table show the total number of projects and the percentage of those projects that are complete, under way, scheduled to start in the future, or affected by a Legislatively approved change of project scope.

The second table presents a budget update 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)

Status as of June 30, 2012

	Total program		Highways		Ferries		Rail	
	Number of projects	Percent of program						
Total number of projects	156		127		5		24	
Completed projects	114	73%	100	79%	2	40%	12	50%
Total projects under way	32	21%	27	21%	2	40%	3	13%
<i>In pre-construction phase</i>	16		15		1		0	
<i>In construction phase</i>	16		12		1		3	
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)

Status as of June 30, 2012; Dollars in thousands

	Total program		Highways		Ferries		Rail	
	Budget	Percent of total	Budget	Percent of program	Budget	Percent of program	Budget	Percent of program
Total original Legislative planned budget	\$3,887,483		\$3,380,124		\$297,851		\$209,508	
Original plan, 2003 through 2009-11 biennium	\$3,278,038	84%	\$2,813,701	83%	\$293,919	99%	\$170,418	81%
Actual expenditures, 2003 through 2009-11 biennium	\$3,262,619	84%	\$3,002,188	89%	\$132,448	44%	\$127,983	61%
Original plan through 2011-13 biennium	3,887,483	100%	3,380,124	100%	297,851	100%	209,508	100%
Current plan through 2011-13 biennium	3,933,705	101%	3,418,295	101%	382,376	128%	133,034	63%
Actual expenditures, 2003 through June 30, 2012	3,468,911	89%	3,170,699	94%	167,384	56%	130,828	62%

Data source: WSDOT Capital Program Development and Management.

Notes: Expenditures are Nickel funds only. Totals do not include Local Programs projects.

WSDOT's Capital Project Delivery Programs

Original 2003 and 2005 Transportation Funding Packages (Nickel and TPA) Performance Dashboard

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

Status as of June 30, 2012

Project number and phase	Total program		Highways		Ferries		Rail	
	Number of projects	Percent of program						
Total number of projects	248		229		4		15	
Completed projects	168	68%	161	70%	0		7	47%
Total projects under way	62	25%	57	25%	1		4	27%
<i>In pre-construction phase</i>	30		29		0		1	
<i>In construction phase</i>	32		28		1		3	
Projects starting in the future	7	3%	3	1%	1		3	20%
Projects deferred, or deleted from program	11	4%	8	3%	2		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 delivery update: Original 2005 Transportation Partnership Account (TPA)

Status as of June 30, 2012; 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	\$6,982,128		\$6,678,468		\$185,410		\$118,250	
Original plan, 2003 through 2009-11 biennium	\$4,042,962	58%	\$3,886,331	58%	81,701	44%	74,930	63%
Actual expenditures, 2003 through 2009-11 biennium	2,703,850	39%	\$2,572,833	39%	64,128	35%	66,889	57%
Original plan through 2011-13 biennium	\$5,585,341	80%	\$5,386,836	81%	87,655	47%	110,850	94%
Current plan through 2011-13 biennium	\$4,408,783	63%	\$4,253,499	64%	76,966	42%	78,318	66%
Actual expenditures, 2003 through June 30, 2012	\$3,256,297	47%	\$3,121,663	47%	64,836	35%	69,798	59%

Data source: WSDOT Capital Program Development and Management.

Notes: Expenditures are Nickel funds only. Totals do not include Local Programs projects.

Definitions

Completed projects Projects operationally complete, open to traffic.

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

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

Projects in construction All activities from ground-breaking to completion.

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

Projects deferred or deleted Projects 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, one has been completed, representing 20 percent of the total Ferries program; three Ferries projects are under way, representing 60 percent of the total program; and one Ferries project has been deferred or deleted, representing the remaining 20 percent of the total program.

Completed projects keep Washington moving

WSDOT completed five Nickel and Transportation Partnership Account (TPA) projects from April 1 to June 30, 2012.

Project delivery performance reporting on budget and schedule is measured against latest approved budgets in accordance with criteria established by the Legislature; for this quarter, it is the 2012 transportation budget. This article includes the original project appropriation from the 2003 and 2005 budgets to explain changes in project budgets. As projects move from design and construction toward completion, their budgets and schedules may change from those originally approved by the Legislature.

U.S. 395/North Spokane Corridor - U.S. 2 to Wandermere and U.S. 2 Lowering - New alignment (Spokane) 2003 Nickel Package

This project constructed an interchange and a four-lane divided freeway between U.S. 2 and U.S. 395 at Wandermere, opening a new two-mile section of the North Spokane Corridor.

Project benefits: The project improves freight and passenger vehicle mobility for north/south travel, and enhances safety by constructing a bicycle/pedestrian path in the Spokane area.

Highlights/challenges: The project budget decreased in November 2011, when \$21.9 million in Nickel funds were transferred to support other projects in the North Spokane Corridor. Winter weather pushed the previously scheduled completion date back from November 2011. Work resumed in April 2012.

Budget performance: The Nickel-funded project was originally approved for \$81.3 million and was completed for \$128 million, which was on target with the last approved budget.



The 2003 and 2005 baseline budgets and schedules reset if changes are made in the last approved legislative budget.

One of these projects, the U.S. 395/North Spokane Corridor - U.S. 2 to Wandermere and U.S. 2 Lowering project constructed more than two miles of four-lane divided highway near Spokane. A more complete update to this project and the North Spokane Corridor are featured in the Mega-projects section on pp. 62-63.

More information on completed projects is available online at www.wsdot.wa.gov/projects.



Constructing a four-lane divided freeway between U.S. 2 and U.S. 395 opens the northern two miles of the North Spokane Corridor project.

Schedule performance: The project was completed June 2012, on target with the last approved schedule. The project, as budgeted in 2003, was originally scheduled to be finished in May 2011.

U.S. 12/SR 124 Intersection - Build interchange (Walla Walla) 2005 TPA Package

This project constructed a new U.S. 12/SR 124 Burbank interchange, adding a bridge and ramps while removing traffic signals at the SR 124 and Humorist Road intersections.

Project benefits: Constructing a new interchange and overpass removes two traffic signals, reduces congestion, and eliminates collisions caused by running red lights. Separating high-speed traffic on U.S. 12 from slower traffic on SR 124 also reduces the risk of collisions.

Highlights/challenges: Needing additional time to complete a land exchange with the U.S. Fish and Wildlife Service,



the advertisement date was delayed about one year to October 2010. WSDOT completed this exchange in January 2011, and awarded the project in February at 26 percent below the engineer's estimate. The low bid also reduced the project total to \$1.8 million less than the 2010 budget.

Budget performance: The total project cost on this TPA-funded project was \$21.3 million, approximately \$640,000 less than the last approved budget. The original cost for this project was \$20 million.

Schedule performance: The project as budgeted in 2005 was originally scheduled to be completed May 2010. It was completed May 2012, about two months ahead of the last approved schedule.

WSDOT's Capital Project Delivery Programs

Completed projects keep Washington moving

SR 823 Selah Vicinity - Re-route highway (Yakima) 2005 TPA Package

This project completed a series of improvements to SR 823, routing truck traffic away from the congested downtown streets of the city of Selah, and providing better access to the city's industrial areas.

Project benefits: The SR 823 project reduces congestion, improves freight mobility and efficiency, provides infrastructure for developing commercial and recreational areas, and enhances safety for motorists and pedestrians.

Highlights/challenges: The construction contract was awarded at 27 percent below the engineer's estimate and reduced the proposed



project budget by \$1.7 million in 2011. Right of way acquisition delayed the original start of the project by 13 months. Construction began in spring 2011, and the project was scheduled to be operationally complete in July 2012, 13 months later than originally planned. The later completion date was reflected in the legislature's final 2012 budget.

Budget performance: The TPA project was originally budgeted for \$7.8 million and was completed for \$9.3 million, which was on target with the last approved budget.

Schedule performance: The project was completed in May 2012, about two months ahead of the last approved schedule. As budgeted in 2005, it was originally scheduled for completion in June 2011.

I-5/36th Street Vicinity to SR 542 Vicinity (Whatcom) 2005 TPA Package

This project extends the I-5 on-ramps for the southbound Lakeway Drive, northbound Iowa Street, northbound Samish Avenue and southbound SR 542 interchange. It also widens shoulders and constructs retaining walls where needed.

Project benefits: The project reduces the potential for collisions, improving safety by extending on-ramps to I-5 and widening roadway shoulders near Bellingham.

Highlights/challenges: The contract was awarded for construction in August 2010. The \$4.4 million bid for reconstruction of the ramps



was 25 percent lower than the engineer's estimate of \$5.9 million. Schedule changes pushed the operationally complete date back from October 2011 to July 2012. While partially due to mandatory winter shutdowns, slower than anticipated progress to install steel rods to support an 800-foot retaining wall also delayed the project's scheduled completion date.

Budget performance: Two 2005 projects were combined in the 2006 budget for \$27.8 million. The overall project was completed for \$22.3 million, which was on target with the last approved budget.

Schedule performance: The project was completed in June 2012, about one month ahead of the last approved schedule. As budgeted in 2005, it was originally scheduled for completion in June 2009.

I-405/NE 8th Street to SR 520 Braided Ramps - Interchange improvements (King) 2005 TPA Package

This project constructed on- and off-ramps on I-405 northbound to relieve traffic weaving and congestion in the vicinity of downtown Bellevue and the I-405/SR 520 interchange.

Project benefits: The new ramps eliminate difficult merging conditions and help drivers transition smoothly between roadways, reducing congestion on the ramps. The reduced congestion will potentially result in a decrease in the number of accidents.

Highlights/challenges: Several factors resulted in a \$22 million cost increase in September 2008, including higher design and construction costs for retaining walls and structures to meet new national seismic design criteria, larger stormwater detention facilities, right of way acquisition, and higher inflation cost projections. Budget constraints were alleviated when the project



received \$30 million in American Recovery and Reinvestment Act funding, allowing WSDOT to advertise for construction bids in March 2009. Without these federal funds, the project would have been delayed one year. The project received the Downtown Bellevue Association's 2011 Best Opening of the Year award for portions of the project that opened in October 2011. Bellevue businesses recognized the project for the benefits it provided, including congestion relief and safer access to SR 520.

Budget performance: The project was originally budgeted for \$250 million. There was a savings of \$25.5 million, which was achieved in part due to a low bid and reduced construction materials costs. The project cost \$224.5 million at completion, on target with the last approved budget.

Schedule performance: The project was completed in May 2012, more than six months ahead of the last approved schedule. As budgeted in 2005, the project was originally scheduled to be completed in December 2011.

Pre-existing Funds (PEF) - Advertisement record

The Pre-Existing Funds (PEF) program funds a wide variety of capital projects to improve the safety, functionality, and longevity of the state highway system. Unlike Nickel and Transportation Partnership Account (TPA) projects, which are fixed lists of projects set by the Legislature and funded with a line item budget for each individual project, PEF projects are primarily funded at the program level.

Funding is aligned to commitments to address set priorities such as preserving pavement each biennium. New PEF projects are programmed each biennium based on prioritized needs and available funds, so the list of PEF projects changes. However, unexpected projects can arise during the biennium that require urgent action, and WSDOT will reapportion funds from other projects to address emergency needs.

Examples of PEF projects include pavement preservation and repaving, bridge repairs and replacement, slope stabilization, safety projects such as cable median barriers and rumble strips, environmental retrofit to improve fish passage and stormwater management, and preservation of facilities associated with the highway system such as rest areas.

The definitions of important terms used in this article are below.

PEF project performance is reported at two levels

The Legislature identified and funded six specific PEF projects that WSDOT reports on at the individual level. Five of those projects are now complete. They are listed in *Gray Notebook 45* (p. 72), along with their advertisement, budget, and schedule performance. The sixth project is underway, described below.

Individually tracked projects

WSDOT is constructing a bypass for the SR 28/East End of George Sellar project in Douglas County. The initial legislative budget for this project was \$9.4 million in 2004. The most recent legislative budget for the project was \$28 million and was approved in 2010.

The project's preliminary engineering started on time in May 2004 and advertisement was scheduled to occur in May 2011, but was delayed due to right of way issues. The project is scheduled to be complete in June 2013.

All other projects

WSDOT reports on: actual versus planned cash flow for the overall PEF program; actual versus planned project advertisements; and the advertisement record of projects open for construction bids (see pp. 52-54).

A glossary of PEF advertisement terms

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. A √ mark in the Advertisement record indicates that a project advertised on time within the quarter.

Advanced

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

Early

Project with an ad date originally scheduled for the current quarter but occurred in an earlier quarter.

Late

A project that was advertised in the current quarter but which missed the original ad date.

Emergent

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

Projects which were not advertised on schedule fall into three categories:

Delayed

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

Deferred

A project not yet advertised and which has had the ad 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.

WSDOT's Capital Project Delivery Programs

Pre-existing Funds (PEF)

Pre-Existing Funds (PEF) projects scheduled for advertisement or advertised this quarter

April 1 – June 30, 2012

Early

Eastern Region low cost pavement repair - Paving	SR 19/South of West Valley Road to south of Theater Road - Paving
Olympic Region low cost pavement repair - Paving	SR 21/Curlew Creek - Culvert Replacement
SR 14/Clark Co. line to Prindle Road vicinity, with exceptions - Paving	U.S. 12/SR 122/Mossyrock - Intersection improvements

On-time

I-5/Military Road to NE 56th Street - Concrete pavement rehabilitation	SR 3/South of Newberry Hill Road to SR 305 - Paving
I-5/NE 179th Street to Koontz Road vicinity- Rumble Strips	SR 3/Sam Christopherson Avenue W to SR 304 - Paving
I-90/BN rail road bridge vicinity to Geiger Road - Paving	SR 503/Ham Road vicinity to Ross Road vicinity - Paving (BST)
North Central Region - Roadside improvements	SR 6/Chehalis River Riverside Bridge - Deck overlay
SR 100/SR 100 including spur - Chip seal	SR 706/East of 182nd Ave Ct E to west of 314th Ave Ct E - Chip seal
SR 110/Mora Road to Olympic National Park Boundary - Chip seal	SR 8/West of Mox Chehalis Road to east of Winslow Drive SW - Chip seal
SR 110/U.S. 101 to La Push Road - Chip seal	SR 96/Dumas Road - Channelization
SR 112/Makah Indian Reservation to north of Green Creek Br - Chip seal	U.S. 101/Big Quilcene River Br to north of Mt Walker View Pt Rd - Chip seal
SR 113/U.S. 101 to Burnt Mountain Road - Chip seal	U.S. 101/East of Hillstrom Rd to south of Sol Duc Hot Springs Rd - Chip seal
SR 119/Lake Cushman Recreational Area to Staircase Road - Chip seal	U.S. 101/South of Johnson Road to north of La Push Road - Chip seal
SR 14/Marble Road vicinity to Belle Center Road - Safety improvements	U.S. 195/Babbit Road to Colfax - Paving
SR 14/Maryhill Road vicinity to Wood Creek Bridge - Paving (BST)	U.S. 395/North Spokane Corridor - Francis Avenue improvements
SR 16/North of Jackson Avenue to SR 3 junction- Paving	U.S. 97/North Blewett Pass - Safety improvements
SR 21/S Nanamkin Creek - Culvert Replacement	

Emergent

Bigelow Gulch - Widening	SR 3/North of Front Street - Emergency slope stabilization
I-5/Toutle River safety rest area water system repairs	SR 505/First Street - Emergency culvert repair
I-90/Bandera Road - Bridge repair	SR 529/SB Snohomish River Bridge - Special bridge repair
I-90/S Cle Elum Road Bridge EB - Replace bridge approach slabs	U.S. 395/Columbia River at Kettle Falls - Bridge deck
I-90/Silica Road - Rebuild lighting system	U.S. 97A/North of Wenatchee - Ohme Gardens roundabout

Late

I-82/Chandler Canal Bridge EB - Deck rehabilitation FHWA and Metropolitan Planning Organization (MPO) approvals delay advertisement.	SR 270/Illumination retrofit or relocate Work done by state forces. There is no actual advertisement.
I-82/East Selah Bridge EB - Deck rehabilitation Advertisement delayed by FHWA for MPO approvals.	SR 28/Lakeview vicinity- Illumination system rebuild Project advertisement delayed to tie with other electrical projects for efficiencies.
I-82/Wine Country Road Bridge - Deck rehabilitation Advertisement delayed by FHWA for MPO approvals.	SR 507/Vicinity East Gate Road to 208th Street E - Safety Advertisement date delayed due to workforce availability.
I-90/Asahel Curtis vicinity EB - Culvert rehabilitation Advertisement delayed for additional design due to changed field conditions.	SR 904/Illumination retrofit or relocate Work done by state forces. There is no actual advertisement.
I-90/Asahel Curtis vicinity EB - Culvert repair Advertisement delayed for additional design due to changed field conditions.	U.S. 12/Cowiche Creek Bridge - Deck rehabilitation Advertisement delayed by FHWA for MPO approvals.
I-90/Illumination retrofit or relocate Work done by state forces. There is no actual advertisement.	U.S. 195/Illumination retrofit or relocate Work done by state forces. There is no actual advertisement.
I-90/Intelligent Transportation System (ITS) - Preservation Advertisement delayed for efficiency to combine with another ITS project.	U.S. 2/Bickford Avenue - Intersection safety improvements Ad date delayed due to workforce availability to complete structural design.
SR 21/Illumination retrofit or relocate Work done by state forces. There is no actual advertisement.	U.S. 2/Ebey Slough Br vicinity to Bickford Ave vicinity - Culvert replacement Advertisement delayed for design evaluation of high water table.

Pre-existing Funds (PEF)

Pre-Existing Funds (PEF) projects scheduled for advertisement or advertised this quarter

April 1 – June 30, 2012

Late, continued

SR 261/Tucannon River Bridge - Deck rehabilitation Advertisement delayed by FHWA and MPO approvals.	U.S. 2/Illumination retrofit or relocate Work done by state forces. There is no actual advertisement.
U.S. 2/West of Wenatchee - Paving (Reported as on-time in GNB 44) Advertisement date delayed due to public and county coordination for the roundabout addition.	U.S. 395/Pioneer Memorial Bridge - Joint repair Advertisement delayed to combine with two other projects for cost efficiency.
U.S. 395/Illumination retrofit or relocate Work done by state forces. There is no actual advertisement.	U.S. 97A/Wenatchee to south of Rocky Reach Dam - Paving (Reported as on-time in GNB 44) Advertisement date delayed for the new combined project to be included in the 2012 Statewide Transportation Improvement Program.

Delayed

Eastern Region ADA compliance - Update pedestrian intersection features Ad delayed for changed Americans with Disabilities Act requirements within city limits.	SR 3/Junction U.S. 101 to east of Front Street - Paving Advertisement delayed to add ADA safety elements to the scope.
I-5/Northbound Express Lanes - Electrical Ad delayed for field verification of the existing electrical system.	SR 20/Challenger Road vicinity- Slope stabilization Advertisement delayed to allow additional operations recommended by geotech.
North Central Region ADA rural upgrades Ad delayed for continued negotiations with city of Omak and McDonald's Corporation.	SR 28/South of Rock Island - Drainage repair Additional design with advanced modeling shows project is not required.
Regionwide curve warning signing Work to be done by state forces. There will be no actual advertisement.	SR 906 Spur/Coal Creek Bridge - Scour repair Work to be done by state forces. There will be no actual advertisement.

Deleted

I-5/Henderson Boulevard - Culvert replacement
 Problem was resolved by state forces. Project is now unnecessary.

WSDOT's Capital Project Delivery Programs

Pre-existing Funds (PEF) financial information

Value of planned PEF advertisements 2011-2013 biennium

July 1, 2011 through June 30, 2013; Dollars in millions

	Number	Original value	Current cost to complete
Total PEF advertisements planned 2011 - 2013	328	\$794.9	\$735.0
Planned advertisements through June 30, 2012	155	\$418.5	\$366.0
Actual advertisements through June 30, 2012	145	\$331.8	\$211.1

Data source: WSDOT Capital Program Development and Management.

PEF project advertisements schedule performance

July 1, 2011 through June 31, 2012

	Number
Projects advertised as scheduled	68
Projects advanced or advertised Early	13
Projects advertised Late	34
Emergent projects advertised	30
Total projects advertised	145
Projects delayed (delayed within the biennium)	65
Projects deferred (delayed out of the biennium)	9
Projects deleted	3

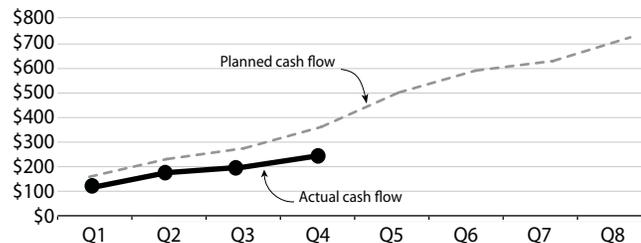
Data source: WSDOT Capital Program Development and Management.

Note: See page 51 for PEF advertisement definitions.

Pre-Existing Funds preservation program cash flow

Planned vs. actual expenditures for 2011 - 2013 biennium

Quarter ending June 30, 2012



Data source: WSDOT Capital Program Development and Management.

Note: Original Planned Cash Flow values have been updated based on the 2011 Legislative Final Budget.

WSDOT plans to advertise 328 projects in the 2011 - 2013 biennium

WSDOT plans to advertise 328 PEF projects, valued at \$794.9 million, in the 2011 - 2013 biennium and advertised 145 projects through June 30, 2012, the first four quarters of the biennium.

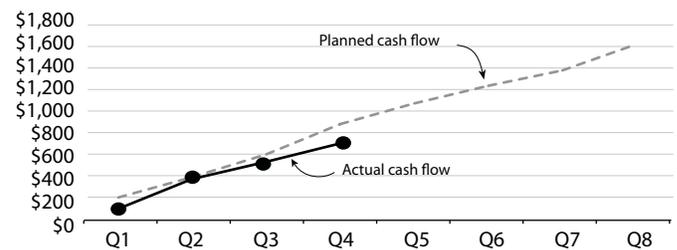
Of the 145 WSDOT projects advertised during the past year (July 1, 2011 - June 30, 2012), 65 have been delayed, 13 have been advanced or advertised early, 34 were advertised late, and 30 were added due to emergent needs.

Pre-Existing Funds project advertisements

Planned vs. actual advertisements for the 2011 - 2013 biennium

Quarter ending June 30, 2012

Dollars in millions



Data source: WSDOT Capital Program Development and Management.

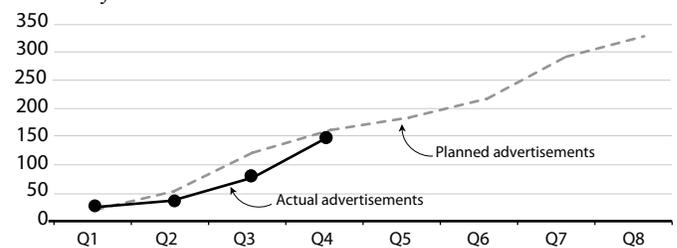
Note: Original Planned Cash Flow values have been updated based on the 2011 Legislative Final Budget.

Pre-Existing Funds improvement program cash flow

Planned vs. actual expenditures for 2011 - 2013 biennium

Quarter ending June 30, 2012

Number of advertisements



Data source: WSDOT Capital Program Development and Management.

Watch List: Keeping a close eye on our state's transportation projects

WSDOT is committed to frequent and accurate “no surprises” reporting of project performance. As part of that commitment, the Watch List regularly addresses issues that do, or potentially could, affect a project’s schedule and budget. When these issues are resolved, which may take more than one quarter, the project is removed from the Watch List. If new issues arise, an update to the project will be provided in the Updates to Watch List section.

The gray box on page 56 describes some of the common problems that may affect the successful progress of a project from design

through completion; they are listed in the typical order in which WSDOT might face them, starting with planning and concluding with construction.

The summary table below lists projects currently facing schedule or budget concerns with a reference to the problem category; a more detailed description of the precise problem or its resolution appears on the following pages. More information is presented on the individual project pages on the WSDOT website at www.wsdot.wa.gov/projects.

Watch List projects with schedule or budget concerns

Quarter ending June 30, 2012

Added to Watch List	Project type	Watch List issue
SR 16/Tacoma Narrows Bridge - Replace maintenance traveler (Pierce)	Highway	Design: timing problems
SR162/Puyallup River Bridge – Replace bridge (Pierce)	Highway	Design: alternatives
I-5, Express Lane Automation (King)	Highway	Construction: site problems
SR 26/SR 24, Othello Intersection Improvement (Adams)	Highway	Design: design element change
U.S. 195/Cheney-Spokane Road – new interchange (Spokane)	Highway	Right of way: land acquisition
SR 520 Pontoon Construction Project (Grays Harbor)	Highway	Construction: materials
Updates to Watch List		
SR 530/Skaglund Hill Slide (Snohomish)	Highway	Construction: weather, timing problems
SR 520/Medina to SR 202 vicinity – Eastside transit and HOV (King)	Highway	Coordination: local concerns, litigation, design changes
U.S. 2/Wenatchee River Bridge – Replace bridge (Chelan)	Highway	Construction: weather, contractor issues, timing problems
SR 161/24th Street E. to Jovita – Add lanes (Pierce)	Highway	Construction: timing problems
Removed from Watch List		
U.S. 2 Bickford Avenue – Intersection safety improvements (Snohomish)	Highway	Construction: site problems
I-5/36th Street to SR 542 Vicinity – Ramp reconstruction (Whatcom)	Highway	Construction: site problems
SR 9/Pilchuck Creek – Replace bridge (Snohomish)	Highway	Environmental: permitting, design alternatives
I-5/Mellen Street to Blakeslee Junction – Add lanes (Lewis)	Highway	Right of way: land acquisition
U.S. 395/NSC – U.S. 2 to Wandermere and U.S. 2 Lowering (Spokane)	Highway	Construction: site problems, timing problems
SR 28/East end of George Sellar Bridge – Construct bypass (Douglas)	Highway	Construction: contractor issues

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

Added to Watch List

SR 16/Tacoma Narrows Bridge - Replace Maintenance Traveler Equipment (Pierce)

This project, budgeted for \$3.4 million, will replace or rehabilitate the “maintenance traveler,” a vehicle that travels the length of the bridge’s undercarriage and is used by WSDOT maintenance crews to safely and efficiently inspect the bridge.

The project is in the design phase; the schedule is at risk. The advertisement date for this project has been delayed one year, from Sept. 4, 2012, to Sept. 9, 2013, due to time needed to evaluate

replacing the traveler. Maintenance travelers currently available for purchase are too heavy for the bridge.

The operationally complete date has also been delayed one year, from April 23, 2013 to April 23, 2014.

SR162/Puyallup River Bridge – Replace Bridge (Pierce)

This project, budgeted for \$15 million, will replace the existing bridge. The bridge is too narrow and rates as “functionally obsolete.” When completed, the project will construct a new, wider bridge that meets WSDOT’s current engineering and safety standards.

WSDOT's Capital Project Delivery Programs

Watch List: Keeping a close eye on our state's transportation 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 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, NOAA Fisheries, U.S. Forest Service, etc.

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 government issues: Consultation with tribes as required by Centennial Accord and specific treaties. 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 time spent in design.

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 that 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 mean work schedules conflict with events such as fish spawning season.

Weather: Weather unsuitable for construction work will temporarily halt the project.

Litigation

At any point, a problem may escalate if one or more of the parties decides to file a lawsuit.

The project is in the design phase; the schedule is at risk. The advertisement date is delayed to allow more time for the National Historic Preservation Act Section 106 compliance process on this historic bridge. Additionally, WSDOT is working with utility companies to prepare utility relocation plans; and property appraisals are also in process.

The current bridge, also known as the McMillin Bridge, is listed in the National Register of Historic Places. Federal law requires that alternatives be developed and evaluated that could avoid, minimize, or mitigate adverse effects to the structure. To that end, WSDOT is seeking public input. To ensure there is enough time for public input, the project advertisement date is delayed one year from December 2012 to December 2013.

The operationally complete date is also delayed one year from April 2014 to April 2015.

I-5/Express Lane Automation (King)

This project, budgeted for \$5.4 million, will upgrade and replace manual gates with automated gates on the I-5 Express Lanes in Seattle. It will also install 13 miles of new fiber optic lines to allow engineers to reverse lane directions remotely, and add new LED signs, 45 new traffic cameras to monitor gate entrances and blind corners, and camera cabinets. When complete, this project will potentially reduce congestion by reducing the time it takes to switch express lanes from the current one hour to 15 minutes.

The project is in the construction phase; the schedule and cost are at risk. The contractor encountered field conditions that required numerous changes to the above ground and underground

Watch List: Keeping a close eye on our state's transportation projects

conduit and fiber optics systems, slowing progress and delaying operational completion from April to August 2012. By working additional crews on the weekends, the contractor has been able to recover a portion of the delay so the automated system opened to traffic on July 23, 2012.

The delay due to the changes in the conduit and fiber optics systems, and associated delays caused a cost increase between \$800,000 and \$1.6 million, raising the project cost \$6.2 million - \$7 million. An update will be provided next quarter.

SR 26/SR 24 - Othello Intersection Improvement (Adams)

This project, budgeted for \$700,000, will reroute traffic through the city of Othello, reconfiguring and improving the intersection. The improvements will potentially reduce collisions, improve drivers' ability to see pedestrians, and ease congestion caused by traffic entering and leaving businesses at this location.

This project is in the design phase; the budget is at risk. The budget has increased \$800,000 to \$1.5 million due to an oversight of work items that should have been included during the construction estimate. WSDOT is funding the unexpected increase. An update will be provided next quarter.

U.S. 195/Cheney-Spokane Rd. - new interchange (Spokane)

This project, budgeted for \$13.2 million, will construct a new interchange on U.S. 195 at Cheney-Spokane Road. When complete, this project will potentially reduce the number of severe collisions by eliminating left turns on this high-speed highway.

The project is in the design phase; the schedule is at risk. The advertisement date has been delayed from June 25, 2012, to Aug. 20, 2012, due to a pending right of way condemnation proceeding. When title to private property, or property rights, needed for transportation purposes cannot be acquired by negotiation, the state exercises its power of eminent domain and acquires or clears the interests of all private parties by condemnation action.

The August 2012 advertisement date is an estimate based on receiving an early court date with no other delays.

The operationally complete date is now delayed from October 2013 to August 2014. An update will be provided next quarter.

SR 520 Pontoon Construction Project (Grays Harbor)

This Design-Build project, budgeted for a \$367 million contract, built a four-acre casting basin in Aberdeen to construct 21 longitudinal pontoons (360 feet long by 75 feet wide), two cross pontoons (240 feet long by 75 feet wide), and ten supplemental stability pontoons (98 feet long by 60 feet wide), for the new SR 520 floating bridge.

These pontoons are also designed to replace the existing floating bridge in the event of a catastrophic event.

The project is in the first of six cycles of pontoon construction; the interim schedule milestones are at risk. The first cycle of pontoon construction, which includes three longitudinal pontoons, one cross pontoon and two supplemental stability pontoons, is delayed and may affect the remaining pontoons' construction schedule. When high-tension steel tendons were stretched through the longitudinal and cross pontoons to strengthen them (a process called post-tensioning), spalling and structural cracking occurred.

Repairs have been identified and are being made to the four affected pontoons. Spalled areas have been removed and replaced, and cracks are being repaired by epoxy injection and application of crystalline waterproofing. An independent expert panel has concurred with the repair procedures and is evaluating the reasons for the spalling and cracking in order to make recommendations for the remaining pontoon construction cycles.

The known impact is a delay in floating out the pontoons from the basin, which occurred July 30-31, 2012. It is unknown how much of the delay can be recovered by the contractor in constructing the remaining pontoons over the next five cycles.

Updates to Watch List

SR 530/Skaglund Hill Slide (Snohomish)

This project, budgeted for \$13 million, will build a retaining wall and improve drainage in a landslide prone area. When complete, the project will stabilize the roadway and underlying slope, reducing the potential for landslides. If a landslide closed the roadway, the shortest route around would be a 58-mile detour.

The project is in the construction phase; the schedule continues to be at risk. As reported in *Gray Notebook* 45, the operationally complete date was delayed from August 2011 to June 2012. The operationally complete date is further delayed to July 2012 due to wet spring weather, which prevented the contractor from completing the retaining wall and paving the roadway. An update will be provided next quarter.

SR 520/Medina to SR 202 vicinity - Eastside transit and HOV (King)

This Design-Build project, budgeted for a \$306 million contract, will construct a six-lane SR 520 corridor between Medina and Redmond. The project will build an inside HOV/transit lane, wider shoulders, and environmental improvements including nine fish-passable stream crossings and associated habitat improvements. It will also add community enhancements like lids (a cover constructed across or over a roadway, which provides areas that can

WSDOT's Capital Project Delivery Programs

Watch List: Keeping a close eye on our state's transportation projects

be used for recreational or commercial purposes), and a regional trail extension; and construct two new median transit stops, along with other transit improvements. When completed, the project will provide design enhancements to reduce the potential for serious injury and fatal collisions along the SR 520 corridor, and improve mobility and fish habitat.

The project has completed design, is in construction, and is on schedule to be completed by the end of 2013. As reported in *Gray Notebook 45*, WSDOT and the design-builder, Eastside Corridor Constructors, continue their discussions on budget and schedule risks. Potential schedule and budget effects will be determined after further consultation with the contractor.

WSDOT is working to clarify the scope elements and potential schedule impacts in Fairweather Basin due to permit modifications. It is also incorporating higher noise walls into the contract along the corridor and addressing concerns over approaches to geotechnical design. WSDOT is monitoring these items and expects the issues to be resolved by fall 2012. As reported in *Gray Notebook 45*, the lawsuit by Fairweather Basin residents alleging reduced property values as a result of the project is expected to be resolved by 2013.

U.S. 2/Wenatchee River Bridge – Replace bridge (Chelan) 2/215

(Related project: U.S. 2/Chiwaukum Creek - Replace bridge (Chelan) 2/212)

These projects, budgeted for \$12.5 million, and known as 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 will potentially improve safety for motorists, bicyclists and pedestrians. This project also constructs new turn lanes into Tumwater Campground and adds fish passage enhancements in the creek bed.

The projects are in the construction phase; the budget and schedule continue to be at risk. As reported in *Gray Notebook 45*, permitting, higher-than-normal water levels in the Wenatchee River, and drilling obstructed by boulders delayed construction and increased costs. This caused the WSDOT Bridge Office to re-evaluate and redesign the bridge during the winter construction break. The operationally complete date has been delayed from December 2012 to September 2013. It may be further delayed due to anticipated higher-than-normal water levels caused by this year's snowpack, which is 30 percent higher than in previous years.

SR 161/24th St. E to Jovita - Add lanes (Pierce)

This project, budgeted for \$40 million and including \$367,000 of local agency funds, widens a 1.2-mile section of SR 161 from three to five lanes in the city of Edgewood. The work includes new sidewalks and road approaches, illumination, retaining walls,

stormwater drainage facilities, and major utility relocations. When complete, the project will ease congestion and potentially improve safety along the SR 161 corridor.

The project is in the construction phase; the schedule and budget are at risk. The schedule delay is expected to increase the construction cost by \$2.5 million, to a total project cost of \$42.5 million.

The operationally complete date is delayed from June 2012 to July 2013 due to slower-than-planned progress on utility relocations, which is delaying the roadway widening work into winter weather. The delays will likely adversely affect the schedule and cost. WSDOT is working with the contractor to recover some of the schedule delays.

Removed from Watch List

U.S. 2 Bickford Avenue – intersection safety improvements (Snohomish)

This project, budgeted for \$19.8 million, constructed a new partial interchange at the U.S. 2 and Bickford Avenue intersection, and reconfigured the existing Bickford Avenue eastbound off-ramp. In addition, eastbound and westbound on-ramps were constructed. The existing Bickford Avenue at-grade connection will be removed and U.S. 2 will be re-channelized to fit the new configuration. The U.S. 2 corridor has been identified by the Washington State Traffic Safety Commission as a safety corridor. The completed project potentially improves the efficiency and safety of the interchange.

The project is in the construction phase; the budget and schedule were at risk. As reported in *Gray Notebook 45*, the project increased by \$600,000 and the advertisement date was delayed until April. The project was advertised in April and awarded in June 2012. The \$600,000 cost increase was necessary to line and install drains under two stormwater treatment ponds and was addressed within the available budget due to favorable bids.

The project remains on schedule to meet the operationally complete date of January 2014.

I-5/36th Street to SR 542 vicinity – ramp reconstruction (Whatcom)

This project, budgeted for \$22.3 million, extended I-5 on-ramps at the interchange for southbound Lakeway Drive, northbound Iowa Street, northbound Samish Avenue and southbound SR 542. It also widened shoulders and constructed retaining walls

Watch List: Keeping a close eye on our state's transportation projects

where needed. The project potentially reduces collisions along this section of I-5.

The project was in the construction phase; the schedule was at risk. As reported in *Gray Notebook 45*, due to safety concerns for the traveling public, WSDOT shut down the Samish Way northbound on-ramp for approximately two months to complete ramp construction work. The work was completed and the ramp opened to traffic on June 28, 2012.

SR 9/Pilchuck Creek – Replace bridge (Snohomish)

This project, budgeted for \$19.6 million, will replace the existing 17-foot-wide bridge over Pilchuck Creek with a wider bridge meeting current design standards. Although rated “functionally obsolete,” because of its narrow width and scour issues that have now been fixed, the bridge is safe for drivers to cross. The bridge is on the only north-south detour route available in the area when I-5 must be closed and traffic rerouted via SR 9.

The project is in the design phase. The budget and schedule were at risk. As reported in *Gray Notebook 45*, part of the budget risk was an increase due to right of way acquisition, and was included in the 2012 Supplemental Budget. Project costs are now expected to fall within the 2012 approved budget of \$19.6 million.

The advertisement, permitting schedule, and operationally complete schedule risks reported in *Gray Notebook 45* have been realized. Advertisement has been delayed from March 5, 2012 to an anticipated date of July 23, 2012. The Hydraulic Project Approval and other permits will be obtained in time for advertisement. Snohomish County is processing the project's shorelines permit, which is on schedule to be received by mid-July. As reported in *Gray Notebook 45*, the operationally complete date has been delayed to July 2014.

I-5/Mellen Street to Blakeslee Junction – Add lanes (Lewis)

This project, budgeted for \$155.5 million, will construct collector-distributor lanes between the existing Mellen Street and Harrison Avenue interchanges, and widen I-5 from two lanes to three lanes in each direction north of Harrison Avenue. The project also builds a new overcrossing south of Mellen Street, improves the Harrison Avenue interchange, repairs and paints the existing Skookumchuck River bridges, and raises the height of the bridge portals to increase vertical clearance. When both stages are complete, the project will reduce congestion, increase traffic flow, and potentially improve safety.

The project is in the construction phase; the schedule was at risk. As reported in the *Gray Notebook 45*, WSDOT needs to

acquire 40 parcels for this project, and some of the parcel negotiations would have delayed advertisement. To keep the project on schedule, construction was split into two stages. Stage 1 was advertised in March 2012 and the contract was awarded for \$21.6 million, 22.7 percent below the engineer's estimate. Use of the savings will be evaluated through the 2013 budget development process. Stage 1 work will construct several bridges, retaining walls, begin environmental mitigation work, and complete in-water work. Once the remaining properties are acquired, Stage 2 is expected to be advertised in early 2013.

The operationally complete date remains on schedule for December 2014. No additional funding is required.

U.S. 395/NSC – U.S. 2 to Wandermere and U.S. 2 Lowering (Spokane)

This project, budgeted for \$128 million, constructed a new four-lane divided freeway between U.S. 2 and U.S. 395 at Wandermere, new structures at Wandermere, and a pedestrian/bicycle path from U.S. 2 to Wandermere. It opens a new two-mile section of the North Spokane Corridor.

The project was in the construction phase; the schedule was at risk. As reported in *Gray Notebook 45*, the project's operationally complete date was delayed from November 2011 to June 2012 due to early onset of winter conditions. This risk was realized and the project continued in winter shutdown until April 2012. The project was operationally complete on June 13, 2012, with an opening-to-traffic celebration.

SR 28/East end of George Sellar Bridge – Construct bypass (Douglas)

This project, budgeted for \$29 million, will construct a bypass route for southbound traffic at the SR 28 and Grant Road intersection. This work will improve capacity, potentially reduce accidents, and benefit freight movement at the east end of the George Sellar Bridge on SR 28. Funding is included for a pedestrian tunnel connection to the Apple Capital Loop Trail along the Columbia River.

The project is in the construction phase; the schedule was at risk. As reported in *Gray Notebook 45*, one of the walls on the bypass roadways was partially constructed with materials not allowed by contract. Changes to the wall were expected to delay the construction schedule and operationally complete date. The prime contractor, KLB Construction, reviewed options and provided test results and new information for WSDOT's consideration. The issue was resolved and construction and the operational complete date are now on schedule.

Mega-projects Special Report

HOV construction makes headway on I-5 and Nalley Valley viaduct in Tacoma

HOV Program Highlights

I-5: Portland Avenue to Port of Tacoma Road – Northbound HOV project went to ad June 4, 2012.

I-5: Portland Avenue to Port of Tacoma Road – Northbound HOV Stage 1 project substantial completion is expected by the end of July.

Contractors building the I-5/SR 16 Eastbound Nalley Valley project have placed all 41 girders on a bridge that will temporarily carry eastbound SR 16 traffic while the original eastbound viaduct is demolished and replaced.

Construction progress

I-5/SR 16 Eastbound Nalley Valley Interchange

Progress to build a new I-5/SR 16 Eastbound Nalley Valley viaduct has been steady and visible in Tacoma, where the original westbound viaduct has been demolished to make room for \$115 million in new construction.

Crews are hard at work building a temporary bridge that will carry eastbound SR 16 traffic while the original eastbound viaduct is demolished and rebuilt. The bridge is on schedule to open in early-2013, with all 41 supporting piers already installed. Work has also progressed on mainline I-5, where WSDOT recently opened a new northbound exit to the Tacoma City Center. The new ramp is about 20 feet lower than the old one and is aligned to match future eastbound SR 16 lanes. Demolition operations to remove a temporary wall no longer needed to construct the new ramp wrapped up in mid-August. Excavation work to bring adjacent land to the same level as new eastbound SR 16 bridges continues.

I-5: Portland Avenue to Port of Tacoma Road – Northbound HOV Stage 1

Work on this \$22 million project is almost done. Crews have completed preliminary work for the larger northbound I-5: Portland Avenue to Port of Tacoma Road – Northbound high-occupancy vehicle (HOV) project that is currently being advertised.

WSDOT successfully installed underground cement columns to fortify the surrounding soil so it can support bridge piers and embankment for the upcoming northbound I-5 bridge over the Puyallup River. Crews also widened four I-5 bridges, built retaining walls, and seismically-retrofitted existing bridge piers. WSDOT is scheduled to complete the project this August.

Design progress

I-5: Portland Avenue to Port of Tacoma Road – Northbound HOV

Design on this \$312 million project is now complete and contract plans went to ad on June 4, 2012. The main feature of the project is a new northbound I-5 bridge over the Puyallup River.

WSDOT anticipates a ten-week advertisement period, and once construction begins the project will take three years to complete.

I-5: M Street to Portland Avenue – HOV

In this \$191 million project, WSDOT will widen northbound and southbound I-5 to four general purpose lanes and one HOV lane in each direction between M Street and Portland Avenue. To accommodate the widened roadway, WSDOT will replace the Pacific Avenue, McKinley Way, and L Street bridges over I-5, and construct a new northbound I-5 bridge over the I-705 interchange.

Other improvements include a new stormwater collection and treatment system and new northbound and southbound I-5 concrete pavement. Design is nearly 60 percent complete, and the team has updated the project delivery plan, the project schedule, and the budget.



Crews are building a bridge (center piers with wood forming) that will temporarily carry eastbound SR 16 traffic while the original eastbound Nalley Valley viaduct (on left) is demolished and rebuilt.

U.S. 395/North Spokane Corridor passes halfway mark

The U.S. 395/North Spokane Corridor project delivery pushed past the halfway mark June 13 as WSDOT opened a drivable connection from U.S. 2 to Wandermere. This work adds two new miles of freeway between U.S. 395 at Wandermere and Farwell Road, opening the northern 5.7 miles of the 10.5-mile project.

The North Spokane Corridor (NSC) project constructs a limited-access highway spanning from U.S. 395 at Wandermere in the north to I-90 at its southern end. The new corridor will help promote WSDOT's strategic goals in the following areas:

Safety

- Redirects commercial truck traffic off city streets and onto the new corridor
- Provides bicycle and pedestrian pathways and facilities
- Reduces the potential for approximately 700 annual intersection collisions, at a savings of some \$22 million per year

Mobility

- Improves travel times by eliminating 29 traffic signals, saving travelers a combined 9.4 million hours each year and an estimated \$142 million in related costs
- Reduces travel time by 60 percent, to an estimated 12 minutes
- Adds new park and ride facilities and constructs a 10.5-mile pedestrian/bicycle trail
- Supports U.S. 395 freight traffic, which transports more than \$13.5 billion in goods each year

Environment

- Reduces annual fuel consumption for Spokane area transportation by 6.5 percent

The completed corridor is expected to accommodate 150,000 vehicles daily to meet the demands of Spokane County's population, which is expected to grow by 125,000 people over the next 13 years.

New TIGER grant takes a bite out of BNSF realignment costs

A \$10 million Transportation Investments Generating Economic Recovery (TIGER) grant helps fund the BNSF Railway Structures/Realignment project. The TIGER grant was awarded in June and helps remove a corridor chokepoint by relocating 7.5 miles of BNSF tracks, supporting construction of two freeway overpasses, and two pedestrian/bicycle overpasses. The \$31.5 million project, which is expected to advertise for bids in May 2013, will also extend an existing 5.5-mile pedestrian/bicycle trail by more than one mile into the Hillyard neighborhood.

U.S. 395/NSC Program Highlights

▶ WSDOT received a Transportation Investment Generating Economic Recovery (TIGER) grant for \$10 million in June 2012 for BNSF Railway Structures/Realignment project.

▶ WSDOT used 2003 Nickel funds to complete eight contracts between U.S. 395 at the Wandermere and Francis/Freya interchanges.

▶ A \$35 million federal TIGER grant will complete the NSC-Freya Street to Farwell Road Southbound Additional Lanes Project by constructing three additional lanes, seven bridges, and the Parksmith Interchange.

U.S. 395/NSC Project Updates

Project	Description	Status
Freya to Farwell (6 contracts)	Earthwork, bridges, railroad tunnel, paving	Complete
U.S. 2 Lowering	Earthwork, bridges, paving, creek culvert	Complete
U.S. 2 to Wandermere	Paving, bridges	Complete
Francis to Farwell Southbound Lanes (Full TIGER grant funding)	Earthwork, paving and bridges	Construction
Parksmith Interchange (Full TIGER grant funding)	Earthwork, paving for new on- and off-ramps	Construction
Francis Street Structure Replacement	Replace structure, intersection improvements	Construction
BNSF Railway Structures/Realignment	Realign 7.5 miles of track, two mainline structures and two trail structures, extend trail by more than one mile	Development, Construction in 2013
Right of Way Acquisition	I-90 vicinity and throughout the NSC vicinity	Ongoing

Data source: WSDOT North Spokane Corridor Project

Mega-projects Special Report

U.S. 395/North Spokane Corridor making use of Nickel, federal funds

Just south of the BNSF work, a \$15 million construction project to replace the Francis Avenue structure over the BNSF railway is anticipated to start in August 2012. The completed overpass will provide unhindered access for the North Spokane Corridor mainline and BNSF tracks.

Nickel and federal funds supporting the NSC

The North Spokane Corridor project is primarily being constructed with 2003 Nickel Transportation Funding. In addition to other projects throughout the state, WSDOT used these funds to complete eight contracts between U.S. 395 at the Wandermere and Francis/Freya interchanges.

Federal dollars have aided the corridor work and helped secure funding for the NSC-Freya Street to Farwell Road Southbound Additional Lanes Project. A \$35 million federal TIGER grant will complete the remaining southbound lanes by constructing three additional lanes, seven bridges and the Parksmith Interchange. This effort is scheduled to be complete in October 2012.

Coming work will reach even further south

Design, right of way and construction are WSDOT's focal points from the Spokane River to Francis Avenue. This section will extend the corridor approximately 2.5 miles south to the Spokane River, with a full interchange at Wellesley Avenue, an extension



New lanes snake through the northern limits of the project with the completion of U.S. 2 and U.S. 395 work near Wandermere.

of the pedestrian/bicycle trail, relocation of the BNSF railway, and construction of a pedestrian overcrossing for neighborhood connectivity. An additional \$260 million dollars is required to complete this drivable link.

Right of way purchases continue along the North Spokane Corridor and along the I-90 corridor. To date, \$615 million has been allocated, with the addition of a 2012 TIGER grant, out of a total estimated project cost of \$1.9 billion.

Alaskan Way Viaduct Replacement Program turns dirt on new tunnel

The State Route 99 Alaskan Way Viaduct plays a major role in sustaining Washington's economy and maintaining the citizens' ability to travel to and through Seattle. However, the viaduct, along with the adjacent seawall, is at risk of failure from earthquakes.



Crews spread sand on the south approach to the northbound SR 99 bridge under construction.

Two projects are replacing the viaduct along Seattle's waterfront. The SR 99 South Holgate Street to South King Street Project is replacing the southern mile of the Alaskan Way Viaduct, near Seattle's port and stadiums, with a new roadway that has wider lanes, meets current earthquake standards and improves mobility in the south of downtown area.

The SR 99 Tunnel Project is replacing the downtown section with a bored tunnel. The tunnel will maintain a vital route through downtown while opening up more than nine acres of public space for a world-class waterfront.

South end viaduct replacement one year ahead of schedule, on budget at \$114.6 million

WSDOT announced in July that a \$114.6 million contract to build the new SR 99 roadway near Seattle's stadiums will be completed one year ahead of schedule and on budget.

Crews are putting the finishing touches on the second of two side-by-side bridges, which will eventually connect to the

Alaskan Way Viaduct Replacement Program gets clean bill of health from review panel

SR 99 tunnel. Upon completion, which is expected in fall 2012, the east bridge will carry northbound SR 99 traffic with southbound traffic remaining on the west bridge. A temporary construction bypass connects the new roadway to the remaining viaduct along the downtown waterfront. The bypass will stay in effect until the SR 99 tunnel opens in late 2015.

The early-completion announcement followed WSDOT's award of a construction contract for a new overpass at South Atlantic Street, which is part of the viaduct replacement program and will allow freight and other traffic to bypass a busy train track. Atkinson Construction bid \$29.4 million, \$6.2 million under WSDOT's estimate. Construction will start in August, just as work on the nearby SR 99 bridges wraps up. The new overpass is scheduled to open by December 2013.

Crews break ground on pit for SR 99 tunnel-boring machine, tunneling to begin in mid-2013

In June 2012, crews building the SR 99 Tunnel Project started digging a pit where the world's largest diameter tunnel boring machine will begin its journey beneath downtown Seattle.

Governor Chris Gregoire joined state, federal and local officials on June 6 to officially remove the first shovelfuls of dirt from the

Boring machine size of largest state ferry

When completed in early 2013, the boring machine launch pit will be slightly longer than a football field and about 80 feet deep. The SR 99 tunnel-boring machine is being manufactured in Osaka, Japan, and will be roughly the same size as Washington State Ferries' largest vessel. Crews will test it later this year, then disassemble and ship it to Seattle in early 2013, when it will be reassembled inside the launch pit.



Governor Chris Gregoire, at the helm of an excavator, takes a first scoopful of dirt at the site of the SR 99 tunnel-boring machine launch pit.

construction area west of Seattle's stadiums. Before scheduled tunnel boring begins next summer, crews must finish relocating utilities in the north and south portal areas and reinforcing a two-block section of the viaduct above the tunnel route. The project team has also begun installing monitoring equipment along the tunnel route, to measure any building movement during construction.

SR 99 tunnel construction brings big changes to Seattle's downtown waterfront traffic

Crews clearing space for tunnel construction rerouted six blocks of Seattle's waterfront traffic from Alaskan Way to a newly improved road beneath the Alaskan Way Viaduct in May 2012.

The traffic switch – which will last through at least early 2014 – changed access near the downtown ferry terminal as well as parking and traffic patterns along the waterfront. Moving traffic off Alaskan Way allows crews to prepare the ground beneath the street, where the tunnel-boring machine will begin its journey in 2013. WSDOT worked with the Seattle Department of Transportation to reroute existing roads along the waterfront and in Pioneer Square and to implement strategies to keep traffic moving during these changes, while maintaining access to businesses in those neighborhoods.

Expert panel confirms viaduct replacement on schedule, on budget

The 2011 Legislature directed WSDOT to convene an expert panel to review the viaduct replacement's finances and ensure its schedule, risk management and cost estimating are reasonable. Governor Gregoire, the House and Senate transportation committee chairs and Transportation Secretary Paula Hammond selected the three panel members.

The independent expert review panel gave the Alaskan Way Viaduct Replacement Program a clean bill of health in February 2012, finding that the program is on schedule and budget while noting that funding and project agreements need to be solidified. WSDOT is already working to address the panel's findings.

The 2012 Legislature passed a bill authorizing tolling for the SR 99 tunnel. Bonding authorization will be submitted in 2013. WSDOT and the Port of Seattle are creating a formal agreement for the port's financial contribution to the program, as follow-up to a 2010 memorandum of agreement. An agreement with the city of Seattle to demolish the viaduct, decommission the Battery Street Tunnel and build a new Alaskan Way street, which will be funded by the state, is expected to be completed by the end of 2012.

Construction Cost Trends Report

Construction Cost Index exceeds predicted inflation rate

Construction Cost Trends Highlights

WSDOT's Construction Cost Index (CCI) increased 9.7 percent during the first half of 2012, exceeding the rate of inflation used by WSDOT to determine project budgets.

A 16 percent hike in hot mix asphalt prices occurred during the first half of 2012, accounting for the majority of the CCI increase.

When actual inflation rates exceed the estimated inflation rates used by WSDOT to revise project budgets, it is difficult for WSDOT to deliver projects within budget.

Hot mix asphalt cost accounts for majority of 9.7 percent rise in Index

After five years of relatively predictable construction cost inflation, WSDOT's Construction Cost Index (CCI) increased 9.7 percent during the first six months of 2012. A 16 percent increase in the cost of hot mix asphalt accounted for the majority of the increase in construction cost inflation captured by the CCI during the first half of 2012.

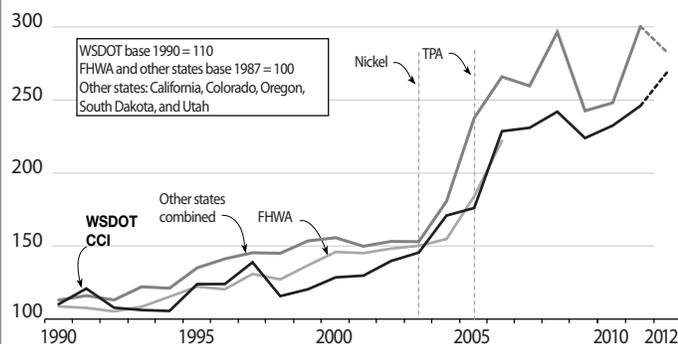
Many activities common to highway construction use large amounts of fuel. Some highway construction materials like asphalt are partially made of products derived from crude oil. Because road building depends greatly on oil and oil products, oil prices have a significant influence on WSDOT project costs.

The cost of hot mix asphalt averaged \$77 per ton in 2012 compared to \$66 per ton in 2011. WSDOT plans to solicit bids for about 685,000 tons of hot mix asphalt during 2012. This amount of pavement will cost WSDOT about \$7.5 million more than it would have a year ago. As fuel prices continue to increase, alternative materials become more competitive. WSDOT is actively exploring new technologies including Warm Mix Asphalt, Recycled Asphalt Shingles and increasing the amount of Recycled Asphalt Pavement that can be used to construction roadways.

Just as increases in the cost of food, fuel and commodities reduce the buying power of a family on a fixed income, construction cost inflation erodes the buying power of WSDOT's fixed highway construction budget. While WSDOT goes to great lengths to plan and prioritize its workload, the agency's ability to do more with less is limited. In addition to a capital construction program, WSDOT has more than 18,000 lane miles of state highways to maintain.

When the cost of asphalt or steel increases, WSDOT cannot always find cheaper materials with which to maintain and construct roads and bridges. If construction costs continue to increase and revenues continue to decline, WSDOT's funding power will be further reduced. Without additional investments to offset cost increases, the agency's paving backlog will grow. For information about WSDOT's paving backlog, see *Gray Notebook 44*, p. 15.

Construction cost indices (CCI): Washington state, FHWA and selected western states 1990-2012



Data source: WSDOT Construction Office.
Notes: WSDOT 2012 data through June. FHWA index was discontinued in 2007. Other states 2012 data is the average of Colorado and Utah data through March. Oregon and California indices were discontinued in 2010. The 2003 and 2004 WSDOT CCI data points adjusted to correct for spiking bid prices on structural steel.

How WSDOT figures its CCI

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

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

Construction Contracts Annual Report

WSDOT awards 125 construction contracts; 11.8 percent below estimates

WSDOT awarded 125 construction contracts from July 1, 2011 to June 30, 2012 (FY2012) compared to 171 in FY2011. For each contract awarded, WSDOT tracks the difference between the engineer's estimate and the contractor's bid to measure WSDOT's estimating accuracy. During FY2012, bids came in a total of 11.8 percent below estimates, improving on a 17.4 percent difference in 2011. On average, bids for each contract were 4.6 percent less than the engineer's estimate, compared to 15.2 percent less in 2011.

The chart below shows a year-to-year comparison of highway construction contracts awarded since 2007. The combined contract value awarded below estimate was 83.6 percent in FY2012, compared to 94.7 percent in 2011. The number of contracts awarded below estimate in FY2012 was 78, compared to 146 in 2011. And in FY2012, 62.4 percent of contracts were awarded below the estimate, compared to 85.4 percent in 2011.

WSDOT engineers prepare cost estimates for construction contracts the agency plans to advertise for competitive bids. The engineers' estimate is put together using historical pricing information for the design WSDOT has developed. These prices are then adjusted using predicted inflation rates. Bids differ from WSDOT's estimate when WSDOT's assumptions differ from contractor's concerning the cost of materials, equipment or labor needed to construct the design. When this happens, the cost to construct a project can change.

The cost to complete a project can also change during the construction process when changes to the contract or material quantities are necessary. These alterations can increase or decrease costs. WSDOT's project budgets are set before design begins, though many variables can change the cost to complete the desired project. For this reason, WSDOT closely tracks the differences between the estimate, the bid amount, and the final cost of all contracts. The result is a measure of WSDOT's design accuracy. In addition to the information reported here, WSDOT tracks detailed information about why costs increase on each completed contract. This information is used to improve WSDOT's design and project delivery processes.

Construction Contracts Highlights

In FY2012, 78 of 125 projects were awarded to contractors at a cost less than estimated.

The total final cost of 160 contracts completed in FY2012 was 14.1 percent greater than the amount awarded, and 4.2 percent greater than the WSDOT cost estimate.

The final cost of 75 percent of completed contracts was less than 10 percent above the award amount.

The percentage of contracts with cost overruns is up 7.9 percent from FY2011.

Highway construction contracts awarded: Year-to-year comparison

Dollars in millions

	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012
Number of contracts awarded	160	149	172	150	171	125
Total award amount for these contracts	\$539.0	\$544.4	\$677.8	\$832.7	\$500.9	\$594.8
Total engineer's estimate for these contracts	\$533.1	\$605.4	\$816.2	\$1,053.1	\$606.6	\$673.7
Avg. % total awards were above/below the total estimate value	0.4%	-5.9%	-17.0%	-18.0%	-15.2%	-4.6%
% Total award is above/below the engineer's estimate	1.1%	-10.1%	-17.0%	-20.9%	-17.4%	-11.8%
Combined contract value awarded below the estimate	35.5%	77.8%	82.8%	78.3%	94.7%	83.6%
Number of contracts awarded below the estimate	77	99	150	130	146	78
% Contracts awarded below the estimate	48.1%	66.4%	87.2%	86.7%	85.4%	62.4%

Data Source: WSDOT Construction Office.

Notes: Does not include design-build, Hood Canal Bridge, emergency, on-call, or ferry vessel repair contracts. Ferry terminal contracts were added in 2008.

Construction Contracts Annual Report

WSDOT completes \$670.7 million in contracts in FY2012

Contracts completed FY2012 represent highest value to date

WSDOT completed 160 contracts during FY2012. For every completed contract, WSDOT tracks the final cost of the contract and compares this to the contractor's original bid. This comparison provides a measure of WSDOT's design accuracy. WSDOT's goal is for the final cost of a contract to be no more than 10 percent greater than the contractor's bid.

The 160 contracts completed during FY2012 cost a total of \$670.7 million, the highest value completed annually to date. The final cost of these contracts totaled 14.1 percent higher than bids. This represents an increase of \$82.7 million and exceeds WSDOT's 10 percent goal. Large cost increases on a handful of contracts accounted for most of the overage.

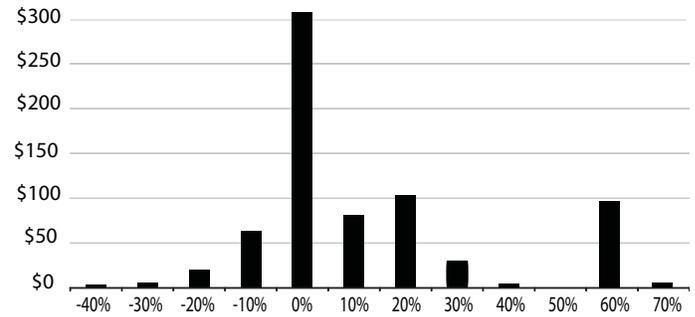
Final costs 4.2 percent greater than estimated

Comparing the final cost of a contract to the engineer's estimate measures both estimate and design accuracy. Total final costs on contracts completed during FY2012 were 4.2 percent greater than estimated, reversing a trend of final costs coming in below estimates. This is alarming because it means the projects completed in 2012 required additional funding beyond what WSDOT was originally planning to spend for the work.

When bids exceed estimates, WSDOT has the option to go back to the drawing board. When cost increases occur after construction has started, WSDOT cannot simply stop working on a project. Instead, additional funds must be secured to complete the project as planned.

Distribution of contract value over/under: award amount to estimate

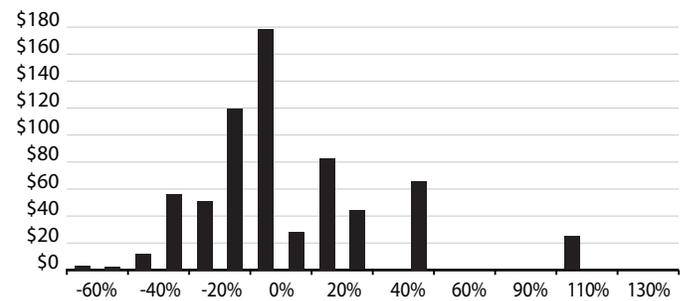
Percent award amount above or below engineers' estimates, FY2012
Dollars in millions



Data source: WSDOT Construction Office.

Distribution of contract value over/under: final cost to estimate

Percent final cost above or below engineers' estimates, FY2012
Dollars in millions



Data source: WSDOT Construction Office.

Completed contracts: Final cost to award amount

Dollars in million

	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012
Number of contracts completed	136	131	163	167	146	160
Total final cost for these contracts (without sales tax)	\$290.7	\$310.2	\$404.1	\$535.5	\$560.2	\$670.7
Total award amount for these contracts	\$273.2	\$295.4	\$372.6	\$507.8	\$528.8	\$587.9
Average % final costs exceeded award amount	3.2%	2.7%	2.7%	2.5%	0.3%	4.2%
% Final cost exceeded award amount	6.4%	5.0%	8.4%	5.5%	5.9%	14.1%
% Contract values less than 10% above award	66.7%	75.8%	59.7%	79.5%	51.8%	57%
Number of contracts less than 10% above award	109	112	136	135	121	120
% Contracts less than 10% above award	80.1%	85.5%	83.4%	80.8%	82.9%	75%

Data source: WSDOT Construction Office.

Notes: Does not include design-build, Hood Canal Bridge, emergency, on-call, or ferry vessel repair contracts. Ferry terminal contracts were added in 2008.

Contract final cost 4.2 percent higher than engineers' estimates in FY2012

Completed contracts: Final cost to engineers' estimates

Dollars in millions

	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012
Number of contracts completed	136	131	163	167	146	160
Total of construction contract estimates completed	\$287.0	\$298.2	\$379.1	\$556	\$590	\$643.4
Total final cost for construction contracts ¹	\$290.7	\$310.2	\$404.1	\$535.5	\$557.8	\$670.7
% total contract values cost above/below estimate	1.3%	4.0%	6.6%	-3.7%	-5.5%	4.2%
% of contract value less than 10% above estimate	63.5%	63.8%	49.6%	69.3%	65.5%	63.1%
Number of contracts less than 10% above estimate	96	89	116	133	130	131
% of contracts less than 10% above estimate	70.6%	67.9%	71.2%	79.6%	89.0%	81.9%

Data source: WSDOT Construction Office.

Notes: Does not include design-build, Hood Canal Bridge, emergency, on-call, or ferry vessel repair contracts. Ferry terminal contracts were added in 2008. ¹ Cost does not include sales tax.

WSDOT awards four design-build projects and completes six in FY2012

During FY2012, WSDOT awarded four design-build contracts. Bids for these contracts totaled \$747 million, \$150 million less than the amount budgeted for these projects (\$897 million). Improvements included the new SR 520 floating bridge, an express toll lane project on I-405 and two intersection improvement projects — one on the intersection of SR 9 and SR 92, the other on the intersection of U.S. 2 and Rice Road.

During FY2012, WSDOT completed six design-build projects. Final costs for these six projects at completion was \$425 million, 3.9 percent greater than bids, but less than 1 percent greater than budgeted. Improvements included new lanes between 112th Ave. and SE 8th Street on I-405, access improvements on SR 519 near the Seattle arenas, safety improvements on SR 532 including a new bridge between Stanwood and Camano Island, an auxiliary lane on I-405 northbound in Bothell and two new Kwa-di Tabil class ferries.

Design-build is a method of project delivery in which WSDOT executes a single contract with one entity for design and construction services to provide a completed project. In design-build contracts, WSDOT sets a series of expectations for the completed project, a scope of work, possibly in terms of performance, engineering and quality standards for the contractor's work and a maximum budget price to deliver the project. Design-build contracting offers greater cost certainty, faster delivery of large or complex projects, and mobilizes the skills of the designer/contractor team to provide innovative solutions to transportation projects. Since the design-builder is responsible for not only constructing the project but also designing it, they also take on most of the risk of constructability and most cost increases. Unlike a project WSDOT designs, the design-builder

foots the bill for any necessary changes. It is only if WSDOT adds elements to the contract, that the final cost would be higher than the proposal price.

Since WSDOT first piloted the design-build contracting approach in 2000, 23 contracts worth \$4.2 billion have been awarded to design-build contractors. To date, 12 of these contracts are complete for a total of \$1.4 billion in improvements such as the new Tacoma Narrows bridge, HOV lanes on I-5 in Everett, and numerous improvements to the I-405 corridor.

Design-build contracts awarded

FY2012

Project	Bid amount
I-405, NE 6th St To I-5 Widening And Express Toll Lanes	\$155,500,001
SR 520 / I-5 To Medina - Evergreen Point Floating Bridge and Landings	\$586,561,000
SR 9 / SR 92 Intersection Improvements	\$3,346,888
U.S. 2, Rice Road Intersection - Safety Improvements	\$2,170,507

Data source: WSDOT Construction Office.

Design-build contracts completed

FY2012

Project	Final cost
Two more new 64-car ferries	\$119,180,827
I-405, 112th Ave SE to SE 8th - New Lanes Widening	\$126,336,611
I-405, NE 195th St to SR 527 - Auxiliary Lane	\$19,558,376
I-5 et. al., Active Traffic Management System	\$38,050,487
SR 519, I-90 to SR 99 Intermodal Access I/C Improvements	\$68,002,109
SR 532 Corridor Improvements, Camano Island to I-5	\$53,896,517

Data source: WSDOT Construction Office.

Construction Contracts Annual Report

Significant cost overruns impact five projects in FY2012

Significant cost overruns: Final cost to award

I-405/Totem Lake NE 128th Street HOV Direct Access

The final cost was \$52 million, \$10 million greater than the contractor's bid due to a design flaw that led to concrete cracking and settlement in a new ramp structure. Part of the structure had to be removed, redesigned and replaced. Because the design was WSDOT's and the contractor had constructed the structure to WSDOT's specification, the repairs were paid for by WSDOT.

I-90/Sunset Interchange Modifications

The final cost was \$66 million, \$27 million more than the contractor's bid due to numerous challenges presented by difficult terrain encountered throughout the construction process. While excavating an area where structural foundations were to be built the contractor discovered large boulders that were not detected during the design process. The boulders resulted in drastic changes to the way the project could be built during the tight construction windows necessitated by the presence of fish-bearing streams. In another area of the project, the contractor encountered an existing landslide that required some project elements to be re-designed. Changes to the work to keep the project on track despite these issues resulted in \$24 million in contract changes. WSDOT takes on the risk of overruns due to unexpected circumstances so contractors do not include extra money in their bids for all projects due to risk that may not be realized.

SR 9/SR 522 to 212th Street SE Widening

The final cost was \$24 million, \$5.7 million greater than the contractor's bid due to numerous challenges presented by groundwater and off-site water throughout the construction process. While performing pond and wall excavation, the contractor encountered greater amount of ground water and off-site water than anticipated. A more elaborate dewatering system and longer dewatering period were needed to provide a dry area for the contractor to construct the ponds and walls. Due to several creeks and wetlands within the project limits, additional erosion control measures were taken to minimize impacts to these sensitive areas and meet our permit conditions. Despite mitigation efforts, groundwater and off-site water were one of the major contributor to the project cost and schedule impacts.

Significant cost overruns: Final cost to estimate

SR 305/Hostmark Street Vicinity to Bond Road

The final cost was \$25 million, \$13.5 million more than the contractor's bid due to numerous changes resulting from design errors. Changes required to complete the project as planned added \$2 million to the final cost. More material was required to construct the project than planned, adding another \$6 million. The large amount of changes added time to the contract and changed the schedule, entitling the contractor to receive payment for the impacts. Additionally, the contractor's initial bid was \$3.4 million more than estimated due to higher than anticipated costs for asphalt and the work associated with placing structural foundations.

Bremerton Transportation Center Access Improvements

The final cost was \$39 million, \$10 million greater than the engineer's estimate. The low bid for the work came in about \$2 million greater than estimated. The remaining \$8 million in overruns occurred during construction of the project due in large part to contaminated water and soil removal and disposal. The project site contained a large amount of contaminants, the extent of which was not anticipated. In addition, the project design did not anticipate the need to treat stormwater for contaminants. Other significant cost increases were electrical revisions to address design errors and changes to the amount of earthwork required to construct the project as planned.



The completed tunnel links Bremerton Transit Center to Burwell Street, diverting ferry traffic from downtown streets.

Workforce Level and Training Quarterly Update

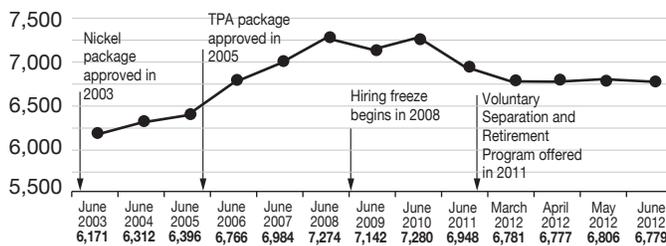
WSDOT workforce level continues to decline

Workforce Level and Training Highlights

WSDOT employed 6,779 permanent full-time workers as of June 30, 2012, 2.4% fewer than in 2011.

Number of permanent full-time employees

From June 2003 to June 2012



Data source: Dept. of Personnel Data Warehouse, HRMS, WSDOT and the Ferry System payroll.

On June 30, 2012, WSDOT employed 6,779 permanent full-time employees, two fewer than the first quarter ending March 31, 2012. This is 169, or 2.4 percent, fewer employees than the 6,948 employed at the end of June 2011.

The chart shows the number of permanent full-time employees since June 2003. For comparison, the current number of permanent full-time employees is about equal to the number in 2006, shortly after the approval of the Transportation Partnership Account (TPA) funding package. The current employment is 6.9 percent below the peak level of 7,280 in June 2010.

The total number of full-time equivalents will generally exceed the number of permanent full-time employees because it includes seasonal, permanent part-time, and non-permanent/on-call workers. The total does not include consultants.

Safety training continues to educate the workforce, including engineering interns

During the first two quarters of calendar year 2012, WSDOT completed training on 35 subjects with rosters totaling 3,753. Many employees attended more than one class. The subjects with highest attendance included: first aid, heat stress, hearing conservation, flagging, and ergonomics.

Eleven engineering interns received training in six critical safety topics for their work on summer construction projects.

The compliance rate for the class on sexual harassment prevention improved from 88% to 89.5%, nearing the 90% compliance goal.

Typically WSDOT has reported the total number and percent of employees in compliance with training requirements. When the new Learning Management System (LMS) is fully operational, WSDOT will resume reporting these numbers for all maintenance and safety training.

Keeping seasonal staff safe: meeting the training needs of engineering interns

The South Central region held two classes for engineering interns specifically intended to address relevant safety issues on their construction projects and assure that they are well trained and equipped for job hazards. One class was conducted in the evening at Snoqualmie Pass after normal work hours in order to catch both day and night shift interns. Eleven interns were trained in fall protection, the use of personal protective equipment, trenching and shoring, confined spaces, hearing conservation, and defensive driving.

Online class for prevention of sexual harassment and discrimination reduces cost, increases training compliance

WSDOT's full implementation of the new Learning Management System (LMS) is anticipated later this summer. Currently, WSDOT is using LMS to provide the Sexual Harassment Awareness and Prevention refresher course in an online self-study format. As of June 30, 2012, over 1,004 employees have successfully completed the course online, 451 in the second quarter of 2012 alone. The online course saved the agency about \$4,000 this quarter by eliminating 18 instructor-led classes, which cost \$600 each - that is a \$9 savings per person, or 37 percent.

Compliance with the sexual harassment awareness course improved to 89.5 percent in the second quarter of 2012, rising from 88 percent in the first quarter 2012 and just below the compliance goal of 90 percent. Compliance varies quarter to quarter due to agency requirements for refresher courses every three years for managers and every five years for employees.

Compliance for the remaining six mandatory policy and diversity courses will be reported for the second and third quarters of 2012 in the September 2012 *Gray Notebook*.

Highlights of Program Activities

For the quarter ending June 30, 2012

Highways

Project starts

U.S. 2 Bickford Avenue (Snohomish County)

WSDOT awarded Granite Construction of Everett a \$22.4 million construction contract in June to build a new overcrossing at the Bickford Avenue intersection and to replace five failing culverts under U.S. 2 near Snohomish. The Bickford Avenue overpass will open to traffic in 2013, but culvert work will be complete by this fall. At the same time culvert work is under way, crews will begin constructing stormwater detention ponds and retaining walls for on- and off-ramps that will connect to the Bickford Avenue overpass. When it is complete in fall 2013, the new overcrossing will allow drivers on Bickford Avenue to travel over U.S. 2 and then merge into westbound traffic from a right-hand on-ramp. Eastbound U.S. 2 drivers can exit onto Bickford Avenue using a longer off-ramp that will connect to the overpass.

I-5 Centralia (Lewis County)

WSDOT awarded a contract in late April for the first stage of major improvements on Interstate 5 between Centralia's Mellen Street and Blakeslee Junction. Cascade Bridge, LLC of Vancouver won the contract with its bid of \$21.6 million, 22 percent below WSDOT's original estimate. Construction began in late June. During the next year, crews will start work on collector-distributor (CD) lanes on both sides of I-5 between Mellen Street and Blakeslee Junction, and will build bridges to continue these lanes over the Skookumchuck River. Crews will also connect Louisiana Avenue and Airport Road on the west side of I-5, giving drivers a more direct travel option to the Chehalis-Centralia Airport and local commercial areas. A bicycle-pedestrian path is also being built as part of the work on Airport Road. The second stage of this project is scheduled to begin in summer 2013. Stage 2 completes construction of the CD lanes, improves interchanges at Mellen Street and Harrison Avenue, straightens the Blakeslee curve and rehabilitates the existing I-5 Skookumchuck River bridges.

Project updates

I-5 Ridgefield (Clark County)

The second stage of construction began in April on two roundabouts flanking I-5 near its junction with State Route 501, three miles east of Ridgefield. The roundabouts and other local road improvements are part of a \$29 million safety and mobility project that began construction in 2009. These improvements tie in with work completed in Stage 1, which constructed a new four-lane SR 501 bridge with longer on- and off-ramps and turn lanes. Stage 1 also built sidewalks to improve pedestrian and

bicycle travel. Stage 2 is a partnership with the city of Ridgefield to improve local streets that feed into the interchange and I-5. Crews with Nutter Corporation of Vancouver began excavation work on the east side of I-5 at Pioneer Street and 65th Avenue on April 30. The project is scheduled for completion this fall.

I-5 Woodland (Cowlitz County)

Work resumed in May on a project to repave eight miles of I-5 between the East Fork Lewis River Bridge and Todd Road, and on SR 503 in downtown Woodland. Contractor crews will replace aging pavement and guardrail on I-5 and SR 503, and upgrade sidewalk ramps in Woodland. The project started in 2011 and was nearly 60 percent complete when it shut down for winter. This \$5.9 million project is funded through federal highway improvement dollars and is scheduled for completion this fall.



A crane lifts a girder section into place at SR 529 Ebey Slough Bridge.

SR 529 Marysville (Snohomish County)

Commuters on SR 529 bid farewell to the Ebey Slough Bridge on April 13, before the 87-year-old bridge was retired from service. Crews used a weekend closure to switch traffic to a portion of the new bridge, reopening the highway April 16 with traffic in both directions of SR 529 traveling on half of the new bridge. Crews positioned cranes on the closed west half of the new bridge to remove pieces of the old bridge.

Crews are nearly finished building the wider four-lane, fixed-span bridge next to the existing two-lane, swing-span bridge. They are scheduled to connect the west side of the bridge to the new alignment of SR 529 by January 2013, when the bridge will open with two lanes in each direction, separate bicycle lanes and sidewalks on each side. The \$39.2 million project to replace the aging Ebey Slough Bridge is funded by the 2005 gas tax.

For the quarter ending June 30, 2012



Elected officials and a coalition of regional supporters celebrate the completion of a major highway safety project expected to reduce collisions and improve traffic flows on U.S. 12, SR 124 and Humorist Road.

Project completions

U.S. 12/SR 124 interchange (Franklin County)

Elected officials and regional supporters celebrated in June the completion of a major highway safety project expected to reduce collisions and improve traffic flows on U.S. 12, SR 124 and Humorist Road. The \$21.3 million project reduces the risk of collisions with a new interchange and overpass bridges that allow traffic on SR 124 and Humorist Road to safely cross over the 60 mph traffic on U.S. 12. Also, two new roundabouts will circulate traffic quickly and safely without the use of stop signs at two intersections. Local street improvements, including an entrance to Hood Park, an extension of Jantz Road and a roundabout on Fifth Street, will improve traffic flow within the town of Burbank as well as access to U.S. 12, SR 124 and Humorist Road.

U.S. 395, North Spokane Corridor (Spokane County)

On June 13, another phase of the North Spokane Corridor (NSC) was completed and drivers got their first chance to try out a new connection between U.S. 395 and the northern 5.7 miles of the ten-mile corridor. Contractor crews built two bridges at the north end of the route (near the Wandermere Golf Course) and completed a four-lane section of divided concrete freeway linking the NSC with U.S. 395. A fully paved pedestrian and bicycle path parallels the new freeway, connecting to other trails along the route. Funding for this \$38 million project came from the transportation package passed by the 2003 Legislature. Still under construction are the southbound lanes from the Freya/Francis area to Farwell Road and the Parksmith Road Interchange. Those sections of the North Spokane Corridor are slated to be completed later this year. The Francis Avenue Bridge project is next up for construction with work expected to begin later this summer.

Ferries

Newest and smallest ferry named

The Washington State Transportation Commission named Washington's newest and smallest ferry the Sandpoil. It will serve the Keller route across the Columbia River in Eastern Washington, connecting Lincoln and Ferry counties. Sandpoil is the Anglicized form of the name given to the Columbia River and ancestral and current native residents of this area. The name honors the people who have lived on this land and crossed the river for thousands of years.

In a public naming contest, WSDOT and the commission received more than 500 suggestions. About 200 met the parameters of the Commission Vessel Naming Guidelines. A committee of tribal, community and WSDOT representatives reviewed the 200 names and, at a meeting in late May, reached consensus on the name to submit to the commission during its June meeting.

Several components of the new vessel are under construction at the Foss Maritime shipyard in Rainier, Oregon. This fall, the parts will be trucked to Grand Coulee and assembled. The boat is expected to be launched in July 2013 and will replace the current vessel, the 64-year-old Martha S.



The Martha S., also known as the Keller Ferry, crosses the Columbia River at its confluence with the Sanpoil River in Ferry County. The Martha S. will soon be replaced by the Sandpoil, Washington's newest and smallest ferry.

Highlights of Program Activities

For the quarter ending June 30, 2012

Ferries reservation service now available

Washington State Ferries launched its Save A Spot reservation system for Anacortes/Sidney, B.C. customers and for Port Townsend/Coupeville customers. These reservations are also available for business customers, such as commercial truckers and bus companies on San Juan Island routes, which include Orcas, Shaw, Lopez and Friday Harbor. The new system upgrades existing vehicle reservation options by allowing users to reserve a sailing six months in advance on some routes and modify their reservation online, among other features. The current system does not allow online modifications and accepts reservations only one month ahead. WSF plans to evaluate reservation operations on these routes and expand the system to other routes in the next few years.



The preferred site to replace the aging Mukilteo ferry terminal has been selected; it is one-third of a mile to the east of the existing terminal.

Preferred site for Mukilteo ferry terminal selected

WSDOT Ferries Division recommended the aging ferry terminal at Mukilteo should be replaced with a new terminal one-third of a mile to the east. WSDOT selected this alternative based on public, agency and tribal comments received on the draft environmental impact statement (EIS) released in January 2012.

The preferred alternative, known as Elliot Point 2, would best avoid environmental impacts and addresses problems at the current terminal at the foot of Front Street and SR 525. These issues include a 60-year-old dock in need of significant repairs and upgrading, inadequate passenger connections between the ferry and nearby commuter rail and transit facilities, and pedestrian and vehicle conflicts. Elliot Point 2 is on the western portion of the Mukilteo Tank Farm, east of the current terminal. Construction of a new terminal at this location would cost approximately \$120 million to \$130 million. As the design and

environmental review continues, the preferred alternative will continue to be refined. A final EIS will be completed by WSF and the Federal Transit Administration in spring 2013.

Aviation

Online calculator allows development exploration

WSDOT Aviation is creating an online calculator that will allow users to explore economic development opportunities, attract businesses and weigh investment choices at individual airports. The interactive economic calculator is scheduled to be tested this summer and will integrate with WSDOT's Airport Information System database, which provides an in-depth look at the state's airports. The project is expected to be complete by early fall.

Announcements, awards and events

North Spokane Corridor awarded TIGER grant

U.S. Senators Maria Cantwell and Patty Murray and U.S. Representative Cathy McMorris Rodgers announced in June that the U.S. Department of Transportation awarded a \$10 million competitive grant to the North Spokane Corridor project. WSDOT, which applied for the Transportation Investment Generating Economic Recovery (TIGER) grant in March, will use the grant to:

- Relocate 7.5 miles of Burlington Northern Santa Fe mainline and switch spur rail tracks near the Freya Street interchange
- Extend an existing 5.5-mile bicycle/pedestrian trail for more than one mile to serve the Hillyard neighborhood

Each of these components is critical to the corridor's completion and will help bring the project one step closer to reaching its southbound limits at I-90.

Roadway safety funding benefits 40 Washington cities

Forty Washington cities will receive a share of \$50 million in federal safety funds to construct street improvements. These projects will reduce intersection-related collisions on city streets and on state highways that serve as city arterials. WSDOT administers federal transportation grant funding for the state. Projects range in cost from \$250,000 to \$4.9 million. Construction for some projects will begin this summer with most projects being completed during the next three years, by fall 2015. In western Washington, 31 cities had eligible projects. In eastern Washington, nine cities will have projects. For more information on the cities awarded funds and how they will be used, visit <http://www.wsdot.wa.gov/LocalPrograms/Traffic/CitySafetyFunded.htm>.

For the quarter ending June 30, 2012



WSDOT celebrates May 18, 2012 as National Bike to Work Day with the sixth annual interagency Bike Ride. Ian Macek (center) lead the group.

Washington named top bicycle-friendly state five years running

For the fifth consecutive year, the League of American Bicyclists named Washington as the No. 1 “Bicycle-Friendly State” in the country. The announcement came in May during National Bike Month. The state was evaluated for several bicycle-related categories: legislation and enforcement, policies and programs, infrastructure and funding, education and encouragement and evaluation and planning.

North Cascades Highway opened

WSDOT crews conducted seven weeks of clearing to reopen the SR 20 North Cascades Highway beneath what, in places, added up to 60 feet of snow. On May 10, east and west side gates swung open to waiting drivers. A noon reopening allowed crews to “sweep” the 37-mile winter closure zone for sand, rocks and debris between milepost 134, seven miles east of Diablo Dam on the west side of 4,855-foot-high Rainy Pass, and milepost 171, west of Mazama below 5,477-foot-high Washington Pass.

The clearing process began March 26, two and a half weeks earlier than last year. The May 10 reopening is the fifth latest since the highway first opened 40 years ago on September 2, 1972, but three of those late openings were recorded in the four years immediately after 1972. Last year’s May 25 reopening was the second latest on record. The latest reopening was recorded on June 14, 1974; it reopened on May 16 in 1975 and on May 21 in 1976. The highway closed for the winter on November 15, 2011. It typically opens between the last week in March and the first week in May.

SR 167 HOT lanes celebrate fourth anniversary

The four-year anniversary of the SR 167 HOT Lanes project was marked by fewer delays, faster trips and increasing revenue. High Occupancy Toll (HOT) lanes drivers save an average of nine minutes northbound and six minutes southbound during weekday peak hours. During the first year, 30,000 Good To Go! drivers paid to use the HOT lanes; that number doubled in the second year to 60,000. More than 100,000 drivers have paid to use the HOT lanes. Toll rates vary based on congestion, and the average toll paid is between \$1 and \$1.25 per trip. The end of fiscal 2011 was the first time toll revenue exceeded expenditures – by a total of \$12,000. More recent data from the HOT lanes quarterly financial report shows a \$77,000 surplus in the third quarter of fiscal 2012.

WSDOT launched the HOT lanes as a pilot project in 2008 to reduce congestion and improve travel times for SR 167 commuters between Auburn and Renton. The HOT lanes help reduce congestion by allowing solo drivers to pay a toll to use the carpool lane. In March 2011, the state legislature extended the authority for the pilot project through June 30, 2013. Since opening the HOT lanes, peak hour volumes for the general-purpose lanes have decreased an average of approximately 5 percent, while speeds have increased 4 percent. Peak hour HOT lane volumes have increased by 15 percent, while speeds have remained consistently at 60 mph.



WSDOT’s crew spent the last few hours before the noon opening on May 10 making sure the highway was ready for anything from bicycles to semi-trucks.

Navigating the WSDOT Information Stream

Linking performance measures to strategic goals

The *Gray Notebook* is the basis for WSDOT performance reporting that links performance measures for the strategic plan, legislative and executive policy directions, as well as federal reporting requirements.

Statewide transportation policy goals

The Governor and Legislature have enacted laws establishing 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;

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

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 develops the necessary business direction plans to achieve these goals through the agency's strategic planning process, which takes place every two years.

The Transportation Progress Report

Under this law, the Washington State Office of Financial Management (OFM) is responsible for setting objectives and establishing performance measures for each of the goals. OFM must report on the attainment of the goals and objectives to the Governor and Legislature each biennium. In January 2008, OFM published a "baseline" report to get feedback from the Governor and Legislature on draft objectives and performance measures.

The most recent Attainment Report, for 2010, is available online at www.wsdot.wa.gov/Accountability/PerformanceReporting/Attainment.htm, or on OFM's performance and results website: www.ofm.wa.gov/performance/.

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 strategic directions and initiatives to address critical programs and service delivery mandates. The table on page vi illustrates this alignment. WSDOT's 2011-2017 strategic plan is available online at: www.wsdot.wa.gov/Accountability/PerformanceReporting/StrategicPlan.htm.

Other performance reporting requirements

Priorities of Government (POG)

POG is an investment prioritization process used to help the Governor and Legislature develop agency budgets. Every biennium, workgroups composed of government agency and private sector representatives identify results that citizens expect from government, and evaluate the performance of state agency activities and services against those expected results. Information about the 2001-2013 POG process is available at: www.ofm.wa.gov/budget/pog.

Government Management Accountability and Performance program (GMAP)

GMAP is a management tool that promotes the sharing and evaluation of current performance to improve results. Under GMAP, the Governor and her leadership team meet in "GMAP forums" with agency directors to review results and develop action plans to improve results. These meetings provide an opportunity for candid conversations about what is working, what is not, and how to improve results.

WSDOT regularly reports to the Governor during the Transportation GMAP forums. WSDOT's GMAP reports can be found at: www.wsdot.wa.gov/Accountability/PerformanceReporting/GMAP.htm.

About WSDOT's Performance Dashboard

The 'dashboard' of performance measures on page vii offers readers a snapshot glance at WSDOT's progress against the statewide policy goals and WSDOT's strategic plan. Some results are discussed in depth within this edition of the *Gray Notebook*, while others are in previous editions or will be updated in coming editions based on established reporting cycles. Turn to the Subject Index (pp. 76-81) to find earlier coverage; all previous editions are available online at www.wsdot.wa.gov/accountability.

Navigating the WSDOT Information Stream

Linking performance measures to strategic goals

Through more than 45 editions, in fact eleven years, WSDOT has published a quarterly performance report known as the *Gray Notebook*. 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 organized into sections devoted to those strategic goals. Contents include quarterly and annual reports on key agency functions, providing regularly updated system and program performance information. Annual system performance updates are rotated over four quarters based on data availability and relevant data cycles, to provide in-depth analysis of topics such as capital facilities, aviation, freight, and a post-winter report on highway maintenance. Quarterly topics, such as worker safety, incident response, Amtrak *Cascades*, and Washington State Ferries, are featured in each edition since data is generally available more frequently.

Matters pertaining to WSDOT's Federal Recovery Act-funded projects, including high speed rail and TIGER grant 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).

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 simple.

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: www.wsdot.wa.gov/Accountability/PerformanceReporting/StrategicPlan.htm.

Publication frequency and archiving

The *Gray Notebook* is published quarterly in February, May, August and November. This edition and all past editions are available online at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm.

A separate detailed navigation folio is available at www.wsdot.wa.gov/Accountability/GrayNotebook/.

Gray Notebook Lite

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. It can be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/navigateGNB.htm.

Navigate the WSDOT website

WSDOT prepares information for legislators, state and local officials, interested citizens, and the press on the progress of the state's three capital delivery programs, and an array of detailed information can be found on-line at the WSDOT website.

WSDOT's on-line project reporting uses several different tools, including the *Gray Notebook* (as a downloadable PDF), web-based Project Pages, and Quarterly Project Reports (QPRs). There is a Project Page on the website for each major WSDOT project, and QPRs for Nickel-funded projects in the 2003 Transportation Funding Package.

The WSDOT home page (www.wsdot.wa.gov) offers several ways to find information on projects. The Projects tab on the top navigation bar links to the WSDOT's Projects page; there, you'll find information and links to detailed descriptions of all WSDOT projects. The Accountability navigation menu offers links to several important topics (including Congestion Relief, Safety, and Preservation).

Project pages

Project pages (www.wsdot.wa.gov/projects/) report on virtually all WSDOT capital delivery program construction projects. Project pages provide details on overall project vision, funding components, financial tables, milestones, status description, problem discussions, risks and challenges, forecasting, maps, photos, links and more, which are updated regularly. Project pages cover the overall project vision, financial details and funding components, milestones, roll-up cash flow, contact information, maps and links to QPRs.

Quarterly Project Reports

The Quarterly Project Reports (QPRs) are reached by a link on the Project Page. They summarize quarterly activities such as highlights, milestones, status description, problem statement, risks and challenges, project costs, cash flow, and contact information.

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2002	5 / Mar 31, 2002 (FY02 Q3)	6 / June 30, 2002 (FY02 Q4)	7 / Sept 30, 2002 (FY03 Q1)	8 / Dec 31, 2002 (FY03 Q2)
2003	9 / Mar 31, 2003 (FY03 Q3)	10 / June 30, 2003 (FY03 Q4)	11 / Sept 30, 2003 (FY04 Q1)	12 / Dec 31, 2003 (FY04 Q2)
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2005	17 / Mar 31, 2005 (FY05 Q3)	18 / June 30, 2005 (FY05 Q4)	19 / Sept 30, 2005 (FY06 Q1)	20 / Dec 31, 2005 (FY06 Q2)
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All editions can be accessed at: www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm
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*Note: Some performance measures for *Gray Notebook* 35, 39, 42, & 46 are featured in the stand-alone annual Congestion Report, available online at www.wsdot.wa.gov/Accountability/Congestion/

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*Note: Some performance measures for *Gray Notebook* 35, 39, 42, & 46 are featured in the stand-alone annual Congestion Report, available online at www.wsdot.wa.gov/Accountability/Congestion/

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*Note: Some performance measures for *Gray Notebook* 35, 39, 42, & 46 are featured in the stand-alone annual Congestion Report, available online at www.wsdot.wa.gov/Accountability/Congestion/

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Acronyms used in the *Gray Notebook*

A partial list of acronyms and abbreviations appearing in this issue

AASHTO	American Association of State Highway and Transportation Officials	MT ^{3I}	Maximum Throughput Travel Time Index
ACHP	Advisory Council for Historic Preservation	NB	Northbound
ADA	Americans with Disabilities Act	NBI	National Bridge Inventory
ARRA	American Recovery and Reinvestment Act	NBIS	National Bridge Inspection Standards
ATM	Active traffic management	NSC	North Spokane Corridor
BMP	Best Management Practice	ODOT	Oregon Department of Transportation
BST	Bituminous Surface Treatment	OEO	Office of Equal Opportunity
BTD	Biennium to date	OFM	Office of Financial Management
CCI	Construction Cost Index	OSHA	Occupational Safety and Health Administration
CD	Collector-distributor	PA	Programmatic agreement
CLRS	Centerline rumble strips	PEBB	Public Employees Benefits Board
CPI	Consumer Price Index	PEF	Pre-Existing Funds
CY	Calendar year	RIR	Recordable incident rate
DAHP	Department of Archaeology and Historic Preservation	ROTR	Run-off-the-road
DART	Days away, restricted, or transfer	SAO	Strategic Assessment Office
DES	Department of Enterprise Services	SB	Southbound
EB	Eastbound	SD	Structurally deficient
EIS	Environmental Impact Statement	SR	State route
EOB	End of biennium	STCDO	Statewide Travel and Collision Data Office
FARS	Fatal Accident Reporting System	STIP	Statewide Transportation Improvement Program
FHWA	Federal Highway Administration	TIFIA	Transportation Infrastructure Finance and Innovation Act
FO	Functionally obsolete	TIGER	Transportation Investment Generating Economic Recovery
FTA	Federal Transit Administration	TPA	Transportation Partnership Account
FTE	Full-time equivalent	TRAC	Washington State Transportation Center
FRA	Federal Railroad Administration	UBIT	Under-bridge inspection trucks
FY	Fiscal year	USFS	United States Forest Service
GDP	Gross Domestic Product	VMS	Variable message signs
GIS	Geographic Information System	VMT	Vehicle miles traveled
GMAP	Government Management, Accountability and Performance	WB	Westbound
GNB	Gray Notebook	WDFW	Washington Department of Fisheries and Wildlife
GP	General purpose	WITS	Washington Incident Tracking System
HOT	High occupancy toll	WSBIS	Washington State Bridge Inventory System
HOV	High occupancy vehicle	WSDOT	Washington State Department of Transportation
IR	Incident Response	WSF	Washington State Ferries
ITS	Intelligent Transportation System	WSP	Washington State Patrol
JOPS	Joint Operations Policy Statement	WTSC	Washington Traffic Safety Commission
JTC	Joint Transportation Committee	YTD	Year to date
LEAP	Legislative Evaluation and Accountability Program		
LMS	Learning Management System		
MPO	Metropolitan Planning Organization		

Americans with Disabilities Act (ADA) and other information

Americans with Disabilities Act (ADA) Information

Persons with disabilities may request this information be prepared and supplied in alternative formats (large print, Braille, cassette tape, or on computer disk) by emailing the Washington State Department of Transportation Diversity/ADA Compliance 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 through Washington Relay at 7-1-1.

Civil Rights Act of 1964, Title VI Statement to Public

The Washington State Department of Transportation (WSDOT) assures that no person shall, on the grounds of race, color, national origin, sex, age, disability, or income status, as prescribed by Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, and related statutes, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity. WSDOT further assures every effort will be made to ensure nondiscrimination in all of its programs and activities, whether or not those programs and activities are federally funded. For questions regarding WSDOT's Title VI Program, please call (509) 324-6018 (Eastern Washington Title VI Coordinator), or (360) 705-7082 (Western Washington Title VI Coordinator).

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 5-1-1 from most phones. This automated telephone system provides information on:

- Puget Sound traffic conditions and travel times
- Statewide construction impacts
- Statewide incident information
- Mountain pass conditions
- Weather information
- State ferry system information, and
- Phone numbers for transit, passenger rail, airlines and travel information systems in adjacent states and for British Columbia.

For additional information about highway traffic flow and cameras, ferry routes and schedules, Amtrak Cascades rail, and other transportation operations, as well as WSDOT programs and projects, visit www.wsdot.wa.gov.

For more information about performance measurement and reporting, visit www.wsdot.wa.gov/accountability/.