



**Washington State
Department of Transportation**

The Gray Notebook

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

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



GNB 44



**Quarter ending
December 31, 2011**

published
February 22, 2012



In this edition

Annual Reports

- Pedestrian & Bicyclist Safety
- Pavement Conditions
- Highway Maintenance
- Fish Passage Barriers
- Environmental Compliance



Quarterly Reports

- Incident Response
- Rail
- Ferries
- Capital Projects
- Workforce



Special Reports

- Travel Time Trends
- Federal Recovery Act funded Projects

[www.wsdot.wa.gov/
accountability](http://www.wsdot.wa.gov/accountability)

Executive Summary



On this quarter's cover (from top):

A cyclist exiting a light rail train.

Avalanche control and clean up a mile west of the Stevens Pass summit on US 2.

Checking to make sure "everything's a go" before lifting a girder into place on the SR 500, St. Johns Blvd. Interchange project.

An aerial photograph of heavy equipment and cranes at Bellevue Way Northeast and SR 520 as construction kicks into high gear at the Bellevue Way Northeast interchange.

The M/V Kennewick, the third and final 64-car ferry delivered to WSDOT.

This page: *A look at the steel structure of a support column for the new SR 522 Bridge under construction.*

Performance highlights in this edition of the *Gray Notebook*

Since 2001, WSDOT's quarterly *Gray Notebook* has served as one of the agency's primary accountability reporting tools. It contains quarterly, semi-annual, and annual updates on a wide range of agency activities, programs, and capital project delivery.

This edition of the *Gray Notebook* wraps up the publication's tenth year as WSDOT's primary transportation system performance report with the final in a series of special quarterly articles highlighting then-and-now performance measures (see page 88). The following pages present information on WSDOT's performance for the quarter ending December 31, 2011, as well as six annual and four semi-annual reports. Selected highlights from this edition include:

- **In 2010, 92.7% of WSDOT-managed pavement was in fair or better condition.** Asphalt pavement conditions declined slightly, chip seal pavements remained steady, and concrete pavements were up slightly because of Recovery Act investments. (Pavement Conditions Annual Report; pp. 10-16)
- **Performance of WSDOT's Highway Maintenance Accountability Process improves to 73% as a result of increased funding dedicated to catching up with the backlog.** Eleven maintenance activities achieved a slightly higher score than in 2010, ten were slightly lower, and nine stayed about the same. (Highway Maintenance Annual Report; pp. 17-20)
- **Peak period and daily volumes in the second half of 2011 have not changed significantly from 2010.** Fourteen of the 18 key commute routes sampled showed no significant change between 2010 and 2011. (Travel Time Trends Semi-Annual Report; pp. 22-24)
- **Bicycle and pedestrian commuting in Washington state has increased 75% in the last 10 years.** The Safe Routes to Schools program has improved walking and biking conditions for about 67,000 children since 2005. (Pedestrian and Bicycle Safety Annual Report; pp. 5-8)
- **WSDOT's Incident Response program provided an estimated \$10 million in economic benefit to Washington citizens and businesses** during the fourth quarter of 2011. About 47 full time employees and 62 dedicated trucks work to keep Washington roadways moving. (Incident Response Quarterly Update; pp. 25-29)
- **Washington State Ferries reported both ridership and farebox revenues exceeded quarterly projections,** and improved on-time performance compared to the previous quarter. (Washington State Ferries Quarterly Update; pp. 30-32)
- **Eleven fish passage barrier projects opened up 38 miles of potential upstream habitat in 2011.** In total, WSDOT has corrected 258 fish passage barriers and improved access to about 850 miles of upstream habitat. Sixteen projects are planned for correction in 2012. (Fish Passage Barriers Annual Report; pp. 36-37)
- **WSDOT is adapting the *Lean* process to continue to improve agency efficiency.** Three pilot projects include reducing the collision data backlog, improving the payment process and supply management, and automating maintenance data collection (*Lean* Special Report; pp. 82-83)
- **As of December 31, 2011, WSDOT has delivered 325 of 421 Nickel and Transportation Partnership Account (TPA) projects valued at \$4.4 billion,** on target with the funding provided in the 2012 Transportation Budget. To date, 87% of completed projects have been delivered early or on time and 91% have been on or under budget. As of December 31, 2011, 29 projects were under construction. (See the *Beige Pages* for a quarterly report of WSDOT's *Capital Project Delivery Program*; pp. 46-75.)

Table of Contents

Executive Summary	ii	Environmental Compliance Annual Report	38
Table of Tables and Graphs	iv	NEPA Documentation Update	40
Performance Dashboard	vii		
Contributors	viii		
Safety		Economic Vitality	
Worker Safety Quarterly Update	2	Transportation: Economic Update	42
Lost Workdays / OSHA-Recordable Injuries	2		
New Worker Safety Performance Measures / WSDOT Wellness	4	Stewardship	
Pedestrian and Bicyclist Safety		Special Report on Federal Recovery Act-funded Projects	45
System Safety Annual Report	5	Recovery Act Completed Project Summary	45
National Pedestrian & Bicyclist Safety Rankings	5	WSDOT's Capital Project Delivery Programs	46
WSDOT Bicyclist and Pedestrian Programs	6	<i>Current 2011 Legislative Transportation Budget Performance Dashboards:</i>	
Fatal Collision Locations and Actions	8	Highways	47
		Rail and Ferries	48
Preservation		Schedule and Budget Summaries	49
Asset Management: Pavement Conditions Annual Report	10	Advertisement Record	51
Pavement Conditions in 2010	10	Projects To Be Advertised	55
Hot Mix vs. Warm Mix Asphalt	11	Original 2003 and 2005 Transportation Funding Packages (Nickel & TPA)	56
WSDOT's Flexible Pavement Plan	12	<i>Revenue Forecast Updates:</i>	
Research / IRI / Lowest Life-Cycle Cost	13	2003 Transportation Funding Package (Nickel) financial information	58
Economic Performance Measures for Pavement	14	2005 Transportation Partnership Account (TPA) financial information	59
Addressing the Rehabilitation Backlog	15	Completed Projects: Delivering performance and system benefits	60
Local Agency Pavements	16	<i>Special Reports:</i>	
Highway Maintenance Annual Report	17	Tacoma Pierce County HOV Program	66
Maintenance Accountability Process	17	New Ferry Construction	67
2011 Task Completion & Asset Condition Surveys	19	Watch List: Projects with schedule or budget concerns	68
2010 Maintenance Customer Survey	20	<i>Pre-Existing Funds (PEF) Reporting:</i>	
		Advertisement Record	71
Mobility		Financial Overviews	72
Travel Time Trends Semi-Annual Report	22	Projects scheduled for Advertisement	73
Travel Time Trends in the Seattle Area: July-December 2011 vs. 2009-2010	22	Cross-Cutting Management Issues	75
Factors Affecting Travel Trends: 2007-2011	24	Construction Cost Trends	76
Incident Response Quarterly Update	25	Utilities	
WSDOT Region Focus: Traffic Incidents, Clearance Times, and Societal Costs	26	Workforce Level and Training Quarterly Update	77
WSDOT Region Focus: Blocking and Non-blocking Incidents	27	Workforce Level	77
Fatality Incidents, Extraordinary Incidents	28	Diversity and Policy Training Compliance	78
Major Incident Tow (MIT) Program, Customer Feedback, IR Program Benefits	29	Safety and Maintenance Training Compliance	79
Washington State Ferries Quarterly Update	30	Transportation Research Annual Report	80
Ridership and Farebox Revenue	30	Strategic Transportation Research & Funding Research by Transportation Policy Goal	81
Service Reliability	31	WSDOT Lean Special Report	82
Customer Feedback	32	Highlights of Program Activities	84
Rail: Amtrak Cascades Quarterly Update	33	Navigating the Information Stream	90
Passenger Rail: Amtrak Cascades	33	Gray Notebook Subject Index	91
		Americans with Disabilities Act (ADA) Information	97
Environment			
Fish Passage Barriers Annual Report	36		
Future Corrections	37		

In this issue

2 :: The number of OSHA-recordable injuries increased 7% from 2010 to 2011, reports the **Worker Safety Quarterly Update**.

10 :: The **Pavement Conditions Annual Report** indicates 92.7% of WSDOT owned pavement was in fair or better condition in 2010, little changed from 2009.

17 :: WSDOT achieved 73% of highway maintenance targets in 2011, up from 65% in 2010, reported in the **Highway Maintenance Annual Report**.

22 :: Travel times for 18 key commute routes experienced modest change in the last six months of 2011 compared to the same period in 2009 and 2010, in the **Travel Time Trends Semi-Annual Report**.

36 :: The **Fish Passage Barriers Annual Report** lists WSDOT fish passage projects that opened 38 miles of potential upstream habitat in 2011.

46 :: The **Capital Project Delivery Programs Quarterly update reports** WSDOT completed 15 Nickel and TPA projects in the quarter ending December 31, 2011.

Table of Tables and Graphs

Table or graph title	page	Table or graph title	page
Safety			
Worker Safety			
WSDOT annual number of lost workdays	2	Tasks completion and asset condition (LOS) for selected maintenance activities	19
Lost workdays compared to injuries by category of worker	2	2010 Customer survey results :	
OSHA-recordable injuries sustained and workdays lost by category of worker	3	Maintenance activities ranked by importance	20
WSDOT strain/sprain injury rates per 100 workers, by organizational unit	3	Mobility	
WSDOT hearing loss injury rates per 100 workers, by organizational unit	3	Travel Time Trends Semi-Annual Report	
Bicycle & Pedestrian Safety		Travel time performance for July-Dec in 2009-2011	23
Pedestrian fatality rate per 100,000 people	5	Five year trend for annual Puget Sound regional employment and gasoline prices	24
Bicyclist fatality rate per 1,000,000 people	5	Incident Response	
Pedestrian and bicycle documentation project	6	Facts and figures: WSDOT IR program	25
Number of pedestrian and bicyclist fatalities in Washington, by route type and posted speed	7	Statewide IR responses and average overall clearance time	25
Pedestrian fatality locations	8	Incident clearance times by WSDOT region and notification type	26
Bicyclist collision and fatality locations	8	Blocking and non-blocking average clearance times by incident duration	26
Preservation		Number and percentage of responses by duration	27
Pavement Condition Annual Report		Percentage of capacity reduction by lane closure	27
Pavement conditions, funding programmed, and lane miles paved by type of pavement	10	Blocking/non-blocking incidents by WSDOT region	27
State highway pavement trends, 1990–2010	10	Responses & average fatality collision clearance time	28
Detailed state highway pavement trends, 2001–2010	11	Extraordinary incidents on nine key western Washington routes (six hours or more)	28
WSDOT Warm Mix Asphalt tonnage	11	Progress reducing average clearance times for over-90 minute incidents on nine key western Washington highway segments	28
Four conditions to convert asphalt to chip seal pavement	12	Major incident tow activation clearance time and incentives paid to tow companies	29
Expected rate of conversion of asphalt to chip seal	12	Washington State Ferries	
Estimated savings from asphalt to chip seal conversion	12	WSF planned and actual ridership levels by fiscal year	30
IRI roughness distribution by percentage of total vehicle miles traveled, 2010	13	WSF planned and actual farebox revenue levels by fiscal year	31
Historical Equivalent Uniform Annual Cost (EUAC) for asphalt pavements by region and statewide Eastern region example	14	Washington State Ferries missed-trip reliability comparison	31
Expected annual cost of projects in the 2011–13 biennium preservation program	14	Reasons for missed trips	31
Pavement preservation funding FY 1992 - 2018	15	Washington State Ferries on-time performance comparison	32
Local agency pavement summary information	16	Average number of complaints per 100,000 customers	32
Historical pavement condition ratings: fair or better	16	Passenger Rail: Amtrak Cascades	
Highway Maintenance (MAP) Annual Report		Amtrak <i>Cascades</i> ridership by funding partner	33
Maintenance targets achieved 2011 vs. planned	17	Amtrak <i>Cascades</i> quarterly ridership	33
Level of Service (LOS) target by asset condition	17	Amtrak <i>Cascades</i> on-time performance	34
Statewide maintenance targets achieved	18	Amtrak <i>Cascades</i> ticket revenue by quarter	34
Investments needed to reduce maintenance backlog	18	Amtrak <i>Cascades</i> farebox recovery	34
		Environment	
		Fish Passage Barriers Annual Report	
		Completed fish passage construction in 2011	36
		Planned fish passage construction for 2012	37

Table of Tables and Graphs

Table or graph title	page	Table or graph title	page
Environmental Compliance Annual Report		PEF project advertisements schedule performance	
Annual number of reportable environmental compliance events versus the value of the capital project delivery program	38	Pre-Existing Funds project advertisements	72
WSDOT's reportable events by category, 2009-2011	39	Pre-Existing Funds improvement program cash flow	72
Number of projects by environmental documentation type	40	Pre-Existing Funds preservation program cash flow	72
Stewardship		Pre-Existing Funds (PEF) projects scheduled for advertisement or advertised this quarter	73
Recovery Act Reporting		Pre-Existing Funds (PEF) projects scheduled for advertisement or advertised this quarter	74
Recovery Act-funded highway employment	44	Cross-Cutting Management Issues	
Recovery Act-funded highway projects as of December 31, 2011	45	Average number of bidders per WSDOT contract	75
Capital Project Delivery Programs		Construction Cost Indices (CCI) Washington state, FHWA, and selected western states	75
Budget performance for Nickel and TPA projects	46	Utilities risk levels for 2011	76
Executive summary of project number and value	46	Workforce Level & Training	
Highway construction performance dashboard	47	Number of permanent full-time employees	77
Rail construction performance dashboard	48	Required training for all employees, by region	78
Ferries construction performance dashboard	48	Required diversity training for all WSDOT employees	78
Biennial summary of all projects completed 2003-2011	49	Required policy training for all WSDOT employees	78
15 projects completed as of December 31, 2011	50	Research	
29 projects in construction phase as of December 31, 2011	51	Total value of 2011-2013 research projects	80
14 Projects in the delivery pipeline for January 1, 2012 through June 30, 2012	55	Strategic Planning & Research fund distribution	80
Project delivery update: Original 2003 Transportation Funding Package (Nickel)	56	Number of WSDOT research projects planned	81
Project budget delivery update: Original 2003 Transportation Funding Package (Nickel)	56		
Project delivery update : Original 2005 Transportation Partnership Account (TPA)	57		
Project budget delivery update: Original 2005 Transportation Partnership Account (TPA)	57		
Transportation 2003 (Nickel Account) revenue forecast	58		
Multimodal Transportation Account (2003 Package revenue forecast)	58		
Transportation 2003 (Nickel) account revenue forecast	58		
2005 Transportation Partnership Account (TPA) revenue forecast	59		
SR 9/Lundeen Parkway to SR 92 – Add lanes and Improve intersections (Snohomish)	64		
Kwa-di Tabil Class ferries: projected vs. actual costs	67		
Watch List projects with schedule or budget concerns	68		
Pre-Existing Funds (PEF) Reporting			
Six individually tracked Pre-Existing Funds (PEF) projects: results through December 31, 2011	71		
Value of planned PEF advertisements: 2011-2013 biennium	72		

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 89-90.

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 42, p. 4
Rate of traffic fatalities per 100 million miles traveled	annual	GNB 42, p. 5
Percent reduction in collisions before and after state highway improvements	annual	GNB 41, p. 6
Number of recordable workplace injuries and illnesses	quarterly	GNB 44, 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 42, 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 41, p. 20
Percent of ferry terminals in fair or better condition	annual	GNB 41, p. 18

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 41, p. 34
Number of vehicle miles traveled	annual	GNB 42, p. 16

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 42, p. 17
Reliable travel times on the most congested state highways around Puget Sound	annual	GNB 42, 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 44, p. 28
Ferry ridership	quarterly	GNB 44, p. 30
Ferry trip reliability	quarterly	GNB 44, p. 31
Percent of ferry trips on time	quarterly	GNB 44, p. 32
Amtrak Cascades ridership	quarterly	GNB 44, p. 33
Percent of Amtrak Cascades trips on time	quarterly	GNB 44, p. 33

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 44, pp. 46-50
Recovery Act-funded project reporting	quarterly	GNB 44, pp. 44-45

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 a future edition of the *Gray Notebook*.

Gray Notebook report on Freight	GNB 41, pp. 42-50
Gray Notebook report on Rail Freight	GNB 43, 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: 2009 & 2010)	0.87	0.80	1.00			The rate of highway fatalities continues to decline (a lower rate is better)
Rate of strains and sprains / hearing-loss injuries per 100 WSDOT workers ¹ (calendar quarterly measure: Q3 2011 & Q4 2011)	2.0/ 0.0	2.3/ 0.9	2.4/ 0.4	—		Strains/sprains goal achieved for the quarter, but not for the year. Hearing loss did not meet the goal for the quarter or the year to date
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: 2010 & 2011)	98.0%	95.0%	97.0%	—		Deck code ratings added to criteria contributed to the change
Mobility (Congestion Relief)						
Highways: annual weekday hours of delay statewide at maximum throughput speeds ² (annual measure: calendar years 2008 & 2010)	34.8 million	31.7 million	N/A	N/A		Reduction of 21% driven by both reduced demand due to the economy and increased capacity
Highways: Average clearance times for major (90+ minute) incidents on 9 key western Washington corridors (calendar quarterly measure: Q3 2011 & Q4 2011)	162 minutes	149 minutes	155 minutes			Average clearance time improved for the quarter, and met the goal
Ferries: Percentage of trips departing on time ^{3, 7} (quarterly, year to year: FY11 Q2, FY12 Q2)	91.6%	97.1%	90%			Performance is higher than the same quarter a year ago
Rail: Percentage of Amtrak <i>Cascades</i> trips arriving on time ^{4, 7} (quarterly, year to year: FY11 Q2, FY12 Q2)	74.0%	74.8%	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, 7} (quarterly: FY11 Q4, FY 12 Q1)	310/ 89%	325/ 87%	90% on time	—		Performance declined this quarter and did not meet goal
Cumulative number of Nickel and TPA projects completed and percentage on budget ^{6, 7} (quarterly: FY11 Q4, FY12 Q1)	310/ 91%	325/ 91%	90% on budget			Competitive bidding and construction environment contribute to controlling costs
Variance of total project costs compared to budget expectations ^{6, 7} (quarterly: FY11 Q4, FY 12 Q1)	under-budget by 1.0%	under-budget by 1.0%	on budget			Total Nickel and TPA construction program costs are within 1% 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 Sprains/strains and hearing loss are current high priority focus areas for WSDOT. Hearing loss rate based on preliminary data.

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 48 for more information on capital projects in the current 2011 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. FY12 Q1 refers to the quarter ending September 30, 2011.

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/

Contributors

Safety	Worker Safety	Kathy Dawley, Elena Fehr, Kathy Radcliff, Ernst Stahn
	Bicycle & Pedestrian Safety	Charlotte Claybrooke, Ian Macek, Paula Reeves
Preservation	Pavement	Aaron Butters, David Luhr, Jeff Uhlmeyer
	Maintenance	Rico Baroga, Anna Zaharris
Mobility/ Congestion Relief	Travel Time Trends	Mark Hallenbeck, John Ishimaru, Duane Wright
	Incident Response	Paula Connelley, Vince Fairhurst, Diane McGuerty For WSP: Jim Hill, Joanna Trebaczewski
	Washington State Ferries, including new ferry construction program	Jean Baker, Theresa Greco, Matt Hanbey, Laura D. Johnson, Kynan Patterson, Ron Wohlfrom, Brett Wolfe
	Passenger Rail	George Xu
Environment	Fish Passage Barriers	Jon Peterson
	Environmental Compliance	Scott Carey, Ernie Combs, Chris Regan
Economic Vitality	Transportation Economic Indicators	Rachel Knutson
Stewardship	Federal Recovery Act Reporting	Strategic Assessment Office, Capital Program Delivery & Management, Highways & Local Programs, Rail, Construction, Public Transportation
	WSDOT's Capital Project Delivery Programs (the Beige Pages)	Jay Alexander, Capital Project Delivery & Management office, Claudia Lindahl, Regional Program Managers
	Tacoma/Pierce Co. HOV Lanes Update	Claudia Cornish
	Construction Cost Trends	Jenna Fettig
	Utilities	Rhonda Wiest, Ahmer Nizam
	Workforce Level and Training	Sue Briggs, Matt Cronk, Kathy Dawley, Ted Koska, Greg Selstead, Ernst Stahn, Terry Whitney
	Research	Kathy Lindquist
	Lean	Rachel Knutson, Todd Lamphere
	Program Highlights	Ann Briggs
GNB Production	Performance Analysis Team	Angie Battazzo, Sreenath Gangula, Dan Genz, Rachel Knutson, Todd Lamphere, Anna St. Martin
	Graphics	Chris Britton, Diana Lessard, Jessie Lin, Fauziya Mohamedali, Steve Riddle
	Publishing and Distribution	Linda Pasta, Trudi Phillips, Deb Webb
For information, contact:	Daniela Bremmer, Director WSDOT Strategic Assessment Office 310 Maple Park Avenue SE, PO Box 47374, Olympia, WA 98504-7374 Phone: 360-705-7953 :: E-mail: daniela.bremmer@wsdot.wa.gov Subscription information e-mail: graynotebook@wsdot.wa.gov	



Safety

Statewide 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.



In this section

- Worker Safety Quarterly Update 2
- Highway System Safety Programs: Focus on Pedestrian and Bicyclist Safety 5
- See also**
- Incident Response 25
- Workforce Level & Training 77

Earlier articles concerned with safety

- Highway System Safety Programs: Focus on Before & After Results of Projects, GNB 43
- Highway System Safety Programs: Focus on Traffic Fatalities/Target Zero, GNB 42
- Highway System Safety Programs: Focus on Run-off-road and Intersections, GNB 41
- Safety Rest Areas, GNB 41

Worker Safety Quarterly Update

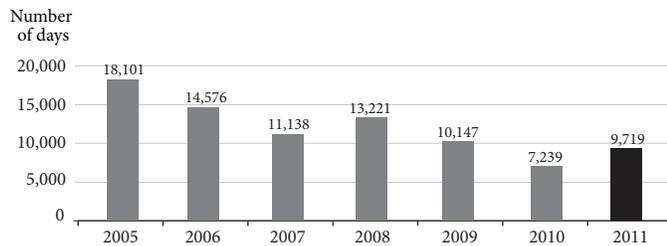
Lost Workdays / OSHA-Recordable Injuries

Worker Safety Highlights

The 81 OSHA-recordable injuries in Q4 2011 is 21% lower than the 102 in Q4 2010.

WSDOT annual number of lost workdays

January 2005-December 2011: all employees days away from work



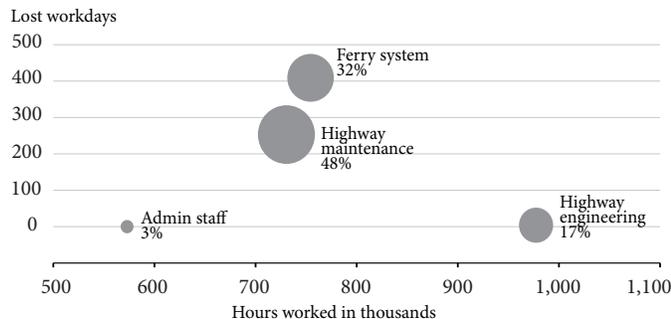
Data source: WSDOT Safety Office.

The number of workdays lost due to injury increased in 2011, but is the second lowest since 2005.

Employee reported physical activity levels have increased 7% since 2010.

Lost workdays compared to injuries sustained by category of worker

October 1 - December 31, 2011: percent of total injuries sustained



Data source: WSDOT Safety Office.

Note: During a week an employee may charge portions of their 40-hour workweek to one or more of the above categories. However, the injuries are documented by home organization code. WSF count worked hours by union affiliation and injuries by home organization code.

WSDOT has a strong commitment to improve the safety of its employees as they perform their jobs. In 2009, the agency established a goal of zero workplace injuries by 2019. Since then, WSDOT has embarked on an ambitious program to transform its employee safety program, guided by a core value that every employee should leave at the end of their shift just as healthy as when they started. Though much has been accomplished, WSDOT recognizes that there are still many opportunities to improve the safety of its workforce.

Workdays lost up 34% from 2010

WSDOT has made progress in its efforts to reduce the number of days that employees are unable to report to work from work-related injury or illness. In 2011 WSDOT employees lost 9,719 workdays, which is the second lowest since WSDOT began tracking this measure in 2005, when there were 18,101 workdays lost. The lowest year was 2010, when there were only 7,239 workdays lost. Lost workdays in 2011 are up 34% from 2010.

Quarterly trend for lost workdays

In Q4 2011 (October 1 - December 31), WSDOT employees lost 666 workdays to work-related injuries. This is 1% more than Q4 2010, when employees lost 661 workdays, and 20% more than in Q3 2011, when employees lost 554 workdays.

Highway maintenance workers lost 253 workdays, and engineers lost four workdays. Ferries maintenance employees lost 409 workdays, 26 fewer than the same quarter one year ago.

After a workplace injury occurs, workers may claim days away from work to recover from the injury, and the lost workdays may extend beyond the quarter in which they were injured. The quarterly report on the number of injuries and lost workdays is a snapshot at the end of a quarter, reporting the number of lost workdays due to injuries occurring within that quarter. The yearly number reports the total number of injuries and lost workdays for the entire year, and is typically different from the sum of the four quarters reported in the *Gray Notebook*.

Workdays lost to strains/sprains up

WSDOT employees lost 402 workdays with sprain/strain during the fourth quarter of 2011. This is an increase of 4% compared to Q4 2010 (388 lost workdays), and a 23% increase compared to Q3 2010 (327 lost workdays).

OSHA-recordable injuries increased

On an annual basis, the number of all OSHA-recordable injuries to WSDOT employees increased 7% between 2010 and 2011, from 369 to 395. In addition, the number of sprain/strain injuries increased 13% between 2010 and 2011, from 175 to 197.

The sprain/strain rate also increased from 2.7 in 2010, to 3.1 in 2011. The hearing loss injury rate increased from 0.7 in 2010, to 0.8 in 2011, as shown in the tables on the facing page.

OSHA-Recordable Injuries and Injury Rates

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

October 1 - December 31, 2011 and comparable calendar quarters

Injuries	Highway maintenance	Highway engineering	Admin staff	Ferry system
Number of injuries Oct-Dec 2011	39	14	2	26
Percent of all injuries that these numbers represent	48%	17%	3%	32%
Total number of days away from work associated with injuries	253	4	0	409
Days away due to sprains/strains	132	3	0	267

For comparison

Number of injuries Jul-Sep 2011	28	19	2	15
Number of injuries Oct-Dec 2010	51	9	3	39

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.

Quarterly injury comparisons

During Q4 2011, WSDOT employees experienced 81 OSHA-recordable injuries, a 21% decrease from Q4 2010 (102 injuries). The number of sprain/strain injuries decreased 27%, from 51 in Q4 2010, to 37 in Q4 2011. The table above shows the number of injuries leading to lost workdays in Q4 2011.

In Q4 2011 WSDOT employees experienced 27% more OSHA-recordable injuries, (from 64 to 81) compared to Q3 2011. Similarly, WSDOT employees experienced 16% more sprains/strains between Q3 and Q4 2011, from 32 up to 37.

Strain/sprain and hearing loss quarterly injury rates

The Q4 2011 sprain/strain rate is 2.3 per 100 workers: up from 2.0 in Q3 2011, and down from 3.3 in Q4 2010, as shown in the top table at right, by organizational unit.

The hearing loss injury rate for Q4 2011 is 0.9 per 100 workers, a substantial improvement from a rate of 1.5 in Q4 2010. There was no reported hearing loss in Q3 2011. Hearing loss testing is generally performed outside of the peak construction season. Changes in the injury rate per quarter reflect this unequal distribution of testing, more so than an actual difference in injury rates.

Progress made on regional goals for injury reductions

Two WSDOT organizational units (Olympic Region and the Ferry System) met their sprain/strain injury rate reduction goals for 2011. Southwest Region reduced its sprain/strain injury rate compared to 2010, missing the goal by 0.1 point. Two organizational units (Northwest Region and Headquarters) met their hearing loss reduction goals for 2011. The year-to-year rates vary up to 0.2 points for five of WSDOT's seven organizational units, including the two units that met their hearing loss reduction goals. The variation from Q4 to the yearly rate is much more noticeable, reflecting off-season hearing loss tests for construction workers.

WSDOT strain/sprain injury rates per 100 workers, by organizational unit

October 1 - December 31, 2011, comparable quarterly rates, goal

Organizational unit	CY 2010	Q4 CY 2011	CY 2011	CY 2011 goal	Met 2011 goal?
Northwest Region	3.3	3.3	3.5	2.2	
North Central Region	2.0	1.7	6.1	2.2	
Olympic Region	2.6	1.7	1.7	2.2	√
Southwest Region	2.5	2.5	2.3	2.2	
South Central Region	1.2	1.6	3.6	2.2	
Eastern Region	4.6	2.0	4.7	2.2	
All regions combined	2.9	2.4	3.3	2.2	
Headquarters	0.8	0.7	1.3	0.4	
Ferry System	3.8	3.5	4.0	4.7	√
Agency-wide	2.7	2.3	3.1	2.4	

Data source: WSDOT Safety Office.

WSDOT hearing loss injury rates per 100 workers, by organizational unit

October 1 - December 31, 2011, comparable quarterly rates, and goal

Organizational unit	CY 2010	Q4 CY 2011	CY 2011	CY 2011 goal	Met 2011 goal?
Northwest Region	0.3	0.0	0.4	0.4	√
North Central Region	2.4	0.0	1.6	0.4	
Olympic Region	1.0	4.0	1.0	0.4	
Southwest Region	0.6	0.8	2.3	0.4	
South Central Region	1.4	0.0	1.6	0.4	
Eastern Region	0.5	0.0	0.5	0.4	
All regions combined	0.8	0.9	1.0	0.4	
Headquarters	0.1	0.0	0.0	0.0	√
Ferry System	1.2	1.6	1.0	0.4	
Agency-wide	0.7	0.9	0.8	0.4	

Data source: WSDOT Safety Office.

Worker Safety Quarterly Update

New Worker Safety Performance Measures / WSDOT Wellness

Regions improved Q4 injury reductions

During Q4 2011, the following regions reported reductions compared to the same period in 2010: Northwest region reported a 27% reduction, six fewer OSHA-recordable injuries. Eastern region reported a 43% reduction, three fewer injuries. Ferries reported a 33% reduction, 13 fewer injuries. North Central region reported a 67% reduction, two fewer injuries. Olympic and Southwest regions both reported one injury less than the same period in 2010 (7% and 11% reduction.) Headquarters and South Central Region did not improve their performance in Q4 2011 compared to 2010.

WSDOT introduces new measures to study worker injuries and severity

Starting on January 1, 2012, WSDOT will begin focusing on the agency's overall Recordable Incident Rate (RIR), in addition to the sprains/strain and hearing loss rates. The RIR provides additional information on the overall performance of WSDOT's Safety Program and allows the agency to better address employee safety and identify problem areas and progress in preventing work-related injuries and illnesses.

In addition to the RIR, WSDOT will be measuring Days Away/Restricted or Transfer rate (DART). The DART rate describes the number of recordable injuries and illnesses (per 100 full time employees) that involve days away from work, restricted work activity, and/or job transfer. DART is an indicator of the severity of recordable injuries and illnesses.

WSDOT Wellness Programs

WSDOT Wellness encourages employees to take control of their own health. Regions statewide have taken part in activities to encourage their employees to take care of their health.

In Q4 2011, WSDOT Wellness focused on educating employees about the importance of getting a flu vaccine. In October and November, WSDOT conducted flu shot clinics across the state. Compared to 2010, 3% more employees were vaccinated during the flu shot clinics.

Three regions held Wellness Fairs that coincided with their flu shot clinics. These events offered an opportunity for employees to learn about their health and fitness through live demonstrations. Employees had the opportunity to take part in learning sessions, hearing exams, and much more – which may have contributed to the 7% increase in physical activity levels of employees since 2010. Employees who filled out Wellness Fair evaluation forms provided positive feedback.



Workers on the I-90 bridge expansion joint replacement project use safety gear including hard hats, hearing protection, knee pads, and safety shields as they jackhammer to break apart concrete around the old expansion joint.



A worker on WSDOT's I-5, 5th Avenue NE to NE 92nd Street Noise Wall Project construction site wears appropriate reflective clothing for night time work. Clothing like this can increase this worker's visibility, and therefore his safety on the job.

Pedestrian and Bicyclist Safety System Safety Annual Report

National Pedestrian and Bicyclist Commuter and Collision Rankings

WSDOT is committed to improving conditions for walking and bicycling, and continues to track its progress towards the target set in the Washington State Bicycle Facilities and Pedestrian Walkways Plan. The state and federal goal is to double the percentage of total trips made on foot or by bicycle in Washington within 20 years (by 2027), and simultaneously reduce the number of bicyclists and pedestrians killed or seriously injured in traffic crashes by 5% each year.

WSDOT's role in bicycle and pedestrian safety

WSDOT seeks to identify the contributing factors leading to serious injuries or fatalities of bicyclists and pedestrians. These factors may include driver behavior, bicyclist or pedestrian behavior or roadway design. These factors may occur individually or in combination. WSDOT modifies design features when appropriate and in accordance with their priority array systems. In some cases, improvements like sidewalks and crosswalks may not be enough to ensure public safety. In these instances, it may be necessary to include additional enforcement and public education.

Washington increases bicycle and pedestrian commute trips

Washington State has the 15th highest rate of bicycle and pedestrian commuting in the nation, accounting for about 4% of all commute trips. This represents a 16% increase in walking and a 116% increase in bicycling over the past ten years, according to the *Bicycling and Walking in the U.S. 2012 Benchmarking Report*. In addition, 10% of all miles traveled and 13% of all trips are made on foot or by bicycle, primarily in urban areas: about 4% are commute trips; 6% are utilitarian trips like shopping, going to school, or traveling to medical appointments; and 3% are social or recreational.

Bicyclist fatality rate at recorded low in 2011

The National Traffic Safety Administration ranks each state by their bicycle and pedestrian fatality rates, giving the highest rank to the states with the lowest fatality rates. While Washington rose in pedestrian safety rankings from 21st in 2009 to 15th in 2010, the fatality crash rate changed from 0.92 to 0.94 pedestrian fatalities per 100,000 people. Washington also moved in the national rankings for bicyclist safety in terms of bicyclist fatalities. In 2009, Washington ranked 18th (with a fatality crash rate of 1.35 bicyclists per 1,000,000 people), and in 2010 the ranking rose to ninth (with a fatality crash rate of 0.89 bicyclists per 1,000,000 people). This is the lowest fatality rate recorded, and the first time the rate has dropped below 1.0.

In 2010, there were 468 fatal and serious-injury pedestrian or bicyclist collisions statewide, 16% of all fatal and serious-injury traffic collisions during the year. This fatality rate remains disproportionately high, given that pedestrians and bicyclists account for only 13% of all trips and 10% of all miles traveled.

Improving safe routes to schools

Since 2005, Washington's Safe Routes to School program has funded projects that are increasing the number of children walking and bicycling safely to 168 schools across the state. These projects improve conditions for about 67,000 children: the number of children walking and bicycling has increased

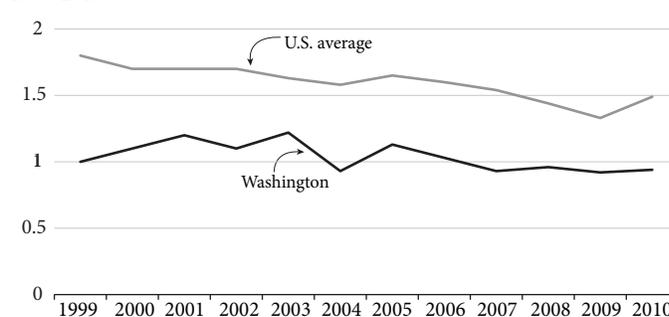
Pedestrian and Bicyclist Safety Highlights

Washington State ranks 15th nationally in bicycle and pedestrian commuting.

In 2011, 16% of all fatal and serious injury traffic collisions in Washington involved pedestrians or bicyclists.

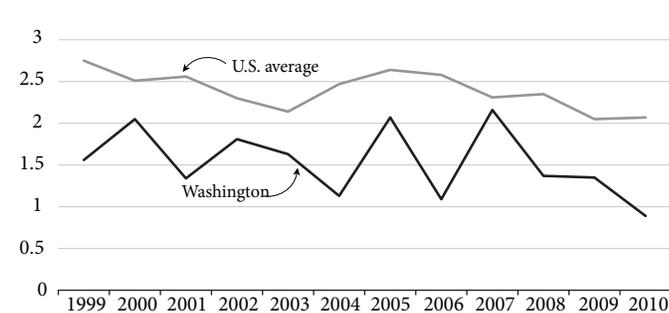
In 2011, WSDOT worked with over 90 school districts and local jurisdictions to create schools walk route map.

Pedestrian fatality rate per 100,000 people 1999-2010



Data source: National Highway Traffic Safety Administration.

Bicyclist fatality rate per 1,000,000 people 1999-2010



Data source: National Highway Traffic Safety Administration.

Pedestrian and Bicyclist Safety System Safety Annual Report

WSDOT Bicyclist and Pedestrian Programs and Documentation Project

by over 20%, with an increase in pedestrian and bicycle facilities and a reduction in motorist speeds. To achieve these improvements, about \$29 million was awarded to 90 projects from over \$137 million requested in project applications.

All elementary schools are required to have walk to school route plans. Currently, 177 (or 60%) of all Washington school districts have or are creating school walk route plans for their students, specifically for a one-mile walking distance to the school. In 2011, WSDOT worked with over 90 school districts and local jurisdictions to create walk route maps and is committed to providing the information electronically for all schools in 2012.

Majority of school children driven or bused to school

In Washington, about 50% of the one million children enrolled in the public school system live within one mile of their school. Nationally, over 40% of students living within a mile of school are driven to school. These trips contribute to congestion around schools, and account for about 10% to 14% of all rush hour traffic.

In 2011, nearly 40% of all Washington public school students rode school buses. Over 55% of these students lived within two miles of their school: 90,000 within one mile and an additional 133,000 children within two miles.

If Washington increased bicycling and walking to school to 50%, it would eliminate about 60 million miles of vehicle travel per year. With 50% of children living within one mile of school, this shift is possible.

Bicyclist and pedestrian safety near schools

Over 2,000 (70%) of Washington schools are within one mile of a state highway, and 250 of them are directly adjacent to a state highway. In 2010, over 70% of all fatal and serious injury pedestrian and bicycle collisions on a state highway were within one mile of a school.

Bicyclist and pedestrian safety near schools remains a top priority, as identified in the state's Bicycle Facilities and Pedestrian Walkways Plan, in order to increase walking and bicycling to school.

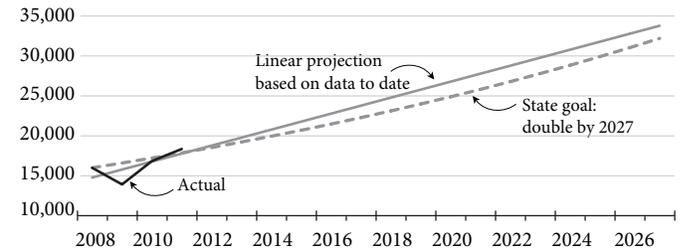
Bicycle and pedestrian counts continue to increase

WSDOT conducted the fourth annual statewide Bicycle and Pedestrian Documentation Project to collect a statistically valid sample of walking and bicycling in 30 communities across the state. Volunteers counted over 17,000 bicyclists and more than 33,000 pedestrians at 217 unique locations. The highest bicycle counts were observed on trails and bridges and in downtown areas. Pedestrian counts were highest near universities, in downtowns, near transit stations, and in mixed-use neighborhoods.

Washington saw an 8% increase in the amount of walking and bicycling between 2010 and 2011 (13% increase from 2008). The

Pedestrian and bicycle documentation project

2008-2011 bicyclist & pedestrian counts at select locations; 20-year forecast



Data source: OFM and WSDOT Statewide Travel and Collision Data Office.

graph below plots the bicycle and pedestrian counts each year, based on locations that were counted in sequential years. If the annual amount of walking and bicycling continues to increase at the rate tracked by WSDOT's count program, Washington will exceed the state goal before the 20-year target in 2027.

Counts are used to assess the state's progress toward goals, and help WSDOT estimate demand, measure the benefits of investments, and design projects. This information will also help target future safety and mobility projects for bicyclists and pedestrians.

25 pedestrian and bicycle safety grants awarded

For fiscal years 2011-2013, the Legislature funded 25 projects in 16 jurisdictions totaling \$9.8 million through the Pedestrian and Bicycle Safety program. The projects include constructing improved and more visible crossings, providing dedicated space for bicyclists, improving ADA accessibility, traffic calming, and developing comprehensive bicycle and pedestrian safety education campaigns. Data relating the changes in bicycle and pedestrian safety and mobility after these projects are completed will be documented in future editions of the *Gray Notebook*.

The program targets locations with some of the highest rates of pedestrian traffic fatalities and serious injuries. In 2011, WSDOT funded the Haxton Way Pedestrian Path, a two-mile pedestrian and bicycle pathway on the Lummi Nation Indian Reservation in Whatcom County. Prior to construction of this project, this location had the highest number of pedestrian fatalities in Whatcom County.



Haxton Way, before and...



...after pedestrian path construction

Pedestrian and Bicyclist Safety System Safety Annual Report

Focus Areas for Improving Pedestrian and Bicycle Facilities and Mobility

Focus areas for improving safety and mobility

WSDOT developed the bicycle and pedestrian Plan, which identifies five focus areas to reach the statewide goal of reducing bicyclist and pedestrian collisions, while increasing mobility:

- Invest in bicycle and pedestrian connections in urban areas,
- Reduce motor vehicle speeds (urban roads with speeds >35 mph),
- Prioritize the needs of at-risk populations,
- Create more visible crossings, and
- Build dedicated facilities to separate bicyclists and motorists.

Invest in urban bicycle and pedestrian connections

The 2009 American Community Survey and National Household Transportation Survey found that denser urban areas have higher rates of walking and bicycling. Over 85% of collisions involving pedestrians or bicyclists occurred in urban areas. Investing in crossings, connections, and trail systems in cities will help reach the state goal of reducing fatal and serious-injury collisions.

Motorists drive slower and more cautiously when they are more accustomed to seeing pedestrians and bicyclists, as shown in the 2003 study by P. L. Jacobsen. This study also showed a community that doubled the amount of walking and cycling and reduced an individual's risk of being struck by a motorist by more than 60%.

Dedicated infrastructure can increase bicycling, as shown in the Transport for London 2010 study: bicycling increased nearly 70% after constructing dedicated bike facilities along key urban roads.

Reduce motor vehicle speeds

In urban and rural areas, speed is a major factor contributing to the severity of pedestrian-vehicle crashes and the likelihood that the pedestrian will die from injuries. For example, a pedestrian hit while the vehicle is traveling at 40 mph has an 85% chance of being killed, while at 20 mph, the fatality rate is 5%. The table below shows the distribution of pedestrian and bicyclist fatalities in Washington by road class and posted speed.

The number of fatalities per centerline mile of roadway is highest for the two categories involving state highways. Over a third of the bicyclist and pedestrian fatalities on city streets operating as state highways occur on sections where the posted speed is 40 mph or higher. On other state highways, over 95% occur on sections with posted speed limits of 40 mph or higher.

In some cases, posting lower speed limits may not be enough to reduce motor vehicle operating speed. In these instances, roadway design, law enforcement, and public education may be necessary to achieve the targeted safety improvements and reduced operating speeds. Enforcement and education about the risks of speeding are important parts of ensuring public safety.

Prioritize safety improvements for at-risk groups

In order to achieve state pedestrian safety and mobility goals, WSDOT focuses on the needs of at-risk populations, in addition to overall system improvements. WSDOT has identified at-risk groups that experience disproportionately high percentages of fatal and serious-injury pedestrian collisions (compared to proportion of total population in that age group), including school aged children under 15, and people over 65.

Older adults represent 25% of all pedestrian fatalities

Adults age 65 and older represent 12% of the population, yet they make up 25% of pedestrian fatalities. The National Institute of Aging reports that one in five adults 65 and older does not drive and may be more dependent on walking. DSHS estimates that by 2030, 20% of Washington residents will be 65 or older. Examples of roadway design strategies that improve walking conditions for older adults include increasing signal crossing time, reducing roadway crossing width, reducing traffic speeds in areas frequented by older adults, and ensuring facilities are ADA accessible.

25% of child traffic fatalities were pedestrians

Traffic-related fatalities is the leading cause of death for children under the age of 15. In 2010, 25% of the children under age 15

Number of pedestrian and bicyclist fatalities in Washington, by route type and posted speed

2002-2010 Road class	Centerline miles	Posted speed limit (mph)												Total	Fatalities per CL mile		
		<15	20	25	30	35	40	45	50	55	60	65	70			Unknown	
City streets	16,654	2	2	70	94	65	22	0	0	0	0	0	0	0	26	281	0.017
City streets operating as state highways	1,015	0	0	12	19	29	16	18	2	1	0	0	0	0	0	97	0.096
State highways	6,029	0	0	0	0	7	8	4	28	27	95	2	9	0	180	0.030	
County roads	39,907	0	1	11	2	50	16	10	32	3	0	0	0	10	135	0.0034	
Other roads	19,651	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0.00005	
Total	83,256	2	3	93	115	152	62	32	62	31	95	2	9	36	694	0.0083	

Data source: WSDOT Statewide Travel and Collision Data Office.

Note: Other roads include Forest Service, National and State Park, Tribal, Port District and other public roads.

Pedestrian and Bicyclist Safety System Safety Annual Report

Fatal Collision Locations and Actions / Complete Streets

involved in traffic fatalities were pedestrians. Children rely on walking, bicycling, or riding as a passenger in a motor vehicle. Roadway design strategies to improve walking and bicycling conditions for children may include increasing signal crossing time, reducing roadway crossing width, reducing traffic speeds around schools, parks and other areas frequented by children, and providing appropriate separation from motor vehicles.

Create more visible crossings

Between 2001 and 2010, 15% of pedestrian fatalities in Washington occurred within marked crosswalks and 36% occurred at unmarked crosswalks. On state highways, approximately 10% of legal crossing locations are marked and 4% of are signalized. More visible treatments can increase the likelihood a pedestrian is able to safely cross a roadway. Treatments such as high visibility roadway markings, medians, pedestrian scale illumination, curb extensions and flashing beacons, installed appropriate to the conditions and user needs, may be useful in helping increase the visibility of pedestrian crossings.

Pedestrian fatality locations

2001-2010

Location	Number	Percent
Crossing – not in crosswalk	251	38%
Crossing – marked crosswalk not available	237	36%
Crossing – in crosswalk	101	15%
Shoulder	47	7%
Other – off roadway	25	4%
Unknown	2	0%
Total	663	100%

Data source: National Highway Traffic Safety Administration.

Research in 2006 by V.W. Inman et al shows that few drivers stop for pedestrians attempting to cross the roadway at uncontrolled crossings, highlighting the need for improved crossings as well as improved driver education. More visible crossings can increase the likelihood a pedestrian is able to safely cross a roadway (K. Davis and M. Hallenbeck, 2008). Treatments such as medians, pedestrian scale lighting, curb extensions, and flashing beacons may be useful to increase the visibility of pedestrians.

The shorter days and extended darkness from November to February present additional risk for pedestrians. Over 40% of all fatal traffic collisions involving pedestrians occurred during these four months, and 80% of the fatal pedestrian collisions took place where lighting was limited or unavailable. This data supports research findings related to the importance of pedestrian scale lighting and other high visibility treatments.

Build dedicated facilities to separate bicyclists & motorists

Reports show over 13,000 bicycle/motor vehicle collisions in Washington between 2001 and 2010. WSDOT estimates the actual number of injury collisions is about twice this number: bicyclists involved in many non-fatal traffic collisions do not report the incidents.

Bicyclist collision and fatality locations

2001-2010

Location/Action	All Collisions		Fatal Collisions	
	Number	Percent	Number	Percent
Riding with Traffic	4672	34%	49	50%
Crossing	5561	40%	20	20%
Cyclist turned into path of vehicle	851	6%	17	17%
Riding against traffic	1585	11%	4	4%
Fell into traffic	69	0%	3	3%
All other actions	943	7%	3	3%
Unknown	147	1%	2	2%
Total	13,828	100%	98	100%

Data source: National Highway Traffic Safety Administration.

Note: WSDOT no longer includes self reported collision data.

Half of reported fatal traffic collisions involving bicyclists occurred while riding with traffic (34% of all bicycle collisions), and another 20% occurred while crossing the roadway (40% of all bicycle collisions). In both cases, cyclists were obeying the rules of the road. WSDOT analysis of the category “riding with traffic” shows high instances of collisions where drivers were following too closely, exceeding safe speeds, or turning into or out of driveways. The category also includes collisions where bicyclists were hit by an opening car door while riding next to parked cars.

Currently, only 3% of state highway shoulders provide five feet or more of space for use by cyclists. About 1% (70 miles) of these shoulders are marked as bicycle lanes on state routes.

Legislature passes Complete Streets bill

Some city streets also serve as state highways; some focus on moving people and goods through a region, others provide access to local destinations. Communities across the state face particular challenges redesigning such ‘main street highways’ to meet today’s transportation needs. To address these challenges, the Legislature passed the State Complete Streets bill in 2011, including creation of an unfunded grant program. The bill was the result of efforts by multi-modal transportation advocacy groups, healthy-community organizations, and local government organizations, combined with findings from recent research conducted by WSDOT and the University of Washington on main street highways.



Preservation

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



In this section

Asset Management: Pavement Conditions	10
Asset Management: Highway Maintenance	17

See also

Special Report: Federal Recovery Act-funded Projects	44
Quarterly Report on Capital Projects (Beige Pages)	46

Earlier articles concerned with preservation

Asset Management: Capital Facilities Annual Report, GNB 43
Asset Management: Bridge Assessment, GNB 42
Safety Rest Areas (Preservation), GNB 41
Post-Winter Maintenance, GNB 41
Ferries Vessel & Terminal Preservation, GNB 41
Intelligent Transportation Systems, GNB 39

Asset Management: Pavement Conditions Annual Report

Pavement Conditions in 2010

Pavement Conditions Highlights

In 2010, 92.7% of WSDOT owned pavement was in fair or better condition.

WSDOT launches new 'Pavement Notebook' website.

WSDOT research has shown converting asphalt to BST pavements has saved \$28 million over six years.

WSDOT currently maintains pavement on more than 18,500 lane miles of state highways, in addition to 2,000 lane miles of ramps and special use lanes. These roads consist of three pavement types: chip seal or bituminous surface treatments (BST), asphalt (hot mix asphalt and warm mix asphalt), and concrete. WSDOT has been at the forefront of pavement technology to implement cost saving methods to make the state's roads last longer and cost less. The agency's Washington State Pavement Management System (WSPMS) has been recognized as one of the best in the nation. It focuses on alternative preservation strategies based on lowest life-cycle costs (LLCC), and has succeeded in maintaining 93% of pavement in fair or better condition despite reduced paving budgets over the last 12 years (about \$732 million below historic levels).

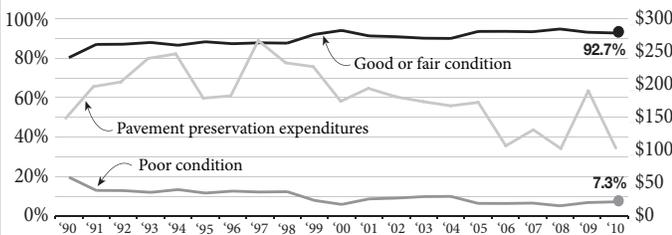
Pavement condition 92.7% in 2010, decreases slightly compared to 2009

According to the 2010 pavement condition survey, average road conditions continued to be good in Washington, with 92.7% of all pavements rated as fair, good, or very good. The percentage of all pavements in poor or very poor condition increased slightly from 7.0% in 2009 to 7.3% in 2010. In 2000, the year with the best condition performance between 1989 and 2010, there were 1,061 lane miles (6.0%) in poor condition, while in 2010 the total was 1,260 lane miles.

In 2010, about 92% of all asphalt pavements were in fair or better condition, down 1% from 2009; about 95% of all chip seal pavements were in fair or better condition, remaining steady from 2009. Concrete performance increased from 90% fair or better in 2009 to 91% in 2010, due to the additional concrete miles rehabilitated by Recovery Act funding in the 2009-11 biennium. Continued funding is required to preserve the results of previous investments, it is a matter of pay now, or pay more later. With ten years of continued investment shortfalls, pavements will deteriorate and backlogs will continue to grow.

State highway pavement trends, 1990–2010

All pavement types; good/fair or poor condition; Pavement preservation expenditures in millions of 2011 dollars



Data source: WSDOT Materials Lab.

Pavement conditions, funding programmed, and lane miles paved by type of pavement

Dollars in millions

Pavement type	Total lane miles ¹	Rating	2009		2010	2009-11 dollars programmed ² & lane miles paved ³	2011-13 dollars programmed ² & lane miles paved ³
			Good/Fair	Poor			
Chip seal (BST) pavements This durable surface provides six to eight years of performance life.	4,799 (26%)	Good/Fair	95%	95%		\$44.92 (14.8%) 1,328 lane miles	\$83.75 (31.2%) 1,927 lane miles
		Poor	5%	5%			
Asphalt pavements The life of this surface is typically 10 to 16 years, depending on climate and traffic factors.	11,422 (61%)	Good/Fair	93%	92%		\$169.37 (55.6%) 911 lane miles	\$131.49 (49.0%) 630 lane miles
		Poor	7%	8%			
Concrete pavements New concrete pavements are designed for a life of 50 years; typically used on very heavily traveled roads.	2,392 (13%)	Good/Fair	90%	91%		\$90.10 (29.6%) 180 lane miles	\$53.00 (19.8%) 96 lane miles
		Poor	10%	9%			
Total	18,630	Good/Fair	93.0%	92.7%		\$304.39 (100%) 2,419 lane miles	\$268.24 (100%) 2,653 lane miles
		Poor	7.0%	7.3%			

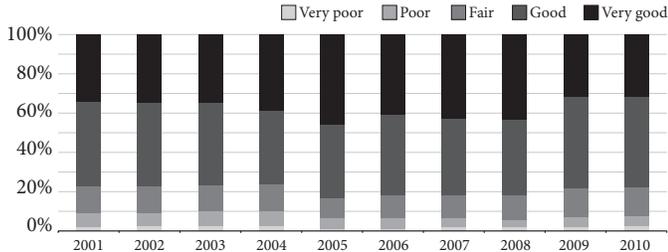
Data source: WSDOT Materials Lab, Transportation Data Office (TDO).

1 State Highway Log Planning Report 2009 (v-13). 2 Dollar values are approximations and do not include other improvements that may be planned for roadway sections, such as safety enhancements and cannot be used for budgeting specific projects. These costs do not reflect the total life-cycle costs of a pavement structure. Dollar information taken from TEIS Version 12DOT000 on 1/4/2012 filtered for Program P and Improvement Type Codes: FL, LF, L, 1D, F, 1A, 1M and 1R. 3 Lane miles from CPMS as of 12/29/2011 and broken biennially by multiplying the total-lane miles paved by the ratio of TEIS biennial dollars to total dollars in version 12DOT000.

Asset Management: Pavement Conditions Annual Report

Pavement Conditions / Hot Mix vs. Warm Mix Asphalt

Detailed state highway pavement trends, 2001–2010 All pavement types



Data source: WSDOT Materials Lab.

WSDOT has observed a drop in the very good category, from 43.2% in 2008 to 31.5% in 2010. Most of this change is balanced by increases in the good category, which is still an acceptable condition rating, but could be an indicator of an expected drop in pavement condition in the future.

WSDOT's pavement technology innovations help offset declining investments

WSDOT is at the forefront of pavement technology to implement cost saving and performance enhancing methods to make the state's roads last longer and cost less. The following are some of the methods that have been implemented to maximize pavement life and lower costs:

- Dowel bar retrofits on concrete pavements
- Selective panel replacement and diamond grinding on concrete pavements
- Converting higher cost asphalt pavements to lower cost chip seal pavements

These innovative technologies allow WSDOT to maintain pavements in good condition even though funding for preservation has declined in recent years. WSDOT continues to explore new technologies to further reduce costs and limit pavement deterioration.

WSDOT evaluates Warm Mix Asphalt

A new method of asphalt pavement construction is currently being evaluated by WSDOT. Warm Mix Asphalt (WMA) is the generic term for a variety of technologies that allow producers of Hot Mix Asphalt (HMA) pavement material to lower temperatures at which the material is mixed at the production plant and placed on the road. It is a new technology that can potentially:

- Reduce paving costs
- Extend the paving season
- Improve asphalt compaction
- Allow asphalt mix to be hauled longer distances

- Improve working conditions by reducing exposure to fuel emissions, fumes, and odors.

To date, WSDOT has placed over half a million tons of WMA. WSDOT's first project using WMA was in 2008 for a resurfacing project on I-90 west of George. WSDOT has been carefully monitoring the performance of WMA projects, and so far the field performance has been similar to that of HMA, but long-term evaluations are necessary which will take another decade of performance monitoring.

With HMA the materials are heated to temperatures in excess of 300° F at the production plant. These high production temperatures are needed to allow the asphalt binder to become fluid enough to completely coat the aggregate in the HMA, have good workability during laydown and compaction, and still provide durability during traffic exposure. WMA production methods allow the use of temperatures 30° to 80° F lower than traditional HMA. Because less energy is needed to heat the asphalt mix, less fuel is needed to produce WMA. Fuel consumption during WMA manufacturing can be reduced up to 20%.

WSDOT Warm Mix Asphalt tonnage

	Total tonnage
2008	4,724
2009	25,076
2010	294,972
2011	237,403
Grand Total (2008-2011)	562,175

Data source: WSDOT Materials Lab.

The Pavement Notebook is now available on WSDOT's website

The pavement branch of the WSDOT State Materials Lab has announced an online Pavement Notebook, a single location containing statewide reports on different performance measures related to the WSDOT road network. The reports in the Pavement Notebook are more in-depth and comprehensive than what can be covered in the *Gray Notebook*, but are styled to be accessible to executives, legislative staff, and the general public. Reports currently include:

- Statewide pavement performance, including breakdowns by County and Legislative district
- Average pavement life
- Statewide International Roughness Index (IRI) statistics
- Lane miles paved by year

The Pavement Notebook can be accessed at <http://www.wsdot.wa.gov/Business/MaterialsLab/Pavements/PavementNotebook.htm>.

Asset Management: Pavement Conditions Annual Report

WSDOT's Flexible Pavement Plan

Evaluating cost savings from converting asphalt roads to chip seal (BST)

Bituminous Surface Treatments (BST), also known as chip seals, are being implemented by WSDOT as a cost saving method of resurfacing flexible pavements. The construction cost of an asphalt resurfacing is roughly five to seven times the cost of a chip seal; however, asphalt pavements can last up to two and a half times the life of a chip seal. From the perspective of life-cycle costs, the relative cost-to-performance ratio for a chip seal over an asphalt pavement is roughly a factor of three.

WSDOT evaluated existing asphalt pavements to determine which may be candidates to convert to a chip seal surface. The table below lists the conditions that need to be met to be a candidate for conversion.

Four conditions that must be met to convert asphalt pavement to chip seal pavement

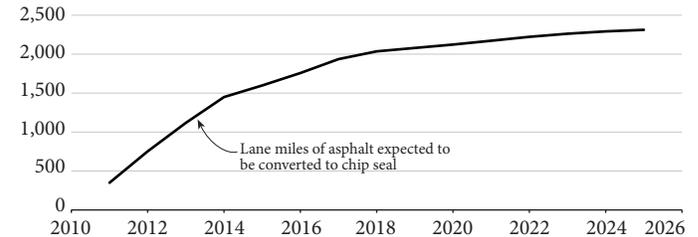
- 1 Existing asphalt pavement with a traffic volume less than 5,000 vehicles daily in both directions. About 31% of statewide asphalt roads, or 3,610 lane miles, are initial candidates.
- 2 The road is not inside city limits or a built-up area. This is assumed to be 10% of initial candidates (i.e. 10% of the 31% of asphalt roads statewide).
- 3 The road needs to be structurally sound for immediate traffic needs. A chip seal provides a new pavement surface, but does not add structure: an under-designed or heavily distressed asphalt would need to be rehabilitated with asphalt before it could be converted into chip seal pavement.
- 4 No special conditions exist (no heavy truck traffic, no previous problems with chip seal performance, etc.). It is assumed that 15% of initial candidates (i.e. 15% of the 31% of asphalt roads statewide) may have special conditions and not be suitable for conversion.

Data source: WSDOT Materials Lab.

Based on these conditions, WSDOT determined that about 65% of asphalt roads would be candidates for BST conversion, or about 2,300 lane miles of asphalt pavement (assuming roads less than 5,000 vehicles per day). This conversion would occur over time, with all 2,300 lane miles potentially converted after 15 years. The graph shows the expected rate of asphalt to chip seal conversion.

Expected rate of conversion of asphalt to chip seal

Lane miles, 2011 - 2025



Data source: WSDOT Materials Lab.

Because chip seals have a rougher surface texture, are noisier, and could lead to chipped windshields during construction, WSDOT limits this surface type to roads with less than 5,000 AADT (Annual Average Daily Traffic). An evaluation was performed to address the question: how much increased savings could be generated from asphalt to BST conversion by increasing the AADT limit higher than 5,000?

The table shows that converting roadways with higher traffic limits from asphalt to chip seal has the potential to increase savings.

Estimated savings from asphalt to chip seal conversion

AADT limit for converting asphalt to chip seal	Lane miles converted	% of asphalt network	Annual savings
5,000	2,663	23%	\$37 million
10,000	3,764	33%	\$52 million
15,000	4,476	39%	\$62 million

Data source: WSDOT Materials Lab.



SR 262 Potholes reservoir area – chip seal project, HMA patches are applied to repair pavement before chip sealing is completed.

Asset Management: Pavement Conditions Annual Report

Research / IRI / Lowest Life-Cycle Cost

Pavement research at WSDOT

Bituminous surface treatments saved WSDOT \$28 million over six years

WSDOT bituminous surface treatments continue to evolve in specification and in application. WSDOT and a University of Washington team completed research over several years, and with consultation from industry contractors and suppliers; WSDOT moved toward using a smaller stone of uniform size. This improves construction quality, lifespan, and makes less noise on the final road surface. WSDOT policy is to apply chip seals to most routes with average daily traffic levels up to 5,000 vehicles per day. Typically, replacement of chip seal surfaces occurs about every 6 to 7 years, with ranges from 6 years to as long as 10 years. While HMA pavements, have an average life of about 11 years on the east side of the state and 17 years on the west side, initial costs are about five times higher than initial chip seal costs. WSDOT's goal is to lower pavement preservation funding costs. By converting low-volume HMA pavements with sufficient structural capacity to chip seal routes, WSDOT saved over \$28 million in the past six years.

Another innovative use of chip seals is placement on relatively new HMA surfaces. Research shows this may double the serviceable life of the HMA because the chip seal (which has a relatively thick asphalt binder) significantly reduces aging of the thin binder films in HMA. The reduced aging also decreases the “top-down” cracking commonly observed in HMA wearing courses. For more information see WSDOT's Pavement Policy: <http://www.wsdot.wa.gov/NR/rdonlyres/D7971B81-5443-45B9-8B9B-BFC0D721F5A1/0/WSDOTPavementPolicyFinal71211.pdf>, for more information about WSDOT research see p.81.

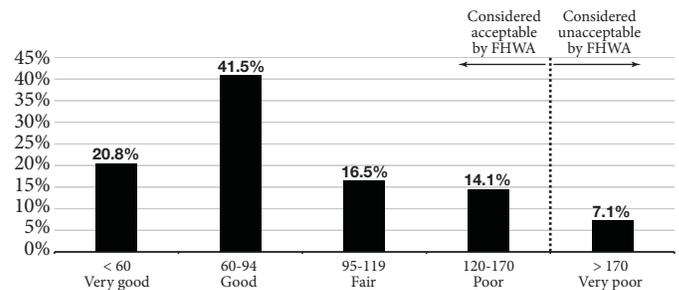
WSDOT roadways with good or fair smoothness carry more than 92% of total statewide VMT

Reporting requirements from the Federal Highways Administration (FHWA) now include the combination of vehicle miles traveled (VMT) data with the International Roughness Index (IRI). WSDOT uses the IRI as one of three indicators of pavement condition. Experience has shown that pavement roughness tends to be a lagging indicator of pavement performance, by the time roughness reaches the threshold value, rehabilitation should have already been performed to correct the reason for the increased roughness (e.g., cracking, rutting, or surface deterioration). However, the IRI is one of the few pavement condition indices with a national standard, and FHWA uses it as an indicator of overall road network health.

The figure below shows the distribution of VMT on roads with different levels of roughness using FHWA IRI categories. Statewide, 7.1% of the miles traveled are on roads in “unacceptable” condition, using FHWA criteria.

IRI roughness distribution by percentage of total vehicle miles traveled, 2010

As classified by the Federal Highway Administration (FHWA); IRI in inches/mile



Data source: WSDOT Materials Lab.

WSDOT manages pavement performance to the Lowest Life-Cycle Cost

Life-Cycle Cost Analysis (LCCA) is a process where alternative investment strategies are compared on the basis of which strategy provides adequate performance at the lowest cost over the entire life cycle of the investment. Each strategy considers not only the initial capital construction cost, but also maintenance, rehabilitation, and user costs over the entire life cycle of the pavement. The time value of money is taken into consideration by using a discount rate of 4% to convert future expenditures into equivalent present values.

WSDOT determined in the 1980s that the state's road network should be managed by lowest life-cycle costs. This strategy was adopted because it was (and still is) considered a “best management practice”. This concept was later mandated by RCW 47.05.030 in the 1993 legislative session. WSDOT experience is that the lowest life-cycle cost is obtained by rehabilitating pavement structures when they are “due.” WSDOT determined that this due date is an optimal timing window (a range of approximately one to three years) when a pavement can be rehabilitated at the lowest life-cycle cost.

For more information see *Gray Notebook 40*, p.13 – 14.

Asset Management: Pavement Conditions Annual Report

Economic Performance Measures for Pavement

Economic performance measures allow WSDOT to better manage pavements

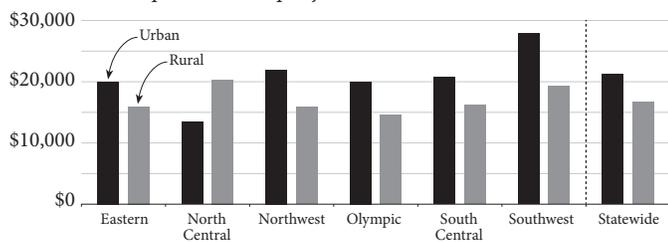
WSDOT is using economic performance measures to help determine how much it costs to deliver good performing roads. These performance measures also help analyze how effectively and efficiently road assets are being managed.

One way WSDOT looks at performance compares the long-term costs of road segments through historical annual cost. This measure, known as Equivalent Uniform Annual Cost, determines how much pavement costs per lane mile each year. Costs take into account include paving and all related items, engineering, mobilization, and traffic control. Costs exclude non-paving items like, grading, signals, and guardrail.

The graph below shows the historical cost for asphalt pavement costs by region and statewide.

Historical Equivalent Uniform Annual Cost (EUAC) for asphalt pavements by region and statewide

EUAC in dollars per lane mile per year; urban vs. rural



Data source: WSDOT Materials Lab.

By comparing the historical annual cost of pavements across Washington, WSDOT can identify roads that have high annual costs and evaluate methods to improve efficiency. These measures have provided better detail that can be used to analyze specific management practices by route, contract, or milepost.

Economic performance measures help quantify pavement efficiency

Another economic performance measure for pavements is the Equivalent Single Axle Load (ESAL) Efficiency Factor. This is an engineering term that represents the effect of one loaded truck axle. ESAL volumes are important in characterizing the amount of truck traffic on roadways.

How efficiently roads carry freight can be evaluated by considering how much it costs to carry each truck axle. This is defined as the discounted EUAC of one or more pavement performance periods, calculated by taking the historical annual cost, and dividing by the number of ESALs over the same time period, (expressed in terms of dollars per ESAL-mile).

Pavement economic performance terms

- **Equivalent Uniform Annual Cost (EUAC)** – The annualized cost for a performance or analysis period over a number of years, using a discount rate of 4%.
- **Equivalent Single Axle Load (ESAL)** – An engineering term used to convert the effect of trucks with different axle loads to an equivalent number of single truck axles carrying 18,000 lbs.
- **ESAL Efficiency Factor** – The historical annual cost, divided by the number of ESALs over the same time period, expressed in terms of dollars per ESAL-mile.
- **\$/LMY** – Dollars per lane mile per year.

Roads that are under-designed will carry truck traffic inefficiently and require excessive and costly maintenance. Pavements built for heavy traffic are much more efficient at carrying freight. The example below illustrates how more costly, heavy pavement structures carry high volumes of freight more cost efficiently than pavements designed for lower volumes of traffic.

Eastern region example

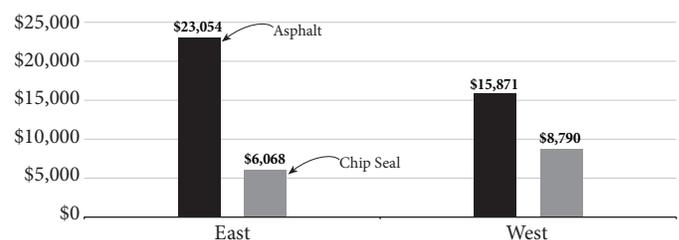
Route	Cost per EASL	Type of route	Freight volume
I-90	\$0.07	Interstate	High
SR 174	\$0.76	Low volume	Low
Eastern region avg.	\$0.52	---	---

Data source: WSDOT Materials Lab..

Pavement economic performance measures can also be used to evaluate proposed construction projects. The expected increase in pavement life for planned projects can be compared with the estimated project paving cost. This results in dollars per lane mile per year gained (\$/LMY gained). The graph below shows the expected annual cost of projects in the 2011-13 biennium P1 program.

Expected annual cost of projects in the 2011-13 biennium preservation program

In expected dollars per lane mile gained; east vs. west



Data source: WSDOT Materials Lab.

Asset Management: Pavement Conditions Annual Report

Addressing the Pavement Rehabilitation Backlog

The projected annual cost for asphalt and chip seal projects currently programmed are compared, and categorized by projects from the Eastern and Western halves of the state. Annual costs for asphalt are less expensive on the Western side because pavement life is longer (17 years compared to 11 years). Chip seal projects are slightly less in the Eastern side, as materials costs are lower (the average life is about the same). The highest cost projects are usually interchanges in urban areas where the number of lane miles are low, but the projects are complicated and require extensive traffic control changes.

WSDOT is pursuing a detailed analysis of economic performance measures to develop targets for future projects and evaluate pavement management practices statewide. More use will be made of these indicators in future years.

Addressing the pavement rehabilitation backlog

The pavement rehabilitation “backlog” is the number of lane miles of state roads that are considered “due” or “past due” for rehabilitation, but funds are not available to complete the work. The backlog of lane miles that need rehabilitation should be considered in relation to the continued aging of the system.

How much rehabilitation is needed to keep WSDOT’s pavement in a “steady state” condition?

Asphalt pavements On average statewide, asphalt pavements last about 15 years before rehabilitation is needed. If WSDOT rehabilitated about 7% of the agency’s 11,500 lane miles of asphalt pavements every year, the system would be in a steady state, where each year the roads coming due for rehabilitation would be programmed and no additional backlog would develop. This steady-state asphalt network preservation would have an annual estimated cost of \$188 million (750 miles a year at an average cost of \$250,000 per lane mile).

Chip seal (BST) pavements The typical period between chip seal resurfacing is six to seven years; every year, about 15% of the agency’s 4,500 lane-mile BST system needs resurfacing to remain in a steady state. The steady-state BST network would have an estimated annual cost of \$27 million a year (675 miles a year at an average cost of \$40,000 per lane mile).

Concrete pavements Concrete is a little more difficult to estimate, because of the uneven age of these pavements. About 60% of the state’s 2,500 lane miles of concrete pavements are 30+ years old, but the expected design life of these older pavements was only 20 years. The age at which WSDOT typically replaces concrete pavements is around the 50 year mark.

Update on the flexible pavement backlog

In the December 2010 edition of the *Gray Notebook* (see GNB 40, p.16 for more details), an extensive discussion was included on the resurfacing backlog for WSDOT’s flexible pavement system; (asphalt and chip seal surfaced roads are flexible pavements). Since chip seal surfaces are the most cost effective, they receive highest priority for programming, and no backlog is expected. The projects that do not get programmed are the asphalt projects, which in 2010 amounted to 1,450 lane miles.

The data for the 2011 performance measures report indicate that the expected backlog at the end of 2013 will be 1,607 lane miles, an 11% increase from 2010.¹

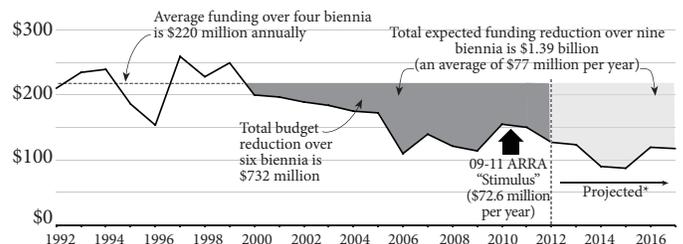
¹ This calculation assumes that projects currently included in TEIS Version 12DOT000 of the P1 budget, and operationally complete by 2013, have been taken out of the backlog total.

Update on roadway preservation funding

The graphic below illustrates the trends in roadway preservation funding (P1) since 1992. It shows that planned expenditures for roadway preservation continue to decline in real terms at about 5.5% per year. This decrease includes the additional funding from the American Recovery and Reinvestment Act in the 2009-11 biennium. In the 12 years since 2000, this decrease has amounted to \$732 million. If this trend continues through FY 2018, it will be \$1.39 billion. The expected impact is less pavement in good or fair condition (in the last two years alone, pavements in the “very good” category decreased 11.7%), rougher roads over time, and more pot holes and need for patching (increased need for maintenance).

Pavement preservation funding FY 1992 - 2018

Dollars in millions; Constant 2010 dollars



Data source: WSDOT Materials Lab.

* Note: Projections as of December 2011.

Asset Management: Pavement Conditions Annual Report

Local Agency Pavements

Local agencies (cities and counties) collectively manage a large network of over 117,000 lane miles of roadway consisting of various surfacing types including concrete, asphalt, bituminous surface treatment (BST), gravel, and dirt. About 75% of the total miles have some type of surfacing (concrete, asphalt, BST).

Agencies are required to report pavement conditions for arterial and collector roads to WSDOT and the County Road Administration Board (CRAB). WSDOT helps cities analyze and report pavement conditions. To assist small cities (population under 25,000), WSDOT uses its automated data collection van to survey federally classified arterials and collectors. During the 2009-11 biennium, 32 large cities submitted condition data and the small city survey collected data from 221 cities. In total, condition data was collected on 3,694 centerline miles, exceeding the legislatively set goal to collect data on 3,399 centerline miles (85% of the entire city network) by 7%.

Local agency pavement summary information

As of December 31, 2011

	County roads	City streets
Centerline miles	39,747 miles	18,045 miles
Lane miles	79,725 miles	37,590 miles
VMT	25.8 million daily	41.6 million daily
Percent paved	65% paved	96% paved
Arterial condition	91% fair or better	81% fair or better
Collector condition	93% fair or better*	76% fair or better

Data source: WSDOT Highways and Local Programs.

* Note: 2011 CRAB.

WSDOT reports city pavement condition ratings differently than overall state pavement conditions. City pavement condition measures include the Pavement Condition Index (PCI) and five pavement condition score groups: failed, poor, fair, good, and excellent. While this rating system is slightly different, overall pavement condition ratings are still good overall system condition indicators.

County road pavement information on the collector and arterial system is collected and reported by County Road Administration Board (CRAB) and updated by the counties every two years.

Both city and county pavement condition ratings are reported in the table below.

Historical pavement condition ratings: fair or better

Data for 2006, 2008, and 2010

	City		County	
	Arterial	Collector	Arterial	Collector
2010	81%	76%	91%	95%
2008	82%	75%	94%	96%
2006	83%	75%	95%	95%

Data source: WSDOT Highways and Local Programs.

Top pavement management issues for local agencies

- General** – The per-mile costs to maintain pavement surfaces and preserve basic roadway conditions continue to rise as the purchasing power of current revenue is declining. Maintenance and preservation priorities are forcing a shift of funds away from other activities such as safety improvement projects and other needed roadway and roadside improvements. Local agencies lack the ability to respond to emerging demands for service and system improvements.
- Arterial/collector pavement preservation** – Proactive, long-term, least cost, scenarios are being replaced with reactive, short-term, low cost “quick fixes.” This results in an increasing patchwork of discontinuous pavement types and conditions, leading to a decline in the quality of travel.
- Freight and goods system** – Recently, there has been a loss of momentum to improve roadways and expand the all-weather system that benefits freight movement. The accelerating decline in pavement condition has also increased the likelihood that existing all-weather roadways could be removed from their current status.
- Local access roads** – Available resources have been shifted from preservation of the local access system towards the preservation of the arterial-collector system. This causes local access road conditions to decline faster than the rest of the roadway system. Some counties are seriously considering converting paved surfaces back to gravel surfaces.

Highway Maintenance Annual Report

Maintenance Accountability Process

The Maintenance Accountability Process (MAP) measures performance of 30 maintenance activities using two metrics – *asset condition* (Level of Service (LOS)) and *task completion*. *Asset condition* applies two types of assessments; condition assessment is measured through data collection from site surveys in many different forms including surveys conducted on over 2,200 random tenth-mile sections of highway throughout the state, and operational assessment looks at the operation of the asset, such as how many repairs per signal were needed in a given period of time. *Asset condition* is affected not only by maintenance actions, but rehabilitation/rebuilding and new construction projects. *Task completion* quantifies the number of tasks needed for a specific activity each year, and how many of those tasks were completed.

Using these two performance measures together, overall maintenance program delivery can be more accurately explained. Good *asset condition* is achieved by completing higher percentages of needed maintenance work. As reported in December 2010 *Gray Notebook 40* (p. 18), WSDOT will rely on *task completion* as the primary tool used to measure maintenance performance. The process to identify needed/required tasks is ongoing. *Asset condition* (MAP surveys) will serve as a quality assurance tool used to verify or support changes in the maintenance *task completion* measure.

73% of highway maintenance targets achieved in 2011

WSDOT achieved more maintenance asset condition targets in 2011: from 65% in 2010 to 73% (22 of 30) in 2011. This was a direct result of increased funding that allowed WSDOT to catch up with the backlog of some maintenance activities.

Explanation of missed LOS targets for 2011

Urban Tunnels LOS is measured by the number of tunnel closures. WSDOT required closures this year in order to replace components that could only be completed during system shutdowns. Combined with typical tunnel safety testing, the work required more tunnel closures to flammable cargo, which contributed to a decrease in the asset condition.

Structural Bridge Repair dropped slightly from 2010, but remained higher than previous years. Structural bridge repairs vary in cost, depending on the complexity and scope of the repair. The higher cost of the 2011 work resulted in fewer completed repairs.

Regulatory/Warning Sign Maintenance dropped slightly because 20% more signs were reviewed this year, and were more widely distributed across the state than in previous surveys. Additionally, the planned maintenance level did not include the quantity of newly added signs resulting from rehabilitation/rebuilding and new construction projects.

Raised/Recessed Pavement Markers targets were achieved by three out of six regions, due in part to the backlog funding provided in 2009-2011. The 2011 surveys were completed early in the year, so they do not reflect maintenance activities completed throughout the year correcting winter damage.

Pavement Marking Maintenance targets were missed by five out of six regions. Surveys were conducted early in 2011, and do not reflect a full year's pavement marking repair work. This activity is low priority, and not always fully funded after higher priority work is done.

Highway Maintenance Highlights

73% of highway maintenance targets were achieved in 2011, up from 65% in 2010.

Maintenance targets achieved 2011 vs. planned

Level of Service (LOS) target by asset condition

	Funded level	2011 results
■ = Missed Targets		
Movable & Floating Bridge Operations	B+	A
Traffic Signal System Operations	C	C+
Snow & Ice Control Operations	A-	A
Keller Ferry Operations	B	B
Urban Tunnel Systems Operations	B	C-
Structural Bridge Repair	C	C-
Regulatory/Warning Sign Maintenance	C+	C
Slope Repairs	B	B+
Intelligent Transportation Systems	B-	A-
Maintain Catch Basins & Inlets	D+	C
Bridge Deck Repair	C	C+
Guardrail Maintenance	B+	A-
Pavement Striping Maintenance	C	C
Raised/Recessed Pavement Markers	B	C+
Control of Vegetation Obstructions	D+	C+
Rest Area Operations	B	B
Sweeping and Cleaning	B+	A-
Maintain Ditches	B	B
Highway Lighting Systems	C+	B+
Guidepost Maintenance	D	D
Maintain Culverts	D+	C-
Pavement Marking Maintenance	C	D
Noxious Weed Control	B	B
Shoulder Maintenance	B-	C
Guide Sign Maintenance	B-	B
Maintain Detention/Retention Basins	C	C
Bridge Cleaning & Painting	C	B
Nuisance Vegetation Control	B-	D+
Landscape Maintenance	D+	D
Litter Pickup	D	D
Percent of targets achieved		73%

Data source: WSDOT Maintenance Office.

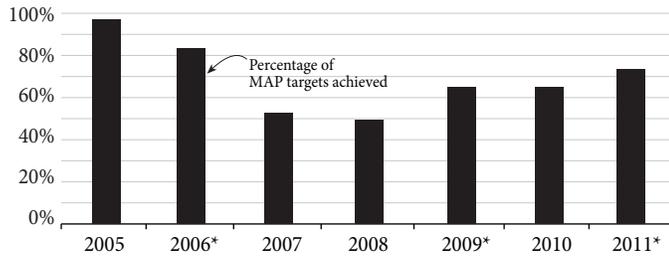
Note: The 30 maintenance activities are displayed in prioritized order. Pavement Patching & Repair is a maintenance activity that is currently performed but no longer being reported in this table. The LOS specific rating has been incorporated in the department's Pavement Management System condition rating.

Highway Maintenance Annual Report

Maintenance Accountability Process

Statewide maintenance targets achieved

As a percentage of total, 2005 - 2011



Data source: WSDOT Maintenance Office.

*Note: Targets are adjusted periodically based on funding levels and other maintenance priorities. In 2006, Paving & Crack Seal was merged into one activity, changing the total number of activities from 33 to 32. In 2009, in addition to targets being adjusted to better reflect funding levels, the Safety Patrol activity was removed from reporting, changing the total number of activities from 32 to 31. In 2012, the Pavement Patching & Repair activity was removed from reporting, changing the total number of activities from 31 to 30.

Shoulder Maintenance targets were missed by two out of six regions. These two regions are more rural, have less traffic, and receive fewer rehabilitation dollars. These factors, coupled with the cost-saving practice of excluding shoulders from pavement rehabilitation projects, result in many rural highways continuing to deteriorate, regardless of maintenance actions. The statewide score of C for 2011 is down from a C+ in 2010.

Nuisance Vegetation Control is a relatively low priority activity, but the statewide score was higher in 2011 than 2010, due to increased workforce awareness and education.

Landscape Maintenance is another low priority activity, which will be impacted before higher priority activities when resources are tight, but this activity remained at the same level as last year.



WSDOT crews repair guardrail on a bridge on SR 17 near Mesa after it was damaged in a collision.

Task Completion and Backlog Funding

The \$16.8 million in backlog funding that was provided in 2009-2011 improved the LOS asset condition of the infrastructure. The performance is shown in the gray box below.

Steps continue to address maintenance backlog

The legislature provided \$6.4 million in backlog funding for the 2011-2013 biennium to continue to increase levels of service. Unlike the 2009-2011 funds, the \$6.4 million have not been identified for specific activities, but have been provided to address the backlog. WSDOT has reported progress toward reducing the maintenance backlog during the 2009-2011 biennium and will continue to monitor and report progress throughout the 2011-2013 biennium.

Investments needed to reduce maintenance backlog

Dollars in millions

2011 - 2013 (currently funded)*	\$24.1*
2013 - 2015	\$22.7
2015 - 2017	\$12.3
2017 - 2019	\$9.0
2019 - 2021	\$0.0
Total	\$68.1

Data source: WSDOT Maintenance Office.

*Note: 2011-2013 biennium funding includes \$6.4 million provided specifically for backlog maintenance activities. Planned investments after the 2011-2013 biennium are not funded. Dollar figures are rounded.

2009-2011 Biennium Wrap-Up: Percentage of plan achieved to catch up on backlog of eight funded maintenance tasks

Eight asset/activity categories have received backlog funding for the 2009-11 biennium. This table shows the backlog funding and the percentage of the planned tasks that were completed during the biennium.

Activity (estimated cost, millions)	Percentage of Plan achieved:
Signals (\$4.0 million)	*101%
ITS (\$3.0 million)	*107%
Structural bridge repair (\$1.5 million)	84%
Pavement patching & repair (\$4.0 million)	*163%
Culverts (\$1.5 million)	93%
Cable guardrail (\$0.7 million)	*110%
Regulatory signs (\$0.9 million)	*122%
Raised/recessed pavement markers (\$1.2 million)	97%
Total funded \$16.8 million	

Data source: WSDOT Maintenance Office.

*Note: Activities exceeded 100% because actual costs were less than budgeted, resulting in more activities accomplished than originally planned.

Highway Maintenance Annual Report

Detailed results of 2011 Task Completion and Asset Condition surveys

The table below shows both *asset condition* and *task completion* performance data, by asset; also shown are four assets/activities with identified preventive maintenance activities tracked for completion. WSDOT is still in the beginning stages of transitioning to this new method of performance reporting for the Highway Maintenance program.

Tasks completion and asset condition (LOS) for selected maintenance activities

Comparison of calendar years 2008 – 2011

Activity or asset	Task completion goals	Performance measures	2008	2009	2010	2011
Signals ¹	Complete planned maintenance	% of total planned maintenance complete	37%	44%	79%	90%
		Asset condition rating (2011 funded target - C)	C-	C	B	C+
ITS	Complete planned maintenance	% of total planned maintenance complete	14%	13%	49%	60%
		Asset condition rating (2011 funded target - B-)	B	A-	B+	A-
Structural bridge maintenance	Achieve asset condition LOS target "C"	% of Priority 1 repairs completed	59%	42%	67%	66%
		Asset condition rating (2011 funded target - C)	D	F	C-	C-
Pavement ²	Maintain 90% fair or better condition rating for WSDOT-owned pavement	% of planned work completed	N/A	N/A	163%	68%
		Percent in fair or better condition (Target - 90%)	94%	93%	92.7%	N/A
Culverts ³	Achieve asset condition LOS target "C"	% of planned work completed	N/A	N/A	92%	77%
		Asset condition rating (2011 funded target - D+)	D-	D-	D	C-
Cable barrier ⁴	Complete 100% of planned maintenance and repairs	% of planned maintenance and repairs complete	N/A	N/A	100%	74%
		Asset condition rating (2011 funded target - A)	N/A	N/A	A+	A+
Regulatory signs ⁵	Achieve asset condition LOS target "C+"	% of planned work completed	N/A	N/A	113%	108%
		Asset condition rating (2011 funded target - C+)	C	D+	C+	C
Pavement markers	Achieve asset condition LOS target "B"	% of planned work completed	N/A	N/A	95%	93%
		Asset condition rating (2011 funded target - B)	C	C-	C+	C+
Movable or Floating bridges	Complete 100% of planned maintenance	% of total planned work complete	81%	92%	96%	90%
		Asset condition rating (2011 funded target - B+)	A+	A+	A-	A
Urban tunnels	Complete 100% of planned maintenance	% of total planned maintenance complete	94%	91%	94%	95%
		Asset condition rating (2011 funded target - B)	B	B+	B+	C-
Catch basins	Complete annual inspection and maintenance in NPDES permit area	% of inspection/maintenance complete	Will report results in December 2012			
		Asset condition rating				
Stormwater BMPs	Complete annual inspection and maintenance in NPDES permit area	% of inspection/maintenance complete	Will report results in December 2013			
		Asset condition rating				

Data source: WSDOT Maintenance Office.

Data notes: Progress against maintenance plan targets

1 **Signals** LOS score decreased from a B to a C+, still above the target score of C. This score is based on the number of signal repairs. Since the preventative maintenance (PM) program began, the technicians are visiting the signals more often, which has resulted in identifying needed repairs before the system fails. Improved documentation and reporting has enhanced accuracy of the asset condition thus resulting in a decreased score.

2 WSDOT has transitioned to an integrated pavement asset management approach using the Pavement Management System's condition rating rather than a LOS specific rating for pavement. Task completion percentages for pavement maintenance can be greater than 100% due to the nature of planning for future pavement repairs. It is difficult to pre-determine exactly the type of repair work that will be needed in the future. In 2011 WSDOT was able to complete more low cost repairs than anticipated driving up the task completion percentage.

3 **Culverts** can be difficult to estimate the scope of the work. More expensive work than originally estimated decreased the number of tasks accomplished.

4 **Cable guardrail** has been reported individually since 2010, but has always been included as part of total guardrail. Cable guardrail, measured alone, achieved an A+. The task completion percentage decrease is a result of an incomplete data set that is from January 2011 to June 2011. We anticipate that next year's percent will include the complete data set.

5 **Regulatory Signs** did not meet the LOS for 2011, because 20% more signs were reviewed this year than in 2010, and were more widely distributed across the state than in previous years surveys. Additionally, the planned maintenance level did not incorporate the level of newly added signs that resulted from rehabilitation/rebuilding and new construction projects. Many activities, including *regulatory signs*, can achieve task completion higher than 100% in a calendar year due to work being planned on a biennial basis. A variety of factors including staffing levels, work planning, weather, etc. influence the number of tasks completed in a given time period.

Highway Maintenance Annual Report

2010 Maintenance Customer Survey

WSDOT offered a new Maintenance Customer Service survey on its website from October to December 2010; the fourth in a series of surveys, this one was conducted using an online survey tool. The previous three surveys were telephone surveys conducted in 1996, 2000, and 2005, and were completed by a consultant. WSDOT offered the online survey as a way to save money and overcome challenges presented by calling individual residences. The survey was advertised through traditional and new style media outlets, such as press releases, social media tools, and email distribution.

While the web survey method yielded significant cost savings, it also presented challenges including a smaller survey response. Many organizations have seen fewer responses when switching from telephone to web-based surveys, though WSDOT anticipates the numbers will increase as people become more comfortable with web-based surveys.

Key results from the recent customer survey

Some survey questions asked about driver satisfaction with the level of highway maintenance. Other questions addressed the maintenance activities, and provided some contextual information about highway maintenance and what it takes to maintain the transportation system. About half of the drivers (51%) who responded to the survey were generally satisfied with the level of highway maintenance, a significant drop from 78% in the 2005 survey. Respondents were then asked to rate highway maintenance from very poor to excellent. More than half the respondents (59.8%) rated Washington's highway maintenance above average or excellent, 32.7% of respondents gave WSDOT an average rating. A small percentage rated highway maintenance fairly poor (6.6%) or very poor (0.9%). While the initial responses reflect a drop in the percent of satisfied drivers, follow up questions indicate that most respondents felt that highway maintenance is being performed well. This result is comparable to the results found in the 2005 maintenance customer survey.

One survey question asked respondents how well WSDOT responds to emergencies, such as mud slides, floods, etc. Of the responses, 38% rated WSDOT's response to emergencies as excellent, and 44% rated WSDOT above average. This is a significant increase from 24% and 36% respectively in 2005. Less than 2% of the respondents rated WSDOT's response as fairly poor or very poor in 2010, compared to 4% in 2005.

Better road surfaces remain the number one improvement wanted

Respondents were asked to rank 11 maintenance activities in order of importance, with 1 being most important and 11 being least. They were asked to think about this in the context of having \$200 worth of work to do, but only \$100 to do it with and decide which activities to spend the money on and which activities should not be done.

The table below shows the 11 maintenance areas ranked in order based on the survey results. Respondents ranked *Roadway Surfaces* the most important maintenance activity, which is consistent with the survey results in 2005.

2010 Customer survey results : Maintenance activities ranked by importance

Rank	Maintenance activity	Percent Satisfied/ Extremely Satisfied
1	Roadway Surfaces	62.0%
2	Road Stripes and Pavement Markers	61.8%
3	Snow and Ice Removal	83.7%
4	Drainage Features	75.0%
5	Roadway Signs	83.7%
6	Traffic Signals	88.8%
7	Guard Rail	91.4%
8	Highway Lighting	83.5%
9	Roadside Litter Removal	67.1%
10	Rest Areas	91.5%
11	Roadside Vegetation	73.6%

Data source: 2010 Maintenance Customer Survey.

Satisfaction with maintenance activities

Of the 11 maintenance activities listed, all had a 60% or greater satisfaction level when combining the satisfied and extremely satisfied classifications. The category that had the most dissatisfied/extremely dissatisfied response (38%), was *Road Stripes and Pavement Markers*.



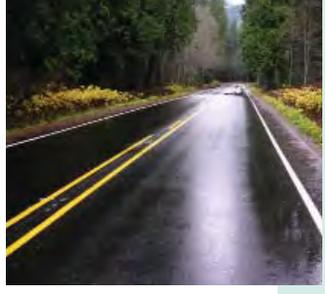
Mobility (Congestion Relief)

Statewide 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 infrastructure capacity strategically, operating transportation systems efficiently, and managing demand effectively.



In this section

Travel Time Trends Six Month Update	22
Incident Response Quarterly Update	25
Washington State Ferries Quarterly Update	30
Rail: Amtrak <i>Cascades</i> Quarterly Update	33

See also

Special Report: Federal Recovery Act-funded Projects	44
Quarterly Report on Capital Projects (Beige Pages)	46
New Ferry Construction	67

Earlier articles concerned with mobility

Aviation Annual Report, GNB 43	
Measuring Delay and Congestion Annual Report, GNB 42 and special publication	
Commute Options Annual Report, GNB 42	
Travel Time Trends Six Month Update, GNB 42	
Traveler Information, GNB 41	

Travel Time Trends Semi-Annual Report

Travel Time Trends in the Seattle Area: July–December 2011 vs. 2009-2010

Travel Time Trends Highlights

The second half of 2011 saw modest changes in travel times and volumes compared to same time periods in 2009 and 2010.

14 out of 18 commute routes showed little to no change in travel times in 2011 when compared to 2010.

Peak period and daily traffic volumes have not changed significantly in the second half of 2011 compared to the same time period in 2010.

The five-year trend from 2007 to 2011 for travel times shows a similar increasing trend for both travel time and volume changes.

King and Snohomish county employment levels have not changed significantly in 2011 compared to 2010.

WSDOT began variable time-of-day tolling on SR 520 on December 29, 2011.

Washington's economic vitality and renowned livability depend on reliable, responsible, and sustainable transportation. *Moving Washington* is WSDOT's proven approach for creating an integrated, 21st century transportation system. The objectives are clear and measurable and rely on partnerships that invest for the long term. It is WSDOT's framework for making transparent, cost-effective decisions that keep people and goods moving and support a healthy economy, environment, and communities. *Moving Washington* reflects the state's transportation goals and objectives for planning, operating and investing.

This semi-annual analysis provides up-to-date information about central Puget Sound region travel trends affected by changes in the economy, ongoing congestion relief strategies and projects implemented by the state's *Moving Washington* program. Specifically, this report focuses on a sample of 18 key commute routes in the central Puget Sound region. The trends described in this article are based on a comparison of traffic conditions in the second half of 2011 to those in the second half of 2009 and 2010. Longer-term trends are also described to provide additional context for the short-term patterns.



Modest travel time and volume changes in second half of 2011, consistent with changes in 2010

The table on page 23 summarizes the travel time and volume changes that occurred in the central Puget Sound region in the second half of 2011 (July-December) compared to the same periods in 2009 and 2010. Travel times in 2011 in both the morning and evening commute periods changed only slightly from 2009 and 2010.

Comparing travel times between 2011 and 2010

Of the 18 key commute routes sampled for this analysis, 14 routes showed no significant change in travel times – less than two minutes. The morning commute travel times changed slightly on the Federal Way to Seattle via I-5, and Tukwila to Bellevue via I-405 routes, each showing two minute increases. The Bellevue to Tukwila via I-405 route showed a similar increase in travel time during the afternoon commute. A two-minute improvement in travel time was observed on the afternoon commute route from Seattle to Everett via I-5.

Comparing peak period and daily traffic volumes between 2011 and 2010

Peak period and daily traffic volumes did not change significantly during the second half of 2011 compared to the second half of 2010. During the peak period, 15 out of 18 spot locations showed either a slight increase or decrease – 2% or less – or no change in traffic volume. Similarly, nine out of 14 spot locations (refer to table notes on page 23) showed a slight change or no change in daily weekday traffic volumes. Despite these minimal changes, traffic volumes appear to be increasing. Traffic volumes increased slightly at 12 out of 18 spot locations for peak period volumes and at nine out of 14 locations for daily volumes when comparing the second half of 2011 to the same time period in 2010. Fewer locations had volume increases between the same time period in 2009 and 2010: traffic volume increases occurred at only three out of 18 locations during the peak period, and three out of 14 locations for daily volumes.

Travel Time Trends Semi-Annual Report

July-December, 2009-2011: Modest Changes in Travel Times and Volumes

Travel time performance for July-Dec in 2009-2011 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; all 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	
		2009	2010	2011	2010 vs. 2009	2011 vs. 2010	2011 vs. 2009	2010 vs. 2009	2011 vs. 2010	2010 vs. 2009	2011 vs. 2010
Morning commutes											
I-5 Federal Way to Seattle (22)	NB	29	31	33	2	2	4	-2%	1%	-1%	-2%
I-5 Everett to Seattle (24)	SB	31	33	32	2	-1	1	-5%	1%	-7%	0%
I-5/I-405 Everett to Bellevue (24)	SB	32	35	36	3	1	4	-2%	1%	0%	1%
I-405 Tukwila to Bellevue (13)	NB	19	20	22	1	2	3	-2%	1%	1%	2%
SR 167 Auburn to Renton (10)	NB	13	14	14	1	0	1	-2%	2%	-1%	4%
I-405/I-90/I-5 Bellevue to Seattle (10)	SB/WB/NB	12	12	12	0	0	0	7%	2%	7%	1%
I-405/SR 520/I-5 Bellevue to Seattle (10)	NB/WB/SB	13	14	14	1	0	1	-3%	-3%	-2%	-5%
I-5/I-90/I-405 Seattle to Bellevue (11)	SB/EB/NB	12	13	13	1	0	1	1%	1%	0%	2%
I-5/SR 520/I-405 Seattle to Bellevue (10)	NB/EB/SB	14	15	15	1	0	1	-2%	-7%	-2%	-6%
Evening commutes											
I-5 Seattle to Federal Way (22)	SB	27	26	27	-1	1	0	1%	0%	-2%	-2%
I-5 Seattle to Everett (23)	NB	33	32	30	-1	-2	-3	0%	2%	0%	1%
I-405/I-5 Bellevue to Everett (23)	NB	33	31	31	-2	0	-2	0%	2%	0%	3%
I-405/I-5 Bellevue to Tukwila(13)	SB	24	23	25	-1	2	1	-1%	1%	0%	2%
SR 167 Renton to Auburn (10)	SB	13	14	14	1	0	1	-1%	2%	2%	3%
I-405/I-90/I-5 Bellevue to Seattle (10)	SB/WB/NB	15	16	17	1	1	2	6%	0%	7%	1%
I-405/SR 520/I-5 Bellevue to Seattle (10)	NB/WB/SB	20	20	21	0	1	1	-1%	-2%	2%	-5%
I-5/I-90/I-405 Seattle to Bellevue (11)	SB/EB/NB	12	13	13	1	0	1	-3%	1%	0%	2%
I-5/SR 520/I-405 Seattle to Bellevue (10)	NB/EB/SB	15	16	15	1	-1	0	-1%	-4%	-2%	-6%

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 (July thru December 28 for 2009, 2010, 2011). A negative change in travel times indicates faster travel times. Beginning with this report, peak period definitions will 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.

Reduced traffic volumes on SR 520 in second half of 2011 compared to 2010

The most significant year-over-year changes in volume were at a spot location on SR 520, just east of the floating bridge. Unlike most locations in the sample, volumes east of the bridge were down in the second half of 2011 compared to 2010, for both peak periods and daily volumes. In this case, construction on the SR 520 corridor appears to be a factor; the project involves significant construction in the median and alongside the roadway, as well as overhead girder installations, for a 2.1-mile segment of the corridor. Construction began in the spring of 2011, impacting the second half of the year. This change is not due to SR 520 tolling, see page 24 for more information.

Five years of travel time and volume data trends

In the five years prior to 2007, travel times gradually increased as regional congestion grew. In 2007 and 2008, region-wide improvements in travel times were observed on nearly every key route monitored in this analysis; the magnitude of these reductions ranged from modest to significant. Factors contributing to the reduction during that period included rising gas prices and deteriorating economic conditions that affected travel demand. WSDOT construction projects and congestion relief strategies were also factors by strategically adding capacity at key locations. The new projects contributed to efficient roadway use, and managed demand. In 2009, travel times continued to

Travel Time Trends Semi-Annual Report

Factors Affecting Travel Trends: 2007-2011

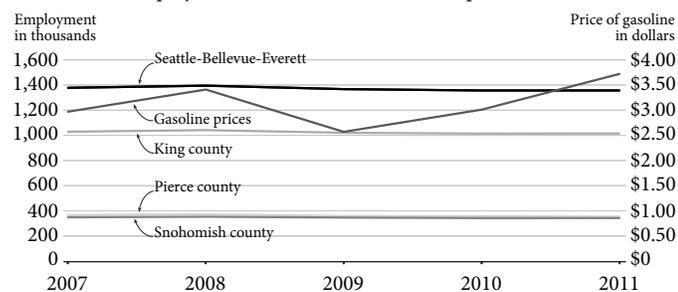
trend downward on most routes. By 2010, travel time changes had leveled off, with only small up or down fluctuations. These trends continued in 2010. Travel time patterns during the past two years also show that while most routes have not shown significant travel time changes, most routes appear to show some upward trend in travel times. However, the five year trend shows that on 14 of 18 sampled routes, 2011 conditions have not returned to 2007 levels.

For example, the Tukwila to Bellevue morning commute via I-405 saw a significant drop in travel time from a high of 30 minutes in 2007, to a low of 19 minutes in 2009. These results are attributed, in large part, to a WSDOT construction project that strategically added capacity on the approach to the I-90 interchange. In 2011, peak period travel times on that route averaged 22 minutes, somewhat higher than the 2009 low, but still significantly lower than before the construction project.

During the past five years, traffic volumes have followed a similar pattern as travel times. From 2007 to 2008, while travel times were dropping on routes across the region, traffic volumes were dropping as well; nearly every spot location surveyed showed a reduction in general-purpose lane traffic volume both for peak periods and all day periods. There was some rebound in volumes in 2009 at most locations. Also small volume changes occurred at most locations in 2010 and 2011 (generally down in 2010, generally up in 2011). At most locations, traffic volumes have not yet returned to 2007 levels; 12 of 18 spot locations have lower peak period volumes in 2011 compared to 2007, while nine of 14 locations have lower daily volumes in 2011. Other factors that influence travel trends

Five year trend for annual Puget Sound regional employment and gasoline prices

2007 - 2011; Employment in thousands, Gasoline prices in dollars



Data source: Washington State Employment Security Department; US Department of Energy - Energy Information Administration (EIA)

Other factors that influence travel trends

During 2011, employment conditions in the region did not change significantly from 2010. Employment levels were essentially unchanged in King and Snohomish counties in 2011 compared to 2010 (+0.1%), while in Pierce County employment dropped by about one percent. For the Seattle-Bellevue-Everett metropolitan region, employment levels remained unchanged in 2011. Reviewing the past 5 year trend puts the employment picture in perspective. In 2007 and 2008, employment was still growing. By 2009 region wide employment was in decline with drops ranging from 1.9% in Snohomish County, 2% in the Seattle-Bellevue-Everett areas to 3.4% in Pierce County. Employment continued to drop in 2010 across the region, though the change was smaller than 2009, ranging from 0.6% to 1.2%, depending on the county. Except for Pierce County, 2011 saw even smaller changes than 2010.

Another factor that influences travel demand is the price of gasoline. Statewide, the annual average gas price for 2011 was \$3.72 per gallon, over 23% higher than in 2010. This represents the highest annual average gas price seen during the past five years. However, there was considerable fluctuation in gas prices during the course of the year, ranging from \$3.25 a gallon in January, to \$4.01 a gallon in May. The highest average monthly gas price during 2011 was still lower than those seen during the summer of 2008, when the statewide average reached over \$4.30 a gallon. While the average price for 2011 was a new annual five-year high, the monthly trend in the second half of the year showed a gradual drop in price, with an average price of \$3.51 per gallon in December 2011.

A new factor: Tolling on SR 520

On December 29, 2011, variable time-of-day tolling was initiated on SR 520 in both directions. While drivers continue to adjust to the changing traffic conditions, WSDOT expects that it will take six months or more before traffic completely settles into its new patterns. In the meantime, WSDOT is monitoring the effects of tolling on the transportation system and works with local jurisdictions and agencies to track and document changes. (the latest traffic reports are available at www.wsdot.wa.gov/Tolling/publications.htm)

During January 2011, WSDOT observed drivers changing routes, trip time, and travel mode. Parallel routes have seen increased volume, particularly during off-peak times, and added congestion during peak times. One month into tolling, the daily volume on SR520 has been 60 to 70% of pre-toll levels. Traffic volumes on I-90 have increased 10 to 15%. Travel time and trip reliability has improved on SR 520, with average peak period travel times decreasing by 10 to 25 minutes. Average peak period travel times on I-90 have increased by five to ten minutes and the peak periods are between 45 and 60 minutes longer.

Incident Response Quarterly Update

WSDOT's Incident Response (IR) program responded to more than ten thousand incidents in the fourth quarter of 2011, saving citizens and businesses in Washington about \$9.8 million in wasted time and gas while idling in traffic (see the gray box on page 29). The IR teams are scheduled to work during peak commute periods, and are also available 24/7 for call out.

The mission of the IR program is to safely and quickly clear traffic incidents to minimize congestion, restore traffic flow, and reduce the risk of secondary collisions. The IR 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.

Overview of WSDOT's IR program

The IR program is active in all six WSDOT regions and teams rove in urban areas where there is congestion. Statewide, WSDOT has about 47 Full Time Equivalent (FTE) jobs and operates 62 dedicated IR related vehicles. The FTE decimal number indicates that an IR responder works part time in a different role at WSDOT. IR trucks rove 493 centerline miles, statewide, during peak commute hours.

Facts and figures: WSDOT IR program

As of December 31, 2011

WSDOT region	# of IR trucks	# of FTEs
Eastern Region	3	2.0
North Central Region	1	0.8
Northwest Region	43	31.0
Olympic Region	9	7.2
South Central Region	1	0.5
Southwest Region	4	4.4
Headquarters	1	1.0
Statewide	62	46.9

Data source: WSDOT Traffic Office.

Incident Response Highlights

10,457 incidents were cleared in the fourth quarter of 2011. The average clearance time was 13.1 minutes.

WSDOT's IR program saved travelers and businesses close to \$10 million in the fourth quarter of 2011 by reducing the time and gas they would have wasted in travel delay due to congestion.

The quarterly average clearance time for the 71 over-90-minute incidents on the nine key GMAP highway segments was 149 minutes.

Four successful Major Incident Tow (MIT) activations in the fourth quarter of 2011 resulted in \$10,863 in incentive payments to MIT authorized tow companies.

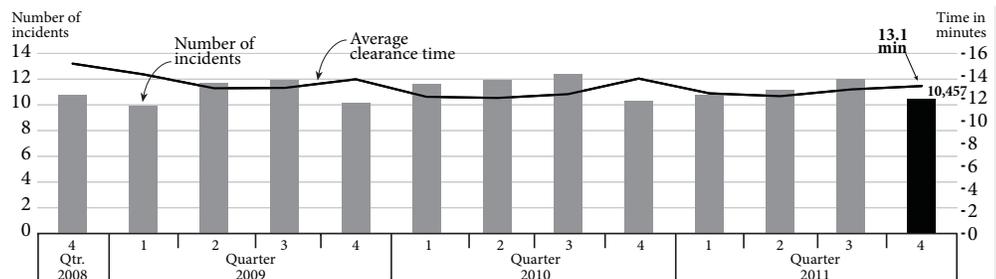
WSDOT IR teams responded to 10,457 incidents between October 1 and December 31 of 2011

WSDOT IR teams responded to 10,457 incidents statewide during the fourth quarter of 2011, with an average incident clearance time of 13.1 minutes. Quarter 4 (October 1 – December 31) includes the early winter months, and usually has the lowest number of incidents in the year: 2010, 2009, and 2008 experienced 10,308, 10,163, and 10,843 incidents, with clearance times of 13.8, 13.7, and 15.1 minutes respectively. In quarter 3 of 2011, IR teams reported 12,038 statewide incidents with an average incident clearance time of 12.8 minutes.

Statewide IR responses and average overall clearance time

October 1, 2008 – December 31, 2011

Number of incidents in thousands, Clearance time in minutes



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

Note: IR data for quarter 4 2011 is current as of January 23, 2012 and is subject to future revision.

Incident Response

Quarterly Update

WSDOT Region Focus: Traffic Incidents, Clearance Times, and Societal Costs

Incident clearance times by WSDOT region and notification type

October 1, 2011 – December 31, 2011, Number of incidents, Clearance time in minutes

WSDOT Region Name	Roved Upon		Dispatched		Called out		Total by region		
	Incidents	Clearance time	Incidents	Clearance time	Incidents	Clearance time	Incidents	Clearance time	Percent
Eastern Region	683	6.5	323	24.5	–	–	1,006	12.2	9.6%
North Central Region	40	23.1	15	70.5	–	–	55	36.1	0.5%
Northwest Region	4,719	6.8	1,983	23.5	26	174.8	6,728	12.4	64.3%
Olympic Region	1,444	9.9	319	36.5	10	191.9	1,773	15.7	17.0%
South Central Region	96	12.3	19	45.8	–	–	115	17.8	1.1%
Southwest Region	586	4.7	176	25.6	18	99.0	780	11.6	7.5%
Statewide	7,568	10.5	2,835	37.7	54	155.2	10,457	13.1	100.0%

Data source: WSDOT Traffic Office, WITS.

Incident clearance times by WSDOT region and notification type

The table above presents the incidents that were responded by IR personnel by region and by notification type (see *Gray Notebook 43*, page 19 for definitions on types of incident notifications). Roving during the busy commute hours helps to address non-recurring congestion by clearing incidents as they occur, hence the comparatively lower average clearance times. Deploying IR crews on the most congested roads help reduce overall delays, reducing distracted driving, and the likelihood of secondary collisions.

Cost of incident induced delay can be significant

Between October 1 and December 31, 2011, the cost of delay for the 2,220 blocking incidents at \$345 per minute of lane closure is about \$20.5 million. The cost of delay for 8,237 non-blocking incidents at \$244 per minute of incident is \$18.9 million. The cost of delay incurred in the three duration categories was about \$11.7 million for incidents lasting less than 15 minutes; \$21.0 million for incidents lasting 15-90 minutes; and \$6.6 million for over-90 minutes incidents.

Blocking and non-blocking average clearance times by incident duration

October 1 – December 31, 2011, Time in minutes, Cost in dollars

Incident type	Number of incidents	Average IR response time	Average roadway clearance time	Average incident clearance time	Incident-induced delay costs
Incident duration less than 15 minutes					
Blocking	1,101	2.8	5.7	7.6	\$2,901,105
Non-blocking	6,809	0.5	4.0	5.3	\$8,788,880
< 15 Total	7,910	0.8	5.3	5.6	\$11,689,985
Incident duration ranging between 15 and 90 minutes					
Blocking	1,030	9.0	25.8	33.2	\$11,784,855
Non-blocking	1,405	7.2	24.0	27.0	\$9,257,116
>= 15 - < 90 Total	2,435	8.0	25.5	29.6	\$21,041,971
Incident duration greater than or equal to 90 minutes					
Blocking	89	26.5	181.9	187.7	\$5,762,880
Non-blocking	23	22.4	117.1	146.2	\$820,328
> 90 Total	112	25.6	174.8	179.2	\$6,583,208
Grand Total	10,457	2.8	20.4	13.1	\$39,315,164

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

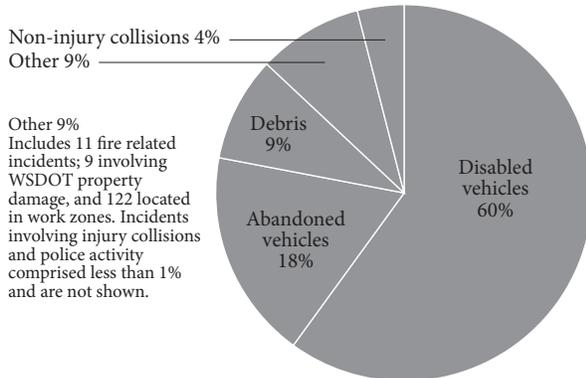
Note: The total number of incidents statewide is 10,457. Of these, 439 incidents are 'unable to locate' (UTL) incidents: IR personnel were enroute to respond, but the incident cleared before the team reached it. The average times in the table above do not include UTL incidents.

WSDOT Region Focus: Blocking and Non-blocking Incidents

Number and percentage of responses by duration:
Total of 10,457 IR incidents statewide,
October 1 – December 31, 2011

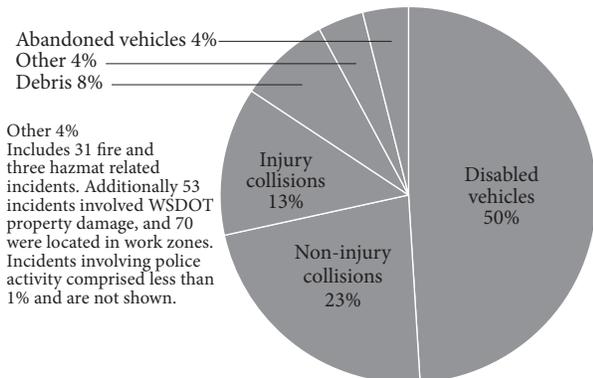
Incidents lasting less than 15 minutes (7,910)

Estimated cost for incidents less than 15 minutes: about \$11.7 million



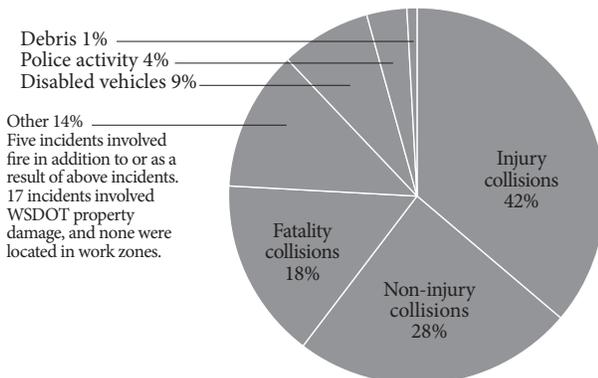
Incidents lasting less than 15 to 90 minutes (2,435)

Estimated cost for incidents lasting 15 to 90 minutes: about \$21 million



Incidents lasting 90 minutes or longer (112)

Estimated cost for incidents lasting 90 minutes and longer: about \$6.6 million



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

Traffic incidents are major contributors to non-recurring congestion

Blocking incidents (travel lane closed) hinder the free flow of traffic by reducing roadway capacity and vehicle throughput. As long as travel lanes are open, the risk of non-recurring congestion and secondary collisions is greatly reduced. But even non-blocking incidents (all travel lanes open) that are on the shoulder can contribute to congestion, as drivers slow down out of caution or curiosity. The table below presents the percentage of capacity reduction by type of incident and roadway lane configuration. For standard definitions on nationally recognized traffic incident management performance measures refer to p.29.

Percentage of capacity reduced by lane closure

Location of closure, Number of lanes in each direction

Incident location	2-Lane road	3-Lane road	4-Lane road
Shoulder	25%	68%	100%
Blocking One Lane	16%	47%	78%
Blocking Two Lanes	11%	44%	66%

Data source: WSDOT Research Report WA-RD 761.1.

Of all incidents statewide between October 1 and December 31, 2011, 21% (2,220 incidents) blocked traffic, while 79% (8,237 incidents) were non-blocking. It is important to distinguish between blocking and non-blocking incidents, by region and statewide, so that adequate resources are made available to strategically handle incident response. The table below gives a regional perspective on the blocking and non-blocking incidents by number and percentage.

Blocking/non-blocking incidents by WSDOT region

October 1 – December 31, 2011

Region Name	Blocking (%)	Not blocking (%)
Eastern Region	157 (16%)	849 (84%)
North Central Region	37 (67%)	18 (33%)
Northwest Region	1,659 (25%)	5,069 (75%)
Olympic Region	183 (10%)	1,590 (90%)
South Central Region	39 (34%)	76 (66%)
Southwest Region	145 (19%)	635 (81%)
Statewide	2,220 (21%)	8,237 (79%)

Data source: WITS, WSDOT Traffic Office.

Incident Response Quarterly Update

Fatality Incidents, GMAP, Extraordinary Incidents

IR crews assisted at 19 fatality incidents between October 1 and December 31, 2011

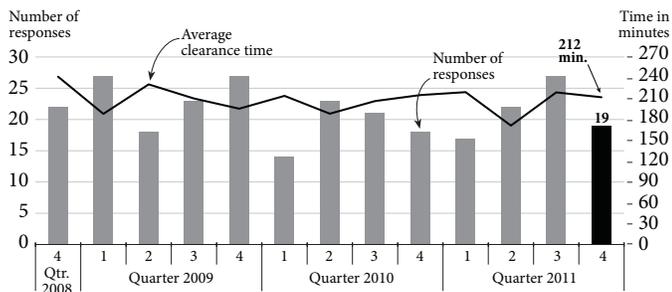
In the fourth quarter of 2011, IR teams responded to 19 incidents in which a fatality was one of several contributing factors for longer clearance times. All 19 incidents were over-90-minutes; of the 19, 17 were blocking incidents. Ten of the 19 fatality incidents occurred on a weekday, and nine on the weekend.

Fatality clearance times fluctuate based on many contributing factors

The average clearance time for these 19 fatality incidents was recorded at 212 minutes. In the third quarter of 2011, IR teams responded to 27 fatality incidents that had an average clearance time of 219 minutes. In the fourth quarter of 2010, teams responded to 18 fatality incidents with an average clearance time of 215 minutes. Clearance times depend on the nature of the incidents as well as the number and types of emergency responder groups required at the scene in order to safely clear the incident.

Responses & average fatality collision clearance time October 1, 2008 – December 31, 2011

Number of responses, Clearance time in minutes



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

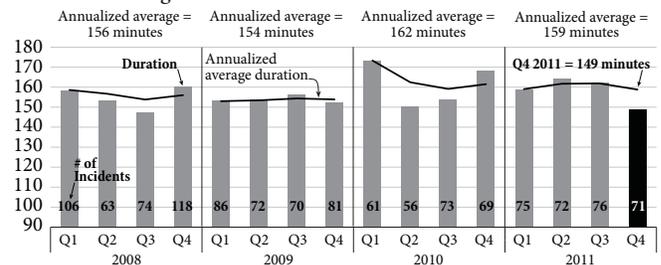
WSP and WSDOT work to reduce the duration of over-90-minute incidents

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, although 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 71 over-90 minute incidents in the fourth quarter of 2011, with an average clearance time of 149 minutes. This is six minutes faster than the 155-minute goal, 13 minutes faster than last quarter, and 10 minutes faster than the statewide over-90 minute incidents annual average.

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

January 1, 2008 – December 31, 2011, Number of responses per quarter vs. annualized average duration in minutes



Data source: Washington State Patrol and WSDOT Traffic Office.

Extraordinary incidents lasting more than six hours

The table below describes two incidents this quarter that lasted more than six hours. One incident involved a fatality with a particularly difficult recovery effort; the other required a HazMat response team and clean up contractor.

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

Fourth quarter of 2011, Duration in minutes

Date & time	State route & location	Duration	City	Incident Summary
Oct. 7, 2011 5:53 AM	I-5 NB, MP 81	524	Centralia	Non-Injury collision involving a semi and dump truck. Collision involved HazMat response, clean up, and vehicle recovery.
Dec. 8, 2011 9:02 AM	I-5 NB, MP 98	649	Tumwater	Fatality collision involving a semi and a passenger car. Collision involved fire, HazMat spill and clean-up, partial rollover, and a difficult vehicle recovery.

Data source: WITS, Washington State Patrol, and WSDOT Traffic Office.

Major Incident Tow (MIT) Program, Customer Feedback, IR Program Benefits

Major incident tow activation clearance time and incentives paid to tow companies

Fourth quarter of 2011, Clearance time in minutes, Amount of incentive paid in dollars, Time stamps in hour:minutes

Date and Time	State route & location	MIT activation time	MIT tow at scene	Notice to proceed	Travel lanes open	MIT clearance time (min.)	Incentive paid	Tow company
Oct. 7, 2011 5:53 AM	I-5 NB at MP 81 (Lewis)	6:22	7:00	7:08	11:52	47	\$2,700	Grants Towing
Oct. 13, 2011 7:17 PM	I-5 NB at 39th Street (Clark)	19:38	20:00	20:10	21:11	61	\$2,710	TLC Towing
Oct. 26, 2011 11:32 AM	SR 599 NB at 42nd (King)	11:46	12:42	12:50	13:10	28	\$2,715	Pro-Tow
Dec. 27, 2011 9:33 PM	I-5 NB at Exit 167 (King)	21:51	21:45	23:05	23:53	48	\$2,738	Quality Towing

Data source: WITS, Washington State Patrol, and WSDOT Traffic Office.

Major Incident Tow (MIT) program

Heavy trucks are involved in about 5% of all incidents, yet they comprise a disproportionate 25% to 30% of incidents that take longer than 90 minutes to clear – due in part to their physical size and their capacity to carry heavy and diverse loads. Trucks carry every type of cargo, from groceries to toxic chemicals; the latter especially can create environmental and public safety risks if the containers are breached or the load is spilled in a collision or rollover. These incidents result in prolonged highway closures that cause congestion, secondary incidents, and economic loss. Clearing them often requires specialized recovery equipment that is not always readily available.

To reduce the cost and damage to the highway system from major incidents, immediate and proportionate response is required to restore the highway system's capacity, operation, and function. It is the policy of WSDOT, WSP, and heavy-tow-truck contractors to respond to these incidents and return the highway system to its original operating condition as quickly as possible. WSDOT is currently evaluating the benefits from the MIT program and will published its research in the upcoming 2012 annual congestion report.

MIT is a legislatively mandated program, instituted to improve the incident clearance times when a heavy vehicle is involved in a blocking incident. This program provides incentive pay for authorized tow companies when they clear the incident within 90-minutes upon receiving a notice-to-proceed (NTP) instruction from the WSP scene commander. For 2011-2013 biennium, the legislature apportioned \$145,000 to continue the MIT program.

In the fourth quarter of 2011, there were seven MIT activations of which four were successful; the total of incentive payments to authorized tow companies was \$10,863. The table above lists MIT activation time, location, incentives, and clearance times.

Sample customer feedback – Fourth Quarter 2011

- *Quick response, very friendly, changed right rear tire on I-5 shoulder - MP 199 - Mark stayed until we were safely enroute. Thanks.*
- *I did not have my cell phone with me. I got a flat tire on the freeway. I prayed for someone to stop so I could call AAA. Thanks very much. He was a God send.*
- *This service was fabulous! Rick placed his truck to protect me and my car. He stayed until a tow truck arrived. Thanks.*
- *Richard was amazingly helpful! The fact that he was even working on the day after Thanksgiving deserves kudos! Thank you Richard!*
- *Fast, friendly. Great use of resources.*

Definitions for key IR performance measures

Roadway clearance time is defined as 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.

Incident clearance time is defined as the time between the first recordable awareness of the incident and the time at which the last responder has left the scene.

Economic benefit to citizens and businesses estimated at almost \$10M in Q4 of 2011

Based on national research, WSDOT estimates that the IR program provided \$9.8 million in economic benefit to the citizens and businesses in Washington during this quarter alone. The dedicated IR program budget for the 2011-2013 biennium is \$9 million. The estimated quarterly budget for IR program is \$1.125 million. For more details on the supporting research, see p. 21 of the September 2011 *Gray Notebook 43*.

Washington State Ferries Quarterly Update

Ridership and Farebox Revenue

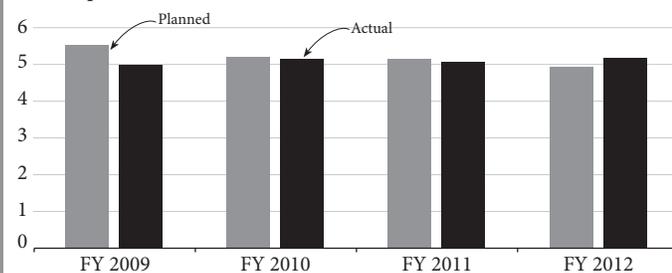
Washington State Ferries Highlights

Ridership for the quarter was 5.2 million, 4.8% above the quarterly projection.

Farebox revenue was \$32.8 million, 1.2% above the quarterly projection.

WSF planned and actual ridership levels by fiscal year

Second quarter (October 1 - December 31), fiscal years 2009 - 2012
Ridership in millions



Data source: WSDOT Ferries Division.

On-time performance was 97.1% and average sailing delay was 1.9 minutes for the quarter, a significant improvement over the same quarter in FY 2011.

Task force recommends 17 ferries performance measures

The 2011 Legislature passed 2ESSB 5742, requiring an ad hoc committee to establish ferry system performance targets for review by the Joint Transportation Committee resulting in a final written report.

WSDOT will include these new measures in future *Gray Notebook* reports.

Washington State Ferries (WSF) serves as both an extension of the state highway system and as a regional mass-transit provider. It provides a critical link to communities separated by water or longer driving distances, and is essential to the movement of 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 million ferry passengers each year.

Ridership 4.8% above projected levels for the quarter and improved compared to a year ago

For the second quarter of FY 2012 (October 1–December 31), 5.2 million people traveled on the ferry system, about 239,000 (4.8%) above projected levels. Compared to the same quarter one year ago, WSF served 113,000 (2.2%) more riders.

WSF faces a number of challenges in trying to maintain ridership at or near projected levels. Over the last several years, both demographics and work patterns in the Puget Sound region have shifted. See September 2011 *Gray Notebook* 43, page 24 for more details.

WSF is developing and has implemented several management strategies to maintain ridership, including: a reservation system to spread demand to off-peak times making ferry travel more predictable, new vessels that allow for increased capacity and improved service reliability on the Port Townsend-Coupeville route, and as of October 1, 2011 a new fare structure is in place that adds a 'small' car category allowing for more capacity within the current fleet and existing service schedule.

Farebox revenue 1.2% above projected levels for the quarter and up compared to one year ago

For the second quarter of FY 2012, farebox revenue was \$32.8 million, \$380,000 (1.2%) above projected levels. Farebox revenues were approximately \$1.5 million (4.8%) above the same quarter last year. An interesting note for the quarter, October revenue was 1.8% below projected levels, because riders purchased fare media in September in advance of the October 1 fare increase (see below).

Revenue performance is impacted by the same issues that affect ridership: demographics, work patterns, and the continued sluggish economy. WSDOT's strategies for ridership outlined above apply to revenue as well.

As of October 1, 2011, the Washington State Transportation Commission adopted two items that affect fare revenue:

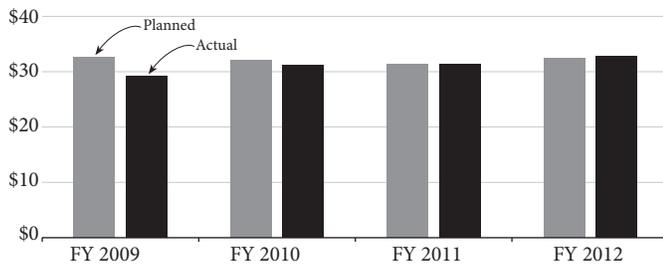
- A 2.5% fare increase
- A new fare category for small vehicles under 14 feet long

WSF is also working to increase non-farebox revenue through increasing concessions, advertising, and through an agreement with the Washington State Lottery.

Service Reliability

WSF planned and actual farebox revenue levels by fiscal year

Second quarter (October 1 - December 31), fiscal years 2009 - 2012
Dollars in millions



Data source: WSDOT Ferries Division.

Fewer missed trips compared to the same period in FY 2011

The number of net missed trips in the second quarter of FY 2012 was 85 fewer than the number of missed trips in the second quarter of FY 2011, 141 compared to 226. In the first quarter of FY 2012, 40,582 regular service trips were scheduled. Of those trips, 215 were cancelled and 74 were replaced, resulting in a total of 40,441 trips during the quarter (40,582 scheduled – 215 cancelled + 74 replacement trips = 40,441 net trips).

WSF trips are cancelled for a variety of reasons, including tide and weather conditions, mechanical problems with vessels or terminals, and cancellations when a ferry is diverted for emergency transport. Trips are also missed when vessels fall too far behind the published schedule to make all the trips for that day.

Compared to the second quarter of FY 2011 there were 39 fewer cancellations due to tides and weather, 23 fewer cancellations due to vessels, and seven fewer cancellations due to terminals.

Washington State Ferries missed-trip reliability comparison

Route	Second quarter, fiscal year 2011			Second quarter, fiscal year 2012		
	Scheduled trips	Missed trips ¹	Reliability average ²	Scheduled trips	Missed trips ¹	Reliability average ²
San Juan (Domestic)	6,838	28	99.6%	6,742	40	99.4%
Anacortes-Sidney, B.C. (International)	184	0	100.0%	184	0	100.0%
Edmonds - Kingston	4290	23	99.5%	4284	0	100.0%
Fauntleroy - Vashon - Southworth	10360	21	99.8%	10350	36	99.7%
Port Townsend - Coupeville	1840	100	94.6%	1940	54	97.2%
Mukilteo - Clinton	6678	48	99.3%	6674	7	99.9%
Pt. Defiance - Tahlequah	3496	2	99.9%	3496	4	99.9%
Seattle - Bainbridge Island	4167	2	100.0%	4165	0	100.0%
Seattle - Bremerton	2747	2	99.9%	2747	0	100.0%
Total	40,600	226	99.4%	40,582	141	99.7%

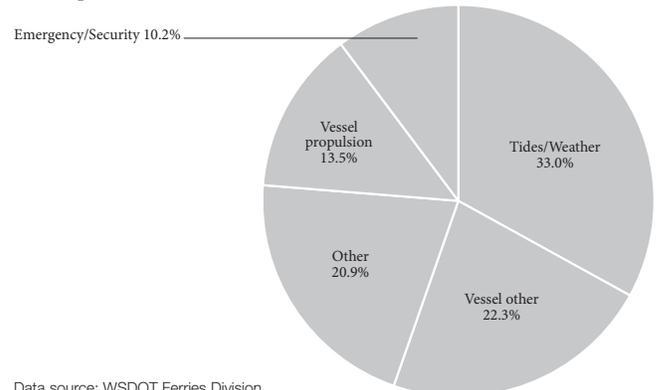
Data source: WSDOT Ferries Division.

Notes: 1 Missed trips is the difference (net) between the number of cancelled trips and the number of replaced trips.

2 The reliability average is calculated by dividing the recorded number of net trips (scheduled trips - cancelled trips + make-up trips) divided by the number of scheduled trips.

Reasons for missed trips

Second quarter (October 1 - December 31), FY 2012



Data source: WSDOT Ferries Division.

Note: 93 cancelled trips classified as "Vessel other" and "Other" did not fit established trip cancellation categories. The M/V Hiyu had fire pump issues (48 cancellations) and the M/V Yakima had a thrust bearing problem (8 cancellations). 25 cancellations occurred on San Juan Island ferry routes due to service challenges resulting from the M/V Yakima being pulled out of service and the use of the M/V Hiyu in October. Mechanical problems with the M/V Klahowya on the Fauntleroy-Vashon-Southworth route led to eight cancellations as the two remaining vessels could not maintain a three boat schedule.

On-time performance improves compared to previous quarter and year-to-year

A trip is considered 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 time. WSF calculates its on-time performance rating using an automated tracking system on each of its vessels that records when a vessel leaves the ferry terminal.

Washington State Ferries Quarterly Update

Service Reliability / Customer Feedback

Washington State Ferries on-time performance comparison

Route	Second quarter, fiscal year 2011			Second quarter, fiscal year 2012		
	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 Islands (Domestic)	5,996	89.9%	2.6	5,938	91.3%	3.0
Anacortes - Sidney, B.C. (International)	141	77.9%	4.9	160	87.9%	3.5
Edmonds - Kingston	4,111	96.7%	2.0	4,236	99.1%	1.4
Fauntleroy - Vashon - Southworth	9,136	88.9%	2.8	10,056	98.3%	1.8
Port Townsend - Coupeville	1,515	91.2%	3.0	1,770	95.1%	2.5
Mukilteo - Clinton	6,143	94.0%	2.2	6,601	99.5%	1.1
Pt. Defiance - Tahlequah	3,114	90.5%	2.9	3,427	98.7%	2.0
Seattle - Bainbridge Island	3,807	92.1%	1.7	4,019	97.2%	1.3
Seattle - Bremerton	2,549	93.4%	2.5	2,669	97.7%	2.1
Total	36,512	91.6%	2.5	38,876	97.1%	1.9

Data source: WSDOT Ferries Division.

Notes: 1 About 1% 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 A trip is counted as "on-time" if it departs within 10 minutes of the scheduled sailing time.

3 The average sailing delay is an average of the duration of time occurring after the "on-time" window ends and the actual recorded departure time of the vessel.

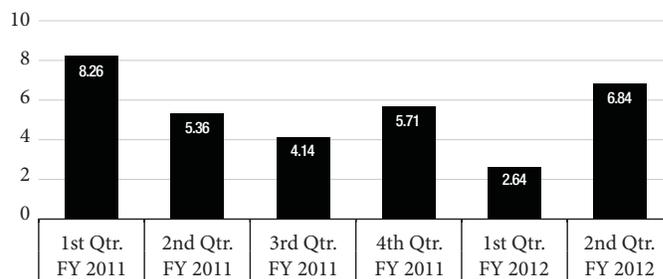
The percentage of sailings system-wide that departed on time increased quarter-to-quarter by 3.4%: 97.1% on time in the second quarter of FY 2012, as compared to 93.7% in the previous quarter. On-time performance compared to the same quarter in FY 2011 improved by 5.5%. The average sailing delay improved from 2.5 minutes of delay for the second quarter of FY 2011 to 1.9 minutes of delay for the second quarter of FY 2012.

Increased oversight by management has led to improvements in on-time performance over the past year. Also, 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 complaints increase compared to the previous quarter

The second quarter of FY 2012 saw an increase in customer complaints, from 2.6 to 6.8 per 100,000 customers, a 59% increase. The largest increases in the number of complaints compared to the previous quarter were for complaints about employee behavior, loading and unloading, and ticketing. WSF incorporated a new 14 foot and under vehicle fare on October 1, 2011. Additional complaints were related to confusion between customers and employees about the new fare category.

Average number of complaints per 100,000 customers July 1, 2010 - December 31, 2011, by fiscal quarter



Data source: WSDOT Ferries Division.

WSF receives 46 customer compliments

WSF received 46 customer compliments in the second quarter of FY 2012. The following is one of the compliments received.

"I made a series of mistakes while trying to renew my Wave to go pass as I was unaware of the changes in vehicle length categories. I phoned the [WSF] office and was assisted by Jared. He was incredibly patient, friendly, and professional in walking me through the steps to resolve the mistakes I made and process a refund. He said he would follow up later in the day with an email, which he did. The phone assistance from this office and the agent, Jared, was superb. It was some of the highest quality customer service I've ever experienced from any agency or business. Many thanks."

Rail: Amtrak Cascades Quarterly Update

Passenger Rail: Amtrak Cascades

Washington is one of 13 states that provides 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 uses five European-designed Talgo trains which can travel faster comfortably through curves than conventional train equipment. Three trains are owned by Washington and the other two are owned by Amtrak.

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. The table below shows ridership proportional to funding entity.

Amtrak Cascades ridership by funding partner

October-December (Quarter 4) ridership, 2009-2011

Funding partner	Round trips funded	Quarter 4 Oct – Dec 2009	Quarter 4 Oct – Dec 2010	Quarter 4 Oct – Dec 2011
Washington	4	136,389	135,170	132,331
Oregon	2	30,199	33,530	33,656
Amtrak	1	34,354	33,975	32,178
Total ridership		200,942	202,675	198,165

Data source: WSDOT State Rail and Marine Office.

Note: Washington-funded trains: Amtrak *Cascades* 501, 506, 507 (Seattle/Portland), 508, 510, 513, 516, and 517. Oregon-funded trains: Amtrak *Cascades* 500, 504, 507, and 509 between Portland and Eugene. Amtrak-funded trains: Amtrak *Cascades* 500 and 509 between Seattle and Portland.

Amtrak Cascades fourth quarter ridership decreases 2.1% compared to same quarter in 2010

State-supported Amtrak *Cascades* service was down 2.1% from the same period in 2010 and down 3% for the same time period in 2009. Washington funded Amtrak *Cascades* served 132,331 passengers in the fourth quarter of 2011. Washington, Oregon, and Amtrak funded Amtrak *Cascades* served 198,165 passengers in the quarter.

Fourth quarter average on-time performance is up slightly from the same quarter in 2010

On-time performance for state-supported Amtrak *Cascades* trains was 74.8% for the fourth quarter of 2011, up 0.8% compared to the same quarter in 2010, and up 0.4% from the fourth quarter of 2009. The long-term goal for on-time performance is 80%.

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) to determine the causes of delay. Contributing factors include localized speed restrictions (slow orders for track condition), interference from other trains on the corridor, poor weather (including mudslides), station overtime, and slow running trains.

Rail Performance Highlights

State-sponsored Amtrak Cascades quarter 4 2011 ridership is down 2.1% compared to quarter 4 of 2010.

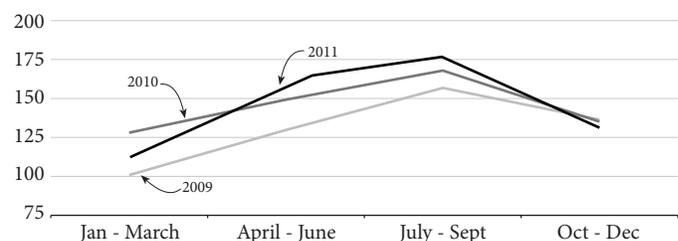
On-time performance is 74.8% for the quarter, up 0.8% compared to the same quarter in 2010.

Ticket revenues are up 7.7% compared to quarter 4 of 2010 due to an improved ticket pricing strategy.

The farebox recovery ratio was 65.8% for Federal FY 2011.

Amtrak Cascades quarterly ridership

Number of passengers per quarter, 2009 - 2011
Riders in thousands



Data source: WSDOT State Rail and Marine Office.

Note: Ridership for Washington-funded trains only.

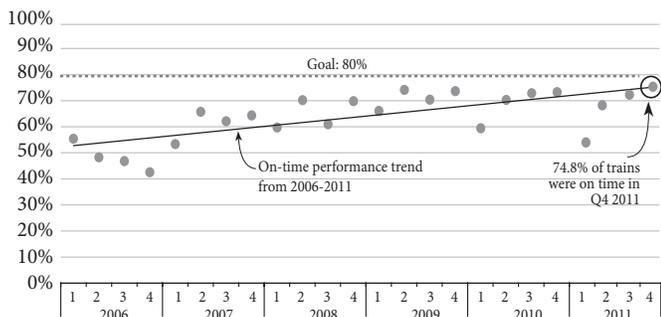
Rail: Amtrak Cascades

Quarterly Update

Passenger Rail: Amtrak Cascades

Amtrak Cascades on-time performance

Percent of trains on-time, 2006 – 2011



Data source: WSDOT State Rail and Marine Office.

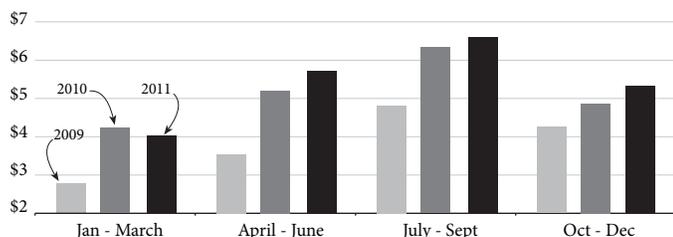
Note: On-time performance for Washington-funded trains only. A basic indicator of on-time performance, “percent of trains on time” is calculated by dividing the number of trains that arrive at their endpoint on time by the total number of trains operated during a specific period. Amtrak’s daily “percent 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.

Amtrak Cascades ticket revenue up 7.7%

During the fourth quarter of 2011, ticket revenues for Amtrak Cascades trains were up 7.7% and 23.2%, when compared to the same periods in 2010 and 2009. The fast growth of revenue in the past two years was driven mainly by an effective ticket pricing strategy and second train to Vancouver, B.C., which attracts long-distance riders.

Amtrak Cascades ticket revenue by quarter

Dollars in millions, 2009 – 2011



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

Note: Ticket revenue for Washington-funded trains only.

Farebox recovery ratio for 2011 slightly higher than previous year

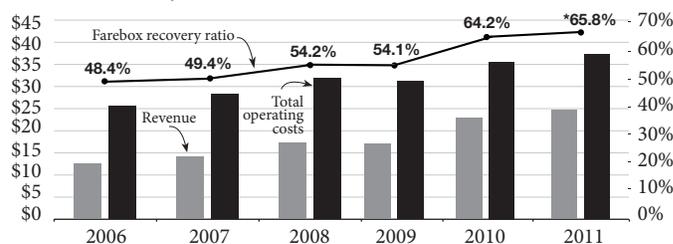
Farebox recovery measures the percentage of total operating costs offset by operating revenues. This measure helps reveal how well trains are performing financially and the level of public subsidy that is required to keep the trains in operation. The measure can be used to highlight areas where WSDOT and Amtrak should take action to improve ridership and revenues, and to reduce costs.

In federal fiscal year (FFY) 2011 (October 1, 2010 – September 30, 2011), state-supported Amtrak Cascades trains had a farebox recovery ratio of 65.8%, slightly higher than 64.2% in FFY 2010. Cascades operating costs totaled \$37.3 million in FFY 2011, which was 4.7% higher than the previous year. Operating revenues were approximately \$24.5 million for FFY 2011, a 7.4% increase over the previous year.

Since FFY 2006, revenues have risen faster than operating expenses, as the farebox recovery ratio improved from 48.8% to 65.8%. Increases in revenue are a result of the continuing popularity of the expanded second train to Vancouver, B.C., and an improved pricing strategy.

Amtrak Cascades farebox recovery

Dollars in millions, Federal FY 2006–2011



Data source: WSDOT State Rail and Marine Office, based on Amtrak financial billing data.

* Estimated based on preliminary financial billing from Amtrak.

Note: The Amtrak Cascades farebox recovery ratio for Federal FY 2011 reached 65.8%, slightly higher than Federal FY 2010. Total revenue increased 7.4% while ridership was flat. The subsidy per rider decreased from \$21.98 to \$21.84.

Although all transportation modes are subsidized by the public sectors, the fast growth of revenue for operating Amtrak Cascades passenger services has reduced the public subsidy from 51.6% to 34.2% over the past five years. This reduction translates into \$12.1 million in savings a year for Washington taxpayers.



Environment

Statewide 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.



In this section

Fish Passage Barriers	36
Environmental Compliance	38

See also

Quarterly Report on Capital Projects (Beige Pages)	46
--	----

Earlier articles concerned with environment

- Noise Quality Annual Report, GNB 43
- Air Quality Annual Report, GNB 43
- Endangered Species Act Compliance Annual Report, GNB 43
- Programmatic Permitting, GNB 42
- Water Quality, GNB 41
- Wetlands Preservation, GNB 41

Fish Passage Barriers Annual Report

Fish Passage Barrier Highlights

11 corrections were completed in 2011, for a total of 258 corrections over the state highway system.

In 2011, 38 miles of potential upstream habitat were opened up by the corrections made, for a total of 850 miles statewide.

WSDOT anticipates 16 corrections will be completed in 2012, opening up an additional 58 miles of potential habitat gain.

WSDOT and the Washington Department of Fish and Wildlife (WDFW) work cooperatively to identify and correct fish passage barriers where highways cross streams. WSDOT is committed to doing its part to improve stream habitat by removing barriers for fish. WSDOT's strategy is to continue correcting barriers that can be included as part of highway construction projects where the department has in-stream work while correcting priority barriers with high value to fish through stand alone projects.

Barrier inventory update

The statewide fish passage inventory of over 6,500 stream crossings throughout the highway system began in 1991 and was completed in the fall of 2001. Currently, WSDOT and WDFW's prioritized list of corrections identifies 1,521 barriers that, if corrected, offer the potential for significant habitat gain. As of December 31, 2011, WSDOT has completed 258 fish passage correction projects, improving access to about 850 miles of potential upstream habitat. The inventory is regularly updated which sometimes results in fish passage barriers being added to or removed from the prioritized list. For example, an unknown barrier may be found at a large intersection that was missed by the inventory crew because of its length and the complexity of the intersection. Further analysis by WSDOT and WDFW may determine that it should be added to the inventory.

2011 projects add 38 miles of potential habitat

Seven of the eight corrections identified in the 2010 Fish Passage Barriers report (December 2010 *Gray Notebook* 40 p. 39) were completed during the 2011 construction season, as were four additional projects (not listed in that report), for a total of 11 completed projects. These 11 projects added 38 miles of potential upstream habitat to the total statewide habitat gain. One project listed in the report as being constructed during 2011 will actually complete the

Completed fish passage construction in 2011

Project location	Funding	Description
I-5 near Ground Mound	TPA	Replaced a 3-foot culvert with a 12-foot box culvert at a tributary to Dry Creek
SR 105 west of Raymond	PEF	Replaced a 5-foot culvert with an 87-foot bridge at Norris Slough
SR 101 north of Raymond	TPA	Replaced two smaller culverts (2.5-foot and 6-foot) with an 18-foot culvert at Lower Salmon Creek
SR 101 north of Hoquiam	PEF	Replaced a 5-foot culvert with a 21-foot culvert at MP 102.14 at the South Branch of Big Creek
SR 101 north of Hoquiam	PEF	Replaced a 2-foot culvert with a 10-foot culvert at MP 100.90 at the South Branch of Big Creek
SR 548 near Ferndale	PEF, TPA	Replaced a 6-foot culvert with a 23-foot culvert at Terrell Creek which flows into Birch Bay
US 2 north of Sultan	PEF, TPA	Removed dam structure under bridge and replaced with a new stream channel at Wagley's Creek
SR 20 just west of Hamilton	PEF	Replaced a 7-foot twin box culverts with a 66-foot bridge at Red Cabin Creek
SR 520, between Lake Washington and I-405	Nickel, TPA, FHWA ¹	Replaced a 5-foot culvert with a 12-foot wide arch at Fairweather Creek
SR 520, between Lake Washington and I-405	Nickel, TPA, FHWA ¹	Replaced a 4-foot culvert with a 11-foot wide arch at Cozy Cove Creek
SR 520, between Lake Washington and I-405	Nickel, TPA, FHWA ¹	Replaced a 4-foot culvert with a 12.5-foot box culvert at the West Tributary to Yarrow Creek

Data source: WSDOT Environmental Services Office.

Note: 1 FHWA: U.S. Department of Transportation – Federal Highway Administration.

Future Corrections

Planned fish passage construction for 2012

Project location	Funding	Description
SR 530 west of Darrington	TPA	Replace a 5-foot arch culvert with an 18-foot culvert at Fortson Creek
SR 21 near Republic	PEF, FHWA	Replace 4 small culverts with a 20-foot wide culvert at Curlew Creek
SR 112 east of Neah Bay	PEF, TPA	Replace a 2.5-foot culvert with a 12-foot culvert at a tributary to the Pysht River
SR 112 near Port Angeles	PEF, TPA	Replace a 6-foot culvert with a 15-foot culvert at Nelson Creek
SR 167 near Renton	TPA, FHWA	Replace a 6-foot culvert with a 19-foot wide culvert at Pather Creek
US 97 north of Goldendale	TPA	Replace a 11-foot round culvert with a 60-foot bridge at Butler Creek
I-90 east of Issaquah	PEF	Replace a 12-foot culvert with a 34-foot box culvert at East Fork Issaquah Creek
SR 522 near Monroe	Nickel	Replace 2 culverts at separate locations with a 24-foot wide culvert at tributary to the Skykomish River
SR 520 east of bridge	Nickel, TPA, FHWA ¹	Replace twin 4-foot culverts with a 18-foot wide culvert at Yarrow Creek
SR 520 east of bridge	Nickel, TPA, FHWA ¹	Replace twin 50-inch culverts with a 18-foot wide culvert at Yarrow Creek
SR 520 east of bridge	Nickel, TPA, FHWA ¹	Replace twin 40-inch culverts with a 16-foot wide culvert at Yarrow Creek
SR 520 east of bridge	Nickel, TPA, FHWA ¹	Replace three undersized culverts with a 16-foot wide culvert at Yarrow Creek
I-90 near Hyak	TPA	Replace twin 6-foot culverts and a 40-foot bridge with two 120-foot bridges at Rocky Run Creek
SR 522 near Bothell	Local	Replace a barrier culvert with a 6-foot culvert at SR 522 and NE 180th street
SR 522 near Bothell	Local	Replace a barrier culvert with a 12-foot culvert at Horse Creek

Data source: WSDOT Environmental Services Office.

Note: 1 FHWA: U.S. Department of Transportation – Federal Highway Administration.

fish passage component in 2012 because it is a small part of the three-year construction project. WSDOT anticipates 16 fish passage corrections (project on SR 522 fixes two barriers) will be completed in 2012.



A five-foot culvert (left photo) was a barrier on the South Branch of Big Creek on SR 101, and was replaced with the new 21-foot culvert shown on the right, improving access to fish habitat.

Habitat gain projected for 2012

The 16 projects planned for construction in 2012 will collectively improve access to about 58 miles of potential habitat, but not all culverts are equal. For example, the project on US 97 at Butler Creek will open up fish access to about 14 miles of upstream habitat where there are no other barriers upstream, and resident trout (rainbow and cutthroat), steelhead, and bull trout can move in as soon as the barrier is removed. In some cases, additional fish passage barriers owned by other entities occur upstream of WSDOT corrections. This can impede fish access further upstream until those barriers are also fixed. For example, WSDOT plans to fix a barrier on SR 112 at Nelson Creek in 2012 which will make one mile of upstream habitat immediately accessible upon completion. Another privately owned barrier culvert at that point will need to be corrected to allow fish to fully access the remaining three miles of potential habitat.

WSDOT coordinates with groups such as the Salmon Recovery Funding Board, the Regional Fisheries Enhancement Groups, WDFW, and others to let them know where WSDOT is targeting fish passage correction efforts so other barrier owners can act to restore habitat within the same watershed.

Environmental Compliance Annual Report

Environmental Compliance Highlights

Compared to 2010, WSDOT had a similar number of reportable events in 2011 and received fewer formal compliance violations.

WSDOT not only received fewer civil penalties in 2011, but the dollar value also decreased when compared to penalties received in 2010.

Several WSDOT construction projects were acknowledged by Ecology for innovative and proactive compliance management.

WSDOT completed nine Environmental Impact Statements (EIS) during the 2009-2011 biennium.

WSDOT is committed to being good stewards of the environment and working closely with local tribes and federal, state, and local regulatory agencies. WSDOT tracks its compliance with environmental regulations and permits for highway construction and maintenance, as well as for ferry system activities as part of this commitment. This article examines WSDOT's environmental compliance performance in 2011 compared to previous years.

WSDOT reports similar number of events in 2011 as in 2010

To understand how well WSDOT complies with environmental regulations, the department not only examines occasions when a regulatory agency issues a formal violation, but also tracks and reports on compliance issues that are categorized as "reportable events." Reportable events arise when WSDOT or its contractors don't follow a permit condition or environmental regulation. WSDOT reports these events to the necessary regulatory authority, though not all reportable events will result in formal violations. If a reportable event is later deemed a formal violation, the regulatory agency may send a written warning or corrective action notice, or – in rare cases – may issue a monetary civil penalty.

In 2011, WSDOT recorded 122 reportable events, two fewer than in 2010. Federal and state regulatory agencies issued 21 formal violations to WSDOT in 2011, also two fewer than last year. Of these 21 formal violations, the Washington State Department of Ecology (Ecology) issued 10 correction notices for violating construction stormwater permit conditions. The remaining 11 violations fell into the following categories:

- Water quality standards: three violations from Ecology for failing to meet state standards during permitted in-water work.
- Wetlands: one violation from Ecology and one from the U.S. Army Corps of Engineers (Corps) for not submitting final wetland mitigation and grading plans on time.
- Fish and stream habitat: one violation from Ecology for a late report of fish killed during permitted in-water work, one violation from the Corps for unauthorized maintenance work that placed more rock than permitted to stabilize a stream bank, and two from the Corps for not submitting biological evaluations on time.
- Hazardous materials: one violation from Ecology for not properly storing hazardous materials and one violation from the U.S. Coast Guard for a small hydraulic leak from a ferry boat that entered Puget Sound.

WSDOT receives fewer civil penalties in 2011

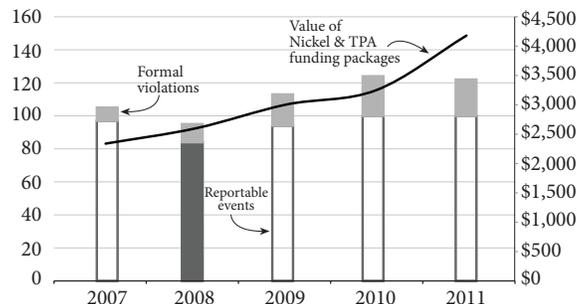
WSDOT received only one civil penalty in 2011, three fewer than in 2010. The penalty was \$2,000 and was issued by Ecology. The violation occurred when a WSDOT contractor allowed concrete to enter Sinclair Inlet, exceeding state water quality standards. In 2010, WSDOT received four civil penalties totaling \$30,374.

Breakdown of reportable events in 2011

The most frequent reportable events during 2011 involved water quality. WSDOT recorded 100 water quality events. These occurred when either very turbid or elevated pH stormwater flowed off a project site. Eight reportable events resulted when fish/wildlife or their habitat was impacted. Ten events involved improper hazardous materials storage by WSDOT contractors, or from hydraulic fluid spills to water. On two occasions, WSDOT failed to have historical/cultural resource specialists

Annual number of reportable environmental compliance events versus the value of the capital project delivery program

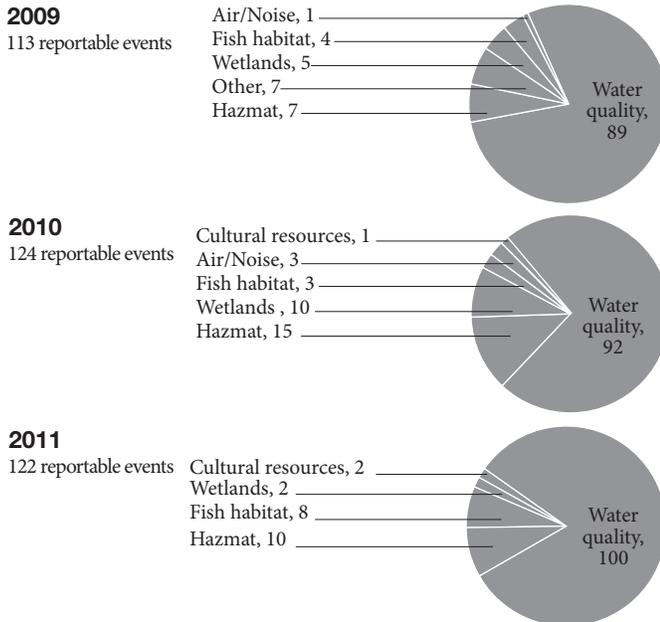
Number of events; Dollars in millions; 2007-2011



Data source: WSDOT Environmental Services Office.

Environmental Compliance Annual Report

WSDOT's reportable events by category, 2009-2011



Data source: WSDOT Environmental Services Office.

on site during earthwork. WSDOT contractors caused unpermitted impacts to wetlands on two projects. The chart above illustrates similar proportions of reportable event types during 2009, 2010, and 2011.

Compliance record is stable despite increased construction and operations activity

WSDOT's greatest compliance risks come from activities such as highway construction, maintenance, and ferries sailings. In 2011, WSDOT performed more than 276,000 maintenance activities, completed about 164,000 ferry sailings, and delivered the largest capital construction program to date. Continued efforts by WSDOT to identify problems and self-report, and a continued compliance inspection effort by Ecology yielded a stable number of compliance issues in 2011 compared to 2010. WSDOT remains focused on minimizing compliance issues whenever possible, regardless of the size of its construction program and other activities.

Efforts underway to improve compliance in 2012

WSDOT's efforts to improve environmental compliance include collaborating with the Washington State Department of Fish and Wildlife to develop three new training courses addressing techniques for habitat improvement, planning for and installing temporary stream bypasses, and designing permanent fish

passage structures. WSDOT is also collaborating with Ecology to develop disposal guidance for the waste generated from shaft drilling activities. WSDOT is improving communications with contractors, and is modifying construction contract language that will clarify expectations for concrete slurry disposal. In 2012, WSDOT will conduct a pilot project to require the contractor to bid the full cost for erosion control efforts associated with the Ecology Construction Stormwater General Permit.



WSDOT biologists on the SR 508 Davidson Road Vicinity Bank Erosion Repair project drag a net through the work zone to clear out the fish.

Collaborative efforts acknowledge success in construction compliance

Each year WSDOT and the Associated General Contractors (AGC) of Washington acknowledge efforts taken during construction to protect the environment. WSDOT and the AGC encourage project offices to compete for the annual Partnership for Environmental Excellence in Construction Management award, and WSDOT collaborates with Ecology to score the applications. In 2011, the western Washington award went to the I-405, I-5 to SR 169 Stage 2 Widening project. The eastern Washington award went to US 97A North of Wenatchee Wildlife Fencing Stage 2 project.

Other noteworthy projects included the SR 433 Lewis and Clark Bridge Superstructure Paint project. Ecology was impressed by the project's use of innovative surface preparation techniques that lowered environmental risks and greatly reduced construction waste. The SR 503 Lewisville Park Vicinity Climbing Lanes project was recognized by Ecology for "being proactive instead of reactive in addressing stormwater issues and concerns," and praised for including regulators in developing solutions that created "a trusting partnership."

Environmental Compliance Annual Report

NEPA Documentation Update



The EIS for the SR 99: Alaskan Way Viaduct project was finished during the 2009-2011 biennium, allowing demolition and construction to begin on the new tunnel.

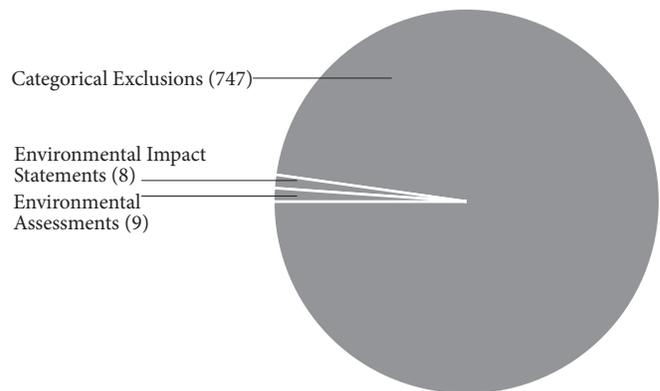
Environmental Impact Statements wind down with Nickel and TPA projects

Since 2003, WSDOT has reported annually on department compliance with the National Environmental Policy Act (NEPA) (see *Gray Notebook 40*, page 42 for additional information). Performance reporting has typically focused on the length of time taken to complete an Environmental Impact Statement (EIS), and discussions have included a breakdown of the types of NEPA documents (EISs, Environmental Assessments, and Categorical Exclusions) completed each biennium. As project delivery under the Nickel and TPA programs continues to wind down, fewer projects remain that require an EIS under NEPA, and there is less to report for NEPA documentation. Therefore, for now, WSDOT will include NEPA discussions as part of this Environmental Compliance Annual Report, and will report NEPA performance in the *Gray Notebook* separate from the Compliance Annual Report when NEPA compliance activities increase in the future.

WSDOT completes most EIS work in 2009-2011 biennium

WSDOT completed nine EISs during the 2009-2011 biennium, including four mega project EISs: I-5 Columbia River Crossing project, SR 520 Pontoon Construction project, SR 520 I-5 to Medina Bridge Replacement and HOV project, and SR 99: Alaskan Way Viaduct Replacement Project. The average duration to complete an EIS was 6.7 years, and the nine project EISs ranged from two to eleven years to complete. The chart below shows that compared to all WSDOT actions that require NEPA analysis, EISs are required on about 1% of projects requiring environmental documentation. Currently, WSDOT has two active EISs and four active Environmental Assessments, and will continue to use process improvements described in previous *Gray Notebook* articles (*Gray Notebook 40*, page 42, *Gray Notebook 36*, page 39) to expedite project delivery.

Number of WSDOT projects by environmental documentation type 2009-2011 biennium (July 1, 2009 – June 30, 2011)



Data source: WSDOT Environmental Services Office.

Economic Vitality

Statewide policy goal:

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

WSDOT's business direction:

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



In this section

Transportation	
Economic Update	42

See also

Federal Recovery Act-funded Projects	44
--------------------------------------	----

Earlier articles concerned with economic vitality

Freight Rail Semi-Annual Update, GNB 43	
Special Report: Palouse & Coulee City Rail System, GNB 42	
Trucks, Goods & Freight, GNB 41	
CVISN, GNB 41	
Economic Vitality Special Report on Projects, GNB 40	

Transportation: Economic Update

Transportation Economic Update Highlights

Employment in the construction sector remains 30% below 2007 levels.

The average annual unemployment rate for 2011 was 9.2%, over 4% above pre-recession levels.

WSDOT continues to deliver Nickel and TPA funded projects, as well as mega projects such as the Alaskan Way Viaduct Replacement Program, to support economic vitality in Washington.

WSDOT's construction program continues to support job creation statewide

- The transportation capital construction budget for FY 2011-13 is \$5.6 billion and is estimated to support 29,200 jobs per year for the biennium.
- From FY 2010 – FY 2015, the Nickel and TPA programs are estimated to support 10,000 direct, indirect, and induced jobs annually.

Construction sector significantly impacted by recession

By the end of 2011, many of the economic sectors that influence WSDOT's business had yet to emerge from the lingering economic downturn. The recession and its aftermath continue to severely impact construction and related sectors.

Construction sector employment in Washington fell from a peak of 220,440 in August 2007 to 148,500 in the same month of 2011. This sector employed 71,900 fewer people in August 2011, a reduction of about 30% compared to four years ago with similar reduced employment in Washington's heavy and civil engineering sector.

According to Washington's Economic Revenue Forecast Council, the total contract value for nonresidential construction projects is up 8.2% year-to-date (as of December 2011) compared to last year. However, this growth is compared to a historically depressed level and the total value under contract remains well below previous peaks. Significant improvement in nonresidential construction is not expected until 2012. This sector is considered a "late cycle" industry and growth does not typically return until at least two to three years after a recession has ended.

2011 unemployment rate remains higher than pre-recession levels

The labor market continued to show signs of weakness throughout 2011. The average annual unemployment rate in Washington for 2011 was 9.2%, compared to 4.6% and 5.5% in 2007 and 2008 respectively. In the construction sector, in 2011, initial unemployment insurance claims remained elevated at 123,000 for the year, but are still down since peaking in 2009 at over 180,000 claims.

Taxable retail sales beginning to show signs of improvement in 2011

Taxable retail sales, which help measure consumer confidence, have shown signs of improvement compared to 2009 and 2010. For the first three quarters of 2011, county taxable retail sales totaled \$75.9 billion, up slightly from 2009 and 2010, but still lagging pre-recession levels.

WSDOT continues to deliver projects, create jobs

WSDOT continues to deliver the remaining Nickel and TPA funded projects (see beige pages on p. 46–75 for more information) as well as several mega projects that continue to create jobs and support economic development throughout the state. One of the largest WSDOT projects that supports economic vitality is the replacement of the SR 99 Alaskan Way Viaduct along Seattle's waterfront. This project will replace the viaduct's downtown waterfront section with a bored tunnel beneath downtown Seattle connecting to the new SR 99 roadway south of downtown, and to Aurora Avenue in the north. Improvements will also be made to the

southern mile of the Alaskan Way Viaduct, near Seattle's port and stadiums, to improve mobility for people and goods in the south of downtown area. This series of projects, valued at over \$3.1 billion, will help retain and create jobs, improve safety, and improve freight mobility in the area. This project is estimated to support about 5,300 direct, indirect, and induced jobs.



Stewardship

Statewide 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.



In this section

Federal Recovery Act-funded Projects	44
Quarterly Update on Capital Projects (Beige Pages)	46
Completed Project Wrap Ups	60
Special reports:	
Tacoma/Pierce County HOV Lanes	66
New Ferry Construction	67
Watch List	68
PEF Reporting	71
Cross-cutting Management Issues:	
Construction Cost Trends	75
Utilities	76
Workforce Level & Training Quarterly Update	77
Transportation Research	80
Lean	82
Highlights	84

See also

Worker Safety	2
---------------	---

Earlier articles concerned with stewardship

Construction Contracts Annual Report, GNB 42	
Transportation Research Annual Report, GNB 40	
Tolling Annual Report, GNB 39	

Special Report on Federal Recovery Act-funded projects

Recovery Act Highlights

WSDOT and Sound Transit won \$25 million in TIGER III grants in December 2011.

213 of 219 Recovery Act highway projects were completed as of December 31, 2011.

Employees have worked more than 4.9 million hours and earned more than \$197.2 million in payroll on Recovery Act highway projects.

The projects have provided the equivalent of 2,384 one-year jobs to date, also known as yearly FTEs.

WSDOT's I-82 interchange project in Yakima County was completed in October.

Washington projects receive \$25 million in TIGER III grants

In December, WSDOT and Sound Transit received \$25 million in the third round of Transportation Investments Generating Economic Recovery (TIGER) grants. The 2009 Recovery Act created TIGER grants to fund projects and boost the economy.

WSDOT received a \$15 million TIGER III grant toward a \$34 million project that will manage demand and add capacity on I-5 near Joint Base Lewis McChord in Pierce County. Sound Transit received \$10 million toward a \$238.4 million project that will construct 1.6 miles of double track and light rail between SeaTac Airport and the South King neighborhood and build a new station at South 200th Street.

Washington state and local governments have received seven competitive grants under the TIGER program, totaling \$135 million. First funded with \$1.5 billion in the Recovery Act, the program has received \$500 million or more in the last three federal transportation budgets. Criteria for the next grant competition, TIGER IV, were released in January 2012.

Washington's TIGER and TIGER II projects under way

Four of the five TIGER and TIGER II grant projects are currently under construction.

- WSDOT – The \$35 million TIGER grant for WSDOT's North Spokane Corridor is funding two projects, both already in construction. The Francis to Farwell Southbound lanes project is scheduled to be complete in spring 2012; the Parksmith Interchange project should be finished in October 2012.
- Seattle – A \$30 million TIGER grant helped pay for Seattle's Mercer Corridor Improvement project, which is currently under way and planned for completion in fall 2013.
- King County – A \$34 million TIGER II grant is helping King County pay for the construction of the South Park Bridge over the Duwamish River. The project is under way and planned for completion in winter 2013.
- Port of Vancouver – The port received a \$10 million TIGER II grant to help pay for two projects that will improve freight movement and port access. The grade separation project was advertised in September and the extended rail siding project will be advertised in early 2012.
- Franklin County – A \$1.01 million TIGER II grant will help extend East Foster Wells Road. Construction is under way with completion scheduled for winter 2012.

Recovery Act-funded highway employment

October through December 2011; dollars in millions

	October	November	December	Total to date
Total labor hours	84,187	48,733	38,898	4.96 million
Total payroll value	\$3.4	\$2.2	\$1.7	\$197.2
Monthly full time equivalents	162	94	75	N/A
Individuals working on projects	1,383	966	769	N/A

Data source: FHWA RADS - WSDOT Capital Program Development & Management, Highways & Local Programs.

Note: Totals include all labor on Recovery Act-funded highway projects from February 2009 to December 2011. Also includes TIGER projects.

Recovery Act highway employment slowing

Recovery Act-funded highway projects provided workers with nearly 172,000 labor hours and \$7.3 million in payroll reported in the quarter ending December 31, 2011. This was the lowest in two and a half years, since the Recovery Act highway program was still ramping up in the quarter ending June 30, 2009.

Employment slowed as construction sites closed for the winter, and because all but six of Washington's 219 Recovery Act-funded highway projects were finished by December 2011.

To date, the projects have provided the equivalent of 2,384 one-year jobs, also known as yearly full time equivalents.

Recovery Act Completed Project Summary

Recovery Act project completed in Yakima County in October

I-82/Valley Mall Blvd Interchange – Rebuild interchange (Yakima)

This project rebuilt the interchange at I-82 and Valley Mall Boulevard in Yakima County, which serves a growing retail and commercial area in Union Gap and southeast Yakima. The project built new ramps on and off I-82 and three roundabouts that will improve traffic flow and reduce collisions at an interchange used by about 22,000 vehicles daily.

Project benefits: The Valley Mall Boulevard Interchange provides better, more direct access to and from I-82, Valley Mall Boulevard, and N. Rudkin Road. Improved connections to the interstate have reduced congestion and will help encourage economic growth and development for both Union Gap and Yakima. The new higher interstate bridges offer better clearance and width that allows for future expansion. The use of roundabouts eliminated the traffic signals and stop signs at the interchange.

Highlights or challenges: This project included nearly \$20 million in federal Recovery Act funds. The project was awarded at 18% below the engineer’s estimate. There were some complexities on the project, including additional costs incurred from a delay to resolve unsuccessful bidder appeals, and a winter shutdown.

Reported employment: Since February 2009, WSDOT and the project contractor and subcontractors reported employees worked 166,575 labor hours on the project, generating almost \$6.7 million in payroll.

Budget performance: The project cost \$34.6 million, about \$400,000, or 1%, above the last approved budget of \$34.2 million, due to added local work and funding, and risks exceeding reserves.

Schedule performance: The project was completed in October 2011, on time with the last approved schedule.



This project built a new interchange with three new roundabouts at the intersection of I-82 and Valley Mall Boulevard in Union Gap. The project was completed on schedule in October 2011.

Recovery Act-funded highway projects as of December 31, 2011

Number of projects by jurisdiction; dollars in millions

Project information	State	Local	Total
Highway projects certified and awarded/under construction	51	168	219
Projects completed	47	166	213
Financial information	State	Local	Total
Recovery Act dollars provided	\$340	\$150	\$490
Total Recovery Act dollars spent	\$331.2	\$148.5	\$479.7
Total cost of obligated projects ¹	\$736	\$792	\$1,528

Data source: WSDOT Capital Program Development & Management Office, Highways and Local Programs Office.

Note: Project totals are cumulative, for example “projects certified” include completed projects. Does not include TIGER. Also, 17 state and 23 local projects were added to the list and received federal approval, 6 local projects are no longer receiving funds. The project count includes two safety program buckets for rumble strip and cable median barrier projects. The programs are described in greater detail in GNB 40. The Recovery Act-funded portion of I-5/SR 16 Eastbound Nalley Valley Viaduct was completed in 2011 and it is counted as complete in all federal reporting. However, the construction portion of the project will not be complete until 2013, so it is one of the four state projects not completed.

¹ Includes non-Recovery Act leveraged fund sources.



In 2010, crews demolished the old highway bridges to make room for the new interchange construction.

WSDOT's Capital Project Delivery Programs

Highway Construction: Nickel and TPA Project Delivery Performance Overview

Project Delivery Highlights

WSDOT completed 15 projects in the quarter ending December 31, 2011 (Q2 of FY 2012), and a total of 325 Nickel and TPA projects to date.

To date, 87% of all Nickel and TPA projects were completed early or on time, 2% below last quarter.

91% of all Nickel and TPA completed projects were on or under budget, 1% below last quarter.

81% of all Nickel and TPA projects were completed both on time and on budget, 1% below last quarter.

WSDOT completed 15 Nickel and TPA projects in the quarter

WSDOT completed 15 Nickel and Transportation Partnership Account (TPA) projects in the quarter ending December 31, 2011. To date, WSDOT has completed 325 of the 421 Nickel and TPA projects funded by the 2003 and 2005 transportation tax packages.

The 2010 Transportation Budget signed into law by Governor Gregoire on March 30, 2010, directs WSDOT to develop and construct a specified list of projects in the course of the biennium. Most of these line-item projects were itemized in the original 2003 and 2005 Nickel and TPA programs. The 2011-2013 Transportation Budget was approved and signed into law on May 16, 2011.

The *Gray Notebook* shows individual “unbundled” projects from programmatic budget items (such as the Bridges Seismic Retrofit Program), as well as subprojects within mega-projects (such as the Alaskan Way Viaduct project). The total combined number of projects in WSDOT’s capital project delivery program through December 31, 2011, is 421.

Executive summary of project number and value

Program element	Number of projects	Value of program (\$ in thousands)
Projects completed in earlier biennia that are <i>not</i> included in the current Transportation Budget	76	\$343,051
Projects completed that <i>are</i> included in the current Budget	249	\$4,077,213
Subtotal of completed projects	325	\$4,420,264
Projects included in the current Budget that are not yet completed	96	\$10,909,780
Total	421	\$15,330,044

Data source: WSDOT Capital Program Development & Management.

On time delivery performance declined in the quarter

As of December 31, 2011, the cumulative capital program delivery performance, including 76 projects completed in earlier biennia, shows 87% of projects completed early or on time and 91% completed on or under budget. The schedule performance is down from 89% and the budget performance is unchanged from September 30, 2011. As of December 31, 2011, 81% of completed projects were both on time and on budget.

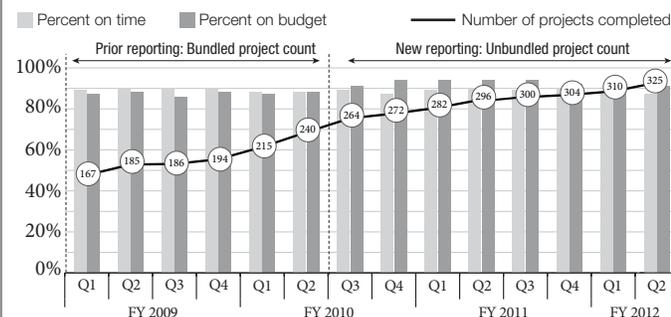
For the projects completed in the current transportation budget, 85% of projects are on time and 92% are on budget. WSDOT defines on time as within the quarter planned in the biennial budget and on budget if the budget is within 5% of the last approved budget amount. More information about budget performance is on page 47.

Twenty-one projects have been completed in the first two quarters of the 2011-2013 biennium. Of the 21 projects, 62% were early or on time and 81% were under or on budget.

Of the 15 projects completed this quarter, 13 were delivered on or under budget and nine were early or on time. More information about completed projects, including the reasons for schedule delays or budget performance, is on page 50 and pages 60-65.

On time and on budget performance of Nickel and TPA projects

325 of 421 projects as of December 31, 2011



Data source: WSDOT Capital Program Development and Management.

WSDOT's Capital Project Delivery Programs

Current 2011 Legislative Transportation Budget Performance Dashboard: Highways

Highway construction performance dashboard

As of December 31, 2011; 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	76	\$343,051
Projects completed that <i>are</i> included in the current Transportation Budget	249	\$4,077,213
<i>Subtotal of completed projects</i>	325	\$4,420,264
Projects included in the current Transportation Budget but not yet completed	96	\$10,909,780
Total number of projects¹ in Improvement & Preservation budget	421	\$15,330,044

Schedule and Budget Summary: Results of completed projects in the current Transportation Budget and prior budgets. Completed projects are detailed on pages 50 and 60-65.	Combined Nickel & TPA	
	Current Budget	Total program
Number of projects completed to date: 2003 – December 31, 2011	249	325
Percent completed early or on time	85%	87%
Percent completed under or on budget	92%	91%
Percent completed on time and on budget	80%	81%
Baseline estimated cost at completion	\$4,077,213	\$4,420,264
Current estimated cost at completion	\$4,015,242	\$4,360,096
Percent of total program over or under budget	1.5% under	1.3% under
Total number of projects completed in 2011-2013 biennium to date	21	
Percent completed early or on time	62%	
Percent completed under or on budget	81%	
Percent completed on time and on budget	57%	
Baseline estimated cost at completion this biennium	\$294,472	
Current estimated cost at completion this biennium	\$284,721	
Percent of total program under or over budget	3.3% Under	

Advertisement Record: Results of projects entering into the construction phase or under construction detailed on pages 51-54.	Combined Nickel & TPA
Total cumulative number of projects in construction phase to date, 2003– December 31, 2011	29
Percent advertised early or on time	72%
Total number of projects advertised for construction in 2011-2013 biennium to date	1
Percent advertised early or on time	100%

Projects To Be Advertised: Results of projects now being advertised for construction or planned to be advertised, detailed on page 55.	Combined Nickel & TPA
Total projects being advertised for construction bids January 1, 2012 - June 30, 2012	14
Percent on or better than anticipated advertisement schedule	93%

Budget status: 2011-2013 biennium

Dollars in thousands

Budget amount for 2011-2013 biennium	WSDOT biennial budget
Budget amount for 2011-2013 biennium	\$3,866,050
Actual expenditures to date 2011-2013 biennium	\$605,731
<i>Total 2003 Transportation Funding Package (Nickel) expenditure</i>	\$70,511
<i>Total 2005 Transportation Partnership Account (TPA) expenditure</i>	\$209,050
<i>Total Pre-Existing Funds (PEF) expenditure²</i>	\$326,170

Data source: WSDOT Capital Program Development & Management.

1. This 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*, page 55, for more details.
2. For full details of the PEF program, see pages 71-74.

WSDOT's Capital Project Delivery Programs

Current 2011 Legislative Transportation Budget Performance Dashboard: Rail and Ferries

Ten Nickel and seven Transportation Partnership Account (TPA) rail construction projects have been delivered on time and on budget as of December 31, 2011, for \$102.8 million. Five projects (three Nickel-funded, two TPA-funded) in construction have award amounts of \$25.9 million.

To date, Ferries has completed five Nickel and five TPA construction projects, including the three 64-car vessels, the *Chetzemoka*, the *Salish*, and the *Kennewick*. The *Kennewick* was accepted in October 2011 and is scheduled to start service in February 2012.

Rail construction performance dashboard

As of December 31, 2011; Dollars in thousands

	Nickel (2003)	Transportation Partnership Account (TPA 2005)	Combined Nickel & TPA
Schedule, scope and budget summary: completed projects			
Cumulative to date, 2003 – December 31, 2011	10	7	17
% 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	\$61,857	\$40,965	\$102,822
Current estimated cost at completion	\$61,857	\$40,965	\$102,822
% of total program on or under budget			
Advertisement record: projects under construction or entering construction phase			
Biennium to date, 2011-13			
Total advertised	3	2	5
% Advertised early or on time	100%	100%	100%
Total award amounts to date	\$18,072	\$7,872	\$25,944
Advertisement schedule: projects now being advertised or planned to advertise			
January 1, 2012 through June 30, 2012			
Total being advertised for construction	0	0	0
% On schedule or earlier	-	-	-

Ferries construction performance dashboard

As of December 31, 2011 dollars in thousands

	Nickel (2003)	Transportation Partnership Account (TPA 2005)	Combined Nickel & TPA
Schedule, scope and budget summary: completed projects			
Cumulative to date, 2003 – December 31, 2011	5	5	10
% 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	\$18,382	\$205,981	\$224,363
Current estimated cost at completion	\$18,382	\$205,981	\$224,363
% of total program on or under budget	0% over	0% over	0% over
Advertisement record: projects under construction or entering construction phase			
Cumulative to date, 2003 – December 31, 2011			
% Advertised early or on time	N/A	100%	100%
Total award amounts to date	\$0	\$115,345	\$115,345

Data source: WSDOT Capital Program Development & Management. N/A means not applicable.

Note: The advertisement record in the previous Gray Notebook included the contract under which owner furnished equipment (OFE) was purchased for the new vessel program. With the completion of the 64-Auto class vessels, the OFE contract will no longer be reported as a separate project. The project on the advertisement record above represents the contract for construction of the first 144-auto vessel project. The reported amount represents the total award to Vigor Shipyard. The completed projects record includes the three 64 Auto Vessels, the *Chetzemoka* which started service in November 2010, the *Salish*, which started service in July 2011, and the *Kennewick*, which is scheduled to start service in February 2012.

WSDOT's Capital Project Delivery Programs

Schedule and Budget Summaries

Biennial summary of all projects completed 2003-2011

Nickel & 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 on time and on budget
Current quarter reporting on capital project delivery								
2011-2013 Biennium summary This information will be updated quarterly throughout the biennium. May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .	18 TPA 2 Nickel 1 TPA/ Nickel		13 on time 8 late	21	\$294,472	\$284,721	17 on budget 4 over	12 on time and on budget
2009-2011 reporting on capital project delivery								
2009-2011 Biennium summary See <i>Gray Notebooks 35-42</i> for project lists. May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .	16 Nickel 74 TPA		80 on time 10 late	90	\$1,641,605	\$1,596,970	85 on budget 5 over	76 on time and on budget
NOTE: 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 wrapup, 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 See the <i>Gray Notebook</i> for the quarter ending June 30, 2009, for project listing May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .	42 Nickel 69 TPA		96 on time 15 late	111	\$1,685,749	\$1,685,219	102 on budget 9 over	90 on time and on budget
2005-2007 Biennium summary See <i>Gray Notebook</i> for quarter ending June 30, 2007, for project listing May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .	52 Nickel 24 TPA		68 on time 8 late	76	\$673,858	\$668,778	67 on budget 9 over	59 on time and on budget
2003-2005 Biennium summary See <i>Gray Notebook</i> for quarter ending September 30, 2005, for project listing May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .	27 Nickel		27 on time	27	\$124,580	\$124,409	25 on budget 2 over	25 on time and on budget

WSDOT's Capital Project Delivery Programs

Schedule and Budget Summaries: Current Quarter

15 projects completed as of December 31, 2011

Nickel & Transportation Partnership Account (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 on time and on budget
I-5/SR 432 Talley Way Interchanges – Rebuild interchanges (Cowlitz)	TPA	√	√	\$35,503	\$35,268	√	√
SR 243/S of Mattawa – Install lighting (Grant)	TPA	√	√	\$262	\$191	√	√
US 101/Unnamed Tributary to Lower Salmon Creek – Fish Barrier (Grays Harbor) Project cost increased due to the culvert design revisions	TPA	√	√	\$1,338	\$1,517		
SR 99/SR 518 Interchange Bridge Crossing Seismic Retrofit (King) This a Port of Seattle administered project. Project was delayed to accommodate the Port's funding needs and Consolidated Car Rental Facility construction schedule.	TPA			\$1,504	\$1,502	√	
Lake Washington Congestion Management (King) Completion was delayed to resolve additional design issues.	TPA	√		\$87,386	\$87,337	√	
I-90/Eastside Bridges – Seismic (King) This project was combined with the SR 520/I-405 Vicinity Seismic Retrofit project for efficiencies. Project completion was delayed due to utility conflicts on this project.	TPA	√		\$9,218	\$9,447	√	
SR 520/I-405 Vicinity Seismic Retrofit (King) This project was combined with the I-90/Eastside Bridges – Seismic project for efficiencies. Project completion was delayed due to utility conflicts on the I-90 project.	TPA	√		\$3,692	\$4,140		
SR 530/Sauk River Bank Erosion – Realign roadway (Skagit)	TPA		√	\$5,723	\$5,230	√	√
I-5/196th St (SR 524) Interchange – Build ramps (Snohomish)	TPA		√	\$33,775	\$32,772	√	√
SR 9/Lundeen Parkway to SR 92 – Add lanes and improve intersections (Snohomish)	TPA	√	√	\$28,482	\$22,569	√	√
I-5/Queets Dr E Tanglewild – Add noise wall (Thurston) Completion was delayed due to material procurement issues.	TPA	√		\$1,978	\$1,967	√	
I-5/14th Ave Thompson Pl – Add noise wall (Thurston) Completion was delayed due to material procurement issues.	TPA	√		\$2,798	\$2,725	√	
SR 542/Everson Goshen Rd Vic to SR 9 Vic – Intersections improvements (Whatcom)	TPA	√	√	\$7,725	\$5,972	√	√
SR 22/I-82 to Toppenish – Safety improvements (Yakima)	Nickel	√	√	\$4,929	\$4,539	√	√
I-82/Valley Mall Blvd – Rebuild interchange (Yakima)	TPA	√	√	\$34,207	\$34,567	√	√

Data source: WSDOT Capital Program and Delivery Management.

WSDOT's Completed Project Delivery Programs

Advertisement Record

29 projects in construction phase as of December 31, 2011

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
Cumulative to date						
Concrete Rehabilitation Program	Nickel					
Although this budget line item is active, no projects are currently planned for construction in the 2011-2013 biennium.						
US 2/Chiwaukum Creek – Replace Bridge (Chelan)	TPA	Late	Apr-11	Selland Construction Inc.	Sep-13	\$4,190
US 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 US 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 US 2 and US 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	√	Feb-08		Dec-12	
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>		
I-405/NE 8th St to SR 520 Braided ramps – Interchange improvements (King)	TPA	√	Mar-09	Guy F. Atkinson Construction, LLC	Dec-12	\$107,500
This project received federal Recovery Act stimulus funds.						
SR 99/Alaskan Way Viaduct – Replacement (King)						
• SR 99/S Massachusetts St to Union St – Electrical line relocation	TPA	√	May-08	Frank Coluccio Construction	Nov-09	\$17,040
• SR 99/S Holgate St to S King St – 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 St Vicinity to Roy St – Viaduct Replacement	Nickel/ TPA	√	May-10	Seattle Tunnel Partners	Dec-15	\$1,089,700

WSDOT's Completed Project Delivery Programs

Advertisement Record

29 projects in construction phase as of December 31, 2011

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
Advertisement date changed to allow additional design and review.						
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 Contractors	Mar-14	\$306,278
I-5/SR 161/SR 18 — Interchange improvements (King)						
	Nickel/TPA	√	Apr-10	Mowat Construction, Inc.	Oct-12	\$50,779
The award amount for this project was incorrectly reported as \$3,702 in <i>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 Rd to King Co Line — Add HOV lanes (Pierce)	Nickel	Late	Jun-09	Tri-State Construction, Inc.	May-11	\$31,015
Advertisement date was delayed due to design challenges associated with stormwater and floodplain issues; a formal consultation with US 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-5/SR 16 Interchange — Rebuild interchange (Pierce)	TPA	√	Jul-08	Guy F. Atkinson Construction, Llc	Jun-11	\$119,925
• I-5/SR 16/ EB 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
Advertisement date was delayed to coordinate with local agencies.						
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 St to SR 527 — Northbound widening (Snohomish, King)	TPA	Early	May-09	Kiewit Pacific Co.	Jun-10	\$19,263

WSDOT's Completed Project Delivery Programs

Advertisement Record

29 projects in construction phase as of December 31, 2011

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 St SE to 176th St SE, Stage 3 – Add lanes (Snohomish) Advertisement was delayed to allow time for utility relocation and permit approval.	Nickel	Late	Apr-11	Northwest Construction, Inc.	Aug-13	\$24,297
SR 522/Snohomish River Bridge to US 2 – Add lanes (Snohomish)	Nickel	√	Apr-10	Scarsella Bros., Inc.	Nov-14	\$88,653
SR 529/Ebey Slough Bridge – Replace bridge (Snohomish)	TPA	Late	Apr-10	Granite Construction Co.	May-13	\$21,541
US 395/North Spokane Corridor – US 2 to Wandermere and US 2 Lowering – New alignment (Spokane) Construction was not complete before its November 2011 operationally complete date, in part due to weather. The operationally complete date was delayed to June 2012.	Nickel	√	Aug-08		Jun-12	
• NSC – US 2 to Wandermere vicinity (Spokane)	Nickel		May-09	Graham Construction & Management, Inc.	Jun-12	\$37,541
• US 395/NSC – US 2 lowering (Spokane)	Nickel		Aug-08	Graham Construction and Management, Inc.	Nov-11	\$42,849
US 395/North Spokane Corridor – Francis Ave to Farwell Rd – New alignment (Spokane) The advertisement delay on this project was due to delays in the right-of-way acquisition.	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 US 2 Structures – Rebid	Nickel		May-06	Max J. Kuney Company	Jul-08	\$17,236
• US 395/NSC-Freya to Fairview vicinity – Grading and Structures	Nickel		Jan-07	Steelman-Duff	Apr-09	\$10,571
• US 395/NSC-Freya St to Farwell Rd – PCCP Paving	Nickel		Feb-07	Acme Concrete Paving	Aug-09	\$19,490
• US 395/NSC – BNSF RR Tunnel	Nickel		Sep-07	Scarsella Bros. Inc.	Aug-09	\$17,295
• US 395/NSC – Freya to Farwell Rd – Southbound additional lanes	TIGER/ Nickel		Jun-10	Graham Construction & Management Inc.	Jun-12	\$21,456
This project was reported as complete in <i>Gray Notebook 35</i> - 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-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
Advertisement was delayed due to negotiations with the railroad on the placement of a culvert under the tracks.						
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	Dec-11	\$19,731
• I-5/Mellen Street to Blakeslee Junction – Add lanes, interchange Improvements (Thurston, Lewis)	TPA		Apr-12		Oct-13	
• I-5/Mellen St Interchange – Interchange improvements (Thurston, Lewis)	TPA		Combined with project above for construction efficiencies.			

WSDOT's Completed Project Delivery Programs

Advertisement Record

29 projects in construction phase as of December 31, 2011

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
US 12/SR 124 Intersection — Build interchange (Walla Walla) Advertisement was delayed until land exchange with US Fish and Wildlife was completed.	TPA	Late	Oct-10	Selland Construction Inc	Jul-12	\$11,479
I-5/36th St vicinity to SR 542 vicinity — Ramp reconstruction (Whatcom)	TPA	√	May-10	Vetch Construction	Jul-12	\$4,440
SR 823/Selah vicinity — Reroute highway (Yakima) The project was delayed until fall 2010 due to right of way issues. Its completion date has been delayed one year to 2012.	TPA	√	Dec-09	Hurst Construction LLC	Jul-12	\$3,573

Biennium to date (2011-2013)

Quarter ending December 31, 2011

SR 9/SR 531 to 172nd St NE – Improve intersection (Snohomish)	TPA	√	Oct-11	Interwest Construction Inc.	Nov-12	\$4,770
---	-----	---	--------	-----------------------------	--------	---------

Data source: WSDOT Capital Program Development and Management.

WSDOT's Capital Project Delivery Programs

Projects To Be Advertised

14 Projects in the delivery pipeline for January 1, 2012 through June 30, 2012

Nickel & 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 285/W End of George Sellar Bridge – Intersection Improvements (Chelan)	TPA	April-12	Mar-12	√	\$22,393	\$22,393
SR 112/Nelson Creek – Fish barrier (Clallam)	TPA	April-12	April-12	√	\$2,275	\$2,273
SR 112/Unnamed Tributary to Pysht River – Fish barrier (Clallam)	TPA	April-12	April-12	√	\$1,563	\$1,561
SR 502/I-5 to Battle Ground – Add lanes (Clark)	TPA	April-12	April-12	√	\$87,786	\$87,779
US 97/North of Goldendale – Wildlife habitat connectivity (Klickitat)	TPA	April-12	April-12	√	\$3,532	\$3,529
I-5/Chehalis River flood control (Lewis)	Nickel	April-12	April-12	√	\$4,673	\$4,670
US 101/Middle Nemah River Br – Replace Bridge (Pacific)	TPA	April-12	April-12	√	\$5,617	\$5,612
US 101/Bone River Bridge – Replace bridge (Pacific)	TPA	Jan-12	Mar-12	√	\$13,297	\$12,890
SR 105/Smith Creek Br – Replace bridge (Pacific)	TPA	April-12	April-12	√	\$12,169	\$12,166
SR 105/North River Br – Replace bridge (Pacific)	TPA	April-12	April-12	√	\$23,163	\$23,161
SR 161/Clear Lake N Rd to Tanwax Creek – Realign roadway (Pierce)	TPA	May-12	May-12	√	\$4,737	\$4,884
SR 9/Pilchuck Creek – Replace bridge (Snohomish) The project is delayed due to a late determination of wetland impacts.	TPA	Jan-12	April-12		\$19,472	\$19,706
SR 530/Fortson Creek Culvert – Fish Barrier (Snohomish)	TPA	Mar-12	Mar-12	√	\$2,508	\$2,628
NSC – North Spokane Corridor design and right of way – New alignment (Spokane)	TPA	May-12	May-12	√	\$167,398	\$167,382

Data source: WSDOT Capital Program Development and Management.

WSDOT's Capital Project Delivery Programs

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

Each quarter, WSDOT provides a detailed 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 will not match what is being presented on the current budgets on pages 47-48.

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 LEAP (Legislative Evaluation & Accountability Program) lists.

These dashboards include all budget items including preconstruction 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 December 31, 2011

Project number and phase	Total program		Highways		Ferries		Rail	
	Number of projects	Percent of program						
Total number of projects	156		127		5		24	
Completed projects	112	72%	99	78%	2	40%	12	50%
Total projects under way	34	22%	28	22%	2	40%	3	13%
<i>In preconstruction phase</i>	17		15		1		0	
<i>In construction phase</i>	17		13		1		3	
Projects starting in the future	3	2%	0	0%	0	0%	1	4%
Projects deferred, or deleted from program	7	4%	0	0%	1	20%	8	33%
<i>Number of Legislatively approved scope changes</i>	20		18		0		2	
<i>Preconstruction starts within 6 months</i>	0		0		0		0	
<i>Construction starts within 6 months</i>	1		1		0		0	

Data source: WSDOT Capital Program Development & Management.

Note: Totals do not include Local Programs projects. Percents may not equal 100% due to rounding.

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

Status as of December 31, 2011; Dollars in thousands

Total original Legislative planned budget	Total program		Highways		Ferries		Rail	
	Budget	Percent of total	Budget	Percent of program	Budget	Percent of program	Budget	Percent of program
Total original Legislative planned budget	\$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	\$3,732,973	101%	\$3,441,080	102%	\$160,302	54%	\$131,591	63%
Actual expenditures, 2003 through December 31, 2011	\$3,348,624	85%	\$3,073,044	91%	\$147,168	49%	\$128,412	61%

Data source: WSDOT Capital Program Development & Management.

Note: 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 & TPA) Performance Dashboard

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

Status as of December 31, 2011

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	163	66%	157	69%	0		6	40%
Total projects under way	67	27%	61	27%	1		5	33%
<i>In preconstruction phase</i>	38		36		1		1	
<i>In construction phase</i>	29		25		0		4	
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>Preconstruction starts within 6 months</i>	0		0		0		0	
<i>Construction starts within 6 months</i>	9		9		0		0	

Data source: WSDOT Capital Program Development & Management.

Note: 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 December 31, 2011; Dollars in thousands

	Total program		Highways		Ferries		Rail	
	Budget	Percent of total	Budget	Percent of program	Budget	Percent of program	Budget	Percent of program
Total original Legislative planned budget	\$6,982,128		\$6,678,468		\$185,410		\$118,250	
Original plan, 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	\$4,747,276	68%	\$4,598,562	69%	\$74,964	40%	\$73,750	62%
Actual expenditures, 2003 through December 31, 2011	\$2,913,758	42%	\$2,781,957	42%	\$64,564	35%	\$67,237	57%

Data source: WSDOT Capital Program Development & Management.

Note: 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 preconstruction or construction activities.

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

WSDOT's Capital Project Delivery Programs

Revenue Forecast Update: 2003 Transportation Funding Package (Nickel) financial information

The following information incorporates the November 2011 transportation revenue forecast projections. The accompanying charts compare the current projected revenue forecast to the baseline forecast used in the budget making process when the 2003 Funding Package was adopted. The 2003 Funding Package was developed as a ten-year plan from 2003 through 2013. Due to timing and funding issues, the 2007 Legislature moved projects beyond 2013. Both cumulative ten-year totals and individual biennial amounts are shown in the chart below.

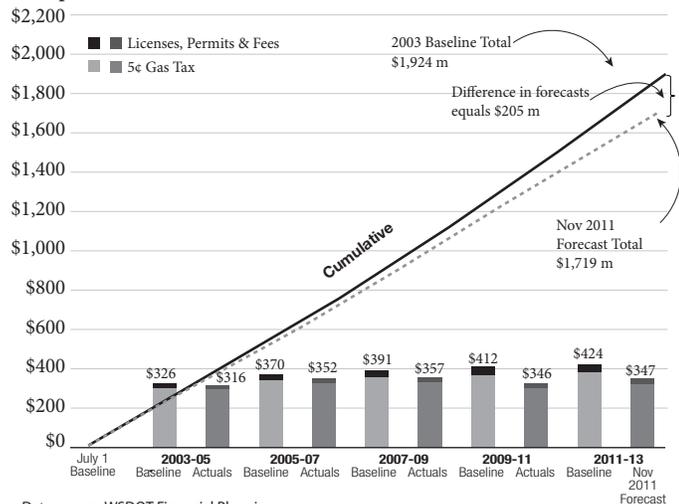
Current forecasted revenues include the most recent actual revenue collection data available as well as updated projections based on new and revised economic variables.

Gas tax revenues are based on the number of gallons sold. The original forecast assumed gasoline consumption would increase, however, gasoline consumption has not increased at the expected rate. Therefore, the November 2011 forecast for gas tax receipts and licenses, permits, and fees for the Transportation 2003 (Nickel Account) is 11.9% lower than the baseline ten-year forecast.

Multimodal Account projections for the vehicle sales tax are lower than the baseline forecast, resulting in a decrease of 20.1% in the ten-year outlook. This decrease is primarily due to the decline in vehicle sales.

Transportation 2003 (Nickel Account) revenue forecast

March 2003 Legislative baseline compared to the November 2011 Transportation Revenue Forecast Council, Dollars in millions



Data source: WSDOT Financial Planning.
Note: Numbers may not add due to rounding.

Paying for the Projects: 2003 Transportation Funding Package Highlights

Deposited into the Transportation 2003 (Nickel Account)

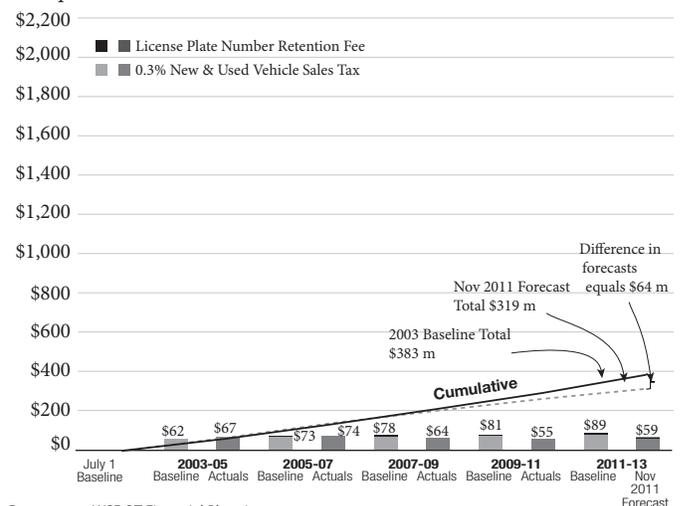
- 5¢ increase to the gas tax
- 15% increase in the gross weight fees on trucks

Deposited into the Multimodal Account (established in 2000)

- An additional 0.3% sales tax on new and used vehicles
- \$20 license plate number retention fee

Multimodal Transportation Account (2003 Package revenue forecast)

March 2003 Legislative baseline compared to the November 2011 Transportation Revenue Forecast Council, Dollars in millions



Data source: WSDOT Financial Planning.
Note: Numbers may not add due to rounding.

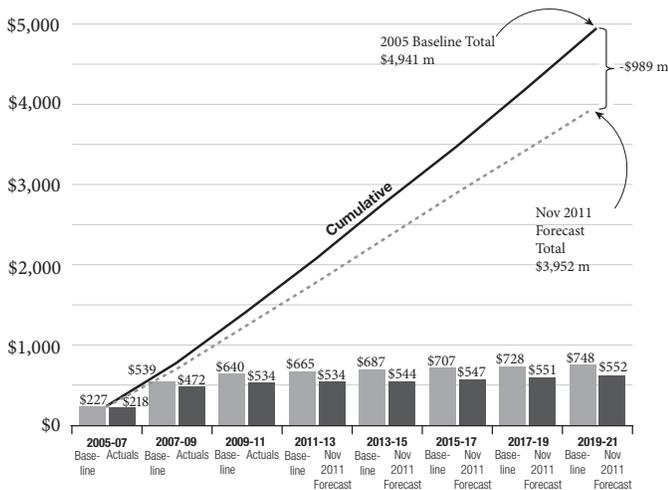
Revenue Forecast Update: 2005 Transportation Partnership Account (TPA) financial information

The accompanying chart compares the current November 2011 revenue forecast to the baseline forecast used in the budget making process when the 2005 Funding Package was adopted. The 2005 Funding Package was developed as a 16-year plan extending from 2005 through 2021.

The November 2011 forecast for gas tax receipts over the 16-year period decreased by 25% from the baseline forecast. This reduction is due to continued lower than expected gasoline consumption. Because Washington State's gas tax is based on gallons sold rather than price, reduced consumption results in reduced revenues.

2005 Transportation Partnership Account (TPA) revenue forecast

March 2005 Legislative baseline compared to the November 2011 Transportation Revenue Forecast Council



Data source: WSDOT Financial Planning.
Note: Numbers may not add due to rounding.

Paying for the projects: 2005 Transportation Package Revenue Sources

- 9.5¢ increase to the gas tax phased in over four years
 - 3.0¢ in July 2005
 - 3.0¢ in July 2006
 - 2.0¢ in July 2007
 - 1.5¢ in July 2008
- New vehicle weight fees on passenger cars
 - \$10 for cars under 4,000 pounds
 - \$20 for cars between 4,000 and 6,000 pounds
 - \$30 for cars between 6,000 and 8,000 pounds
- Increased combined license fees for light trucks
 - \$10 for trucks under 4,000 pounds
 - \$20 for trucks between 4,000 and 6,000 pounds
 - \$30 for trucks between 6,000 and 8,000 pounds (Farm vehicles are exempt from the increase)
- A \$75 fee for all motorhomes
- Fee increases to various driver's license services
 - Original and renewal license application increased to \$20 (previously \$10)
 - Identicals, driver permits and agricultural permits increased to \$20 (previously \$15)
 - Commercial driver license and renewal increased to \$30 (previously \$20)
 - License reinstatement fee increased to \$75 (previously \$20)
- DUI Hearing increased to \$200 (previously \$100)
- Fee increases to various license plate charges
 - Reflectorized plate fee increased to \$2 per plate (previously 50¢)
 - Replacement plates increased to \$10 (previously \$3)

WSDOT's Capital Project Delivery Programs

Completed Projects: Delivering performance and system benefits

Between October 1 and December 31, 2011, WSDOT completed 15 Nickel and Transportation Partnership Account (TPA) projects. The projects built interchanges, improved bridges, preserved pavement, widened roads, removed fish barriers, and installed lighting. Each project faced unique challenges to be completed on time and on budget.

Project delivery performance reporting on budget and schedule is measured against last approved budgets in accordance with criteria established by the Legislature; for this quarter, it is the 2011 transportation budget. This report includes the original

project appropriation from the 2003 and 2005 budgets to explain changes in project budgets over time. When a graph is presented, it offers a visualization of the fluctuations in a project's cost from year to year and is scaled to show the dollar range in more detail.

One of the projects completed this quarter, I-82/Valley Mall Boulevard – Rebuild interchange (Yakima), received 2009 American Recovery and Reinvestment Act funds in addition to TPA funds. The project's completion report is on page 45.

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

I-5/SR 432 Talley Way Interchange – Rebuild Interchanges (Cowlitz)

This project built ten new interchange ramps to improve traffic flow and safety at the intersection of I-5, SR 432, and Talley Way.

Project benefits: The new ramps eliminate the difficult merging conditions and help drivers transition smoothly between roadways.

Highlights or challenges: Before WSDOT began construction, SR 432 intersected I-5 and Talley Way at two cramped interchanges spaced less than a half-mile apart. Now ten new interchange ramps help drivers transition smoothly between roadways, eliminating merges, reducing collisions, and decreasing the likelihood of traffic backups.

Budget performance: The project cost about \$35.3 million at completion, about \$230,000 below the last approved budget.

Schedule performance: The project was completed in November 2011, two months ahead of the last approved schedule.



Crews placed a large girder at the I-5/SR 432 Talley Way Interchange project in Cowlitz County.

SR 243/South of Mattawa – Install Lighting (Grant)

This project installed lighting at two intersections near Mattawa.

Project benefits: Improved lighting at the intersections will reduce the risk of night-time collisions.

Highlights or challenges: This project was combined with another project in WSDOT's North Central Region for efficiencies. The contract for both projects was awarded for almost 28% below the engineer's estimate, resulting in a savings for this portion of the project of \$50,700.

Budget performance: The TPA project cost \$222,396 at completion, about \$33,600 below the last approved budget. The project was \$42,000 above its initial 2005 budget due to inflation.

Schedule performance: The TPA-funded portion of the project was completed on time in November 2011. A non-TPA-funded portion of the project on SR 97A in Chelan County was delayed until January 2012, due to problems purchasing a camera pole.



Completed Projects: Delivering performance and system benefits

US 101/Unnamed Tributary to Lower Salmon Creek – Fish Barrier (Grays Harbor)

This project removed a migratory fish passage barrier near milepost 69 on US 101 in Grays Harbor County.

Project benefits: This project is one of 11 fish passage barrier improvements completed this year. Combined, the projects opened a total of 38 miles of potential fish habitat. For more information on the program, see the Fish Passage Barrier Annual Report on pages 36-37.

Highlights or challenges: The successful low bid was 16.2%, or \$120,000, over the engineer's estimate.

Budget performance: The project cost about \$1,517,000 at completion, about \$179,000 above the last approved budget due to additional geotechnical evaluations required to design the culvert. Original designs using old software underestimated the amount of work required to design the culvert.

Schedule performance: The project was completed in November 2011, a month and a half ahead of the last approved schedule.



SR 520/I-405 Vicinity Seismic Retrofit (King)

This project performed seismic retrofits on nine bridges near the SR 520/I-405 interchange in Bellevue.



I-90/Eastside Bridges – Seismic (King)

This project performed seismic retrofits on I-90 bridges between Bellevue and Issaquah.

Project benefits: These seismic retrofits improved bridge stability and strength, better allowing bridges to withstand earthquakes and continue to carry traffic.

Highlights or challenges: The projects were combined for contract efficiencies. The combined projects were awarded to Guy F. Atkinson Construction LLC for \$3.73 million, \$1.05 million, or \$22% below the engineer's estimate.

Budget performance: The I-90/Eastside Bridges project cost \$9.45 million at completion, \$229,000 more than the last approved budget of \$9.22 million. The SR 520/I-405 Vicinity Seismic Retrofit project cost \$4.14 million at completion, \$447,000 more than the last approved budget of \$3.69 million.

Schedule performance: The projects were completed in November 2011, two months behind the last approved schedule due to utility conflicts and shoring work on one bridge.



This project jacketed the columns of the bridges on SR 520 in order to improve their stability in case of seismic activity.



This project improved the bearing pads on I-90 bridges.

WSDOT's Capital Project Delivery Programs

Completed Projects: Delivering performance and system benefits

SR 99/SR 518 Interchange Bridge Crossing Seismic Retrofit (King)

This project constructed a seismic retrofit on a bridge at the intersection of SR 99 and SR 518 in the Riverton Heights area of South King Crossing, near SeaTac International Airport.

Project benefits: This seismic retrofit improved bridge stability and strength, better allowing it to withstand earthquakes. The retrofit will help maintain access to SeaTac International Airport and reduces the potential for expensive replacement costs in the event of seismic activity.

Highlights or challenges: The Port of Seattle was the lead on this project, which was included as part of the Port's Consolidated Car Rental Facility contract. WSDOT contributed funds to address the seismic retrofit of the bridge and provided construction oversight.

Budget performance: The total cost of this project was \$1.5 million, equal to the last approved budget. Delays to the project completion added inflation costs to the project.

Schedule performance: The project was operationally complete in September 2011. Delays on the Port's rental car facility affected completion of the seismic retrofit work, which was delayed by one year.



This project performed seismic improvements to bridges in case of an earthquake.

Lake Washington Congestion Management Project (King)

This project implemented active traffic management on SR 520 across Lake Washington and the planning, analysis, design, construction and initial tolling operations on the SR 520 Bridge.

Project benefits: Crossing Lake Washington is difficult in both directions due to traffic congestion. Implementing active traffic management and variable tolling on SR 520 will reduce congestion between I-5 and I-405. This project oversaw the planning for tolling on the SR 520 Bridge, which will help pay for the new bridge's construction. The project includes all-electronic tolling.

Highlights or challenges: Tolling was delayed from a planned start in April to December due to technical issues establishing the tolling system. See the Highlights article on page 84 for more information about this project's completion.

Budget performance: This project cost \$87.3 million at completion, within the last approved budget.

Schedule performance: The project was completed with the start of tolling on December 29, 2011, three quarters late due to the issues discussed above.



This project helped plan the tolling on the SR 520 bridge that began on December 29, 2011.



Completed Projects: Delivering performance and system benefits

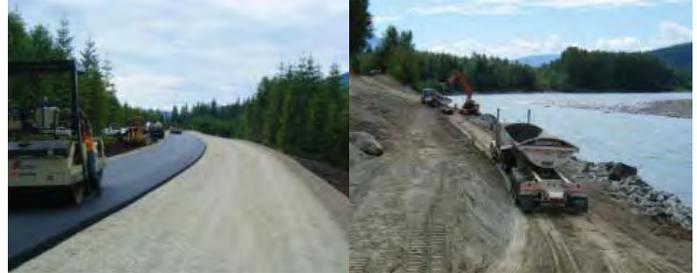
SR 530/Sauk River Bank Erosion – Realign Roadway (Skagit)

This project shifted SR 530 away from the Sauk River near milepost 59.5 to protect the roadway and drivers from the river.

Project benefits: The project moved the road away from the Sauk River in a site where heavy erosion on the river bank has repeatedly threatened to wash away the roadway during floods.

Between 2003 and 2009, WSDOT had spent \$6 million to combat erosion, and support and repair SR 530 near the banks of the Sauk River. Rather than continuing to perform repetitive repairs, Tribes and regulatory agencies requested WSDOT consider moving the entire highway, or portions of the highway, in order to avoid trouble spots. The site around milepost 59.5 is one of the major locations.

Highlights or challenges: As a part of the project, WSDOT removed some of the countermeasures designed to protect the roadway, restoring the prior road area to a natural state. The SR 530/Sauk River Corridor Study in 2009 provides more information about the highway's history and challenges.



This project built a new alignment for SR 530 as a result of erosion along the Sauk River bank in Skagit County.



Budget performance: The TPA project cost \$5.2 million at completion, about \$500,000 below its last approved budget.

Schedule performance: The project was completed in November 2011, on time with the last approved schedule.

I-5/196th St (SR 524) Interchange - Build Ramps (Snohomish)

This project built new on- and off-ramps to separate traffic merging from I-405 and SR 525 to southbound I-5 from traffic exiting southbound I-5 to 196th Street SW.

Project benefits: Ramp improvements will potentially reduce congestion by eliminating lane-weaving and reduce the risk of rear-end and sideswipe collisions caused by severe backups on southbound I-5. Congestion will potentially be relieved because drivers will be able to enter and exit the freeway quickly and safely. In addition, stormwater storage and treatment facilities were upgraded to ensure water quality for fish and other wildlife.

Highlights or challenges: There was an \$18 million savings realized upon award of the contract at 40.34% under the engineer's estimate.

Budget performance: The total project cost \$32.77 million at completion, a decrease of \$1 million from its last approved budget of \$33.77 million. The construction decrease is due to mitigated risks.

Schedule performance: The project was operationally complete in October 2011, on time with the last approved schedule.



This project built a new interchange with braided ramps at the intersection of I-5 and SR 524 in Snohomish County.

WSDOT's Capital Project Delivery Programs

Completed Projects: Delivering performance and system benefits

SR 9/Lundeen Parkway to SR 92 – Add lanes and improve intersections (Snohomish)

This project added one lane in each direction on SR 9 in Snohomish County between Lundeen Parkway and SR 92. It also added turn lanes at two intersections, upgrades traffic signals at three intersections, and provided new lighting.



Project benefits: The project expanded capacity on the major north-south highway in east Snohomish County and improves traffic flow at intersections. This region has seen increasing vehicle volumes due to growth and its use as an alternative to I-5. This stretch of highway has experienced collisions, and the improvements, which include more turning capacity and lighting, are designed to reduce collisions.

Project highlights and challenges: The project's cost was reduced \$12.58 million in 2010 when it was awarded to Granite Construction Company for 34% below the engineer's estimate and after some design savings.

Budget performance: The project cost \$22.57 million at completion, with the addition of \$20,000 in local funds that were added to the last approved budget of \$22.55 million. As the graph to the right shows, the project's budget has changed over time due to inflation, followed by a bid under the expected cost.

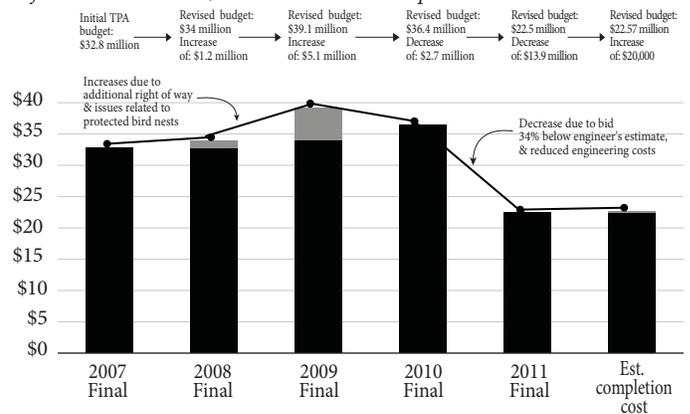
Schedule performance: This project was completed in October 2011, two months ahead of the last approved schedule.

This project added one lane in each direction on SR 9 in Snohomish County between Lundeen Parkway and SR 92.



SR 9/Lundeen Parkway to SR 92 – Add lanes and Improve intersections (Snohomish)

Project cost in millions, estimated cost at completion



Data Source: WSDOT Capital Project & Delivery Management Office.

I-5/Queets Dr E Tanglewilde - Add Noise Wall (Thurston)

I-5/14th Ave Thompson Pl - Add Noise Wall (Thurston)

These projects built noise barrier walls along I-5 in Thurston County to reduce interstate-related noise in the community.

Project benefits: This project potentially reduces the noise level in the surrounding neighborhood. See the Noise Quality Annual Report in *Gray Notebook 43* on page 30 for more information about federal and state noise abatement requirements and WSDOT's noise quality program.

Highlights and challenges: The project's advertisement date was delayed one year to combine the projects for construction efficiencies. The combined contract lowered the disruption to the traveling public, and reduced construction contract and preliminary engineering costs on this project by \$511,000.

Budget Performance: The total project cost was \$4.7 million, equal to the last approved budget. The combined contract was



The maps above show the locations of the noise wall projects along I-5 in Thurston County on the north, (left), and south (right) of SR 510.

awarded for \$2.9 million, 39% under the engineer's estimate.

Schedule Performance: The project was operationally complete in October 2011, a delay of three months from the originally planned date.



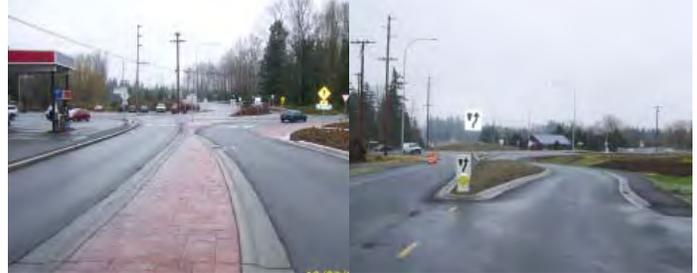
Completed Projects: Delivering performance and system benefits

SR 542/Everson Goshen Road Vicinity to SR 9 Vicinity – Improvements (Whatcom)

This project constructed safety improvements along the corridor, including shoulder and intersection improvements, to reduce collisions.

Project benefits: From 2005 to 2009, there were 15 collisions at the Smith Road intersection, injuring six people. During the same time period, there were 13 collisions at the SR 9 and Nugent's Corner intersection, injuring eight people. Roundabouts at both locations were determined to be the best way to improve safety by reducing congestion. In addition, improvements were made to stormwater runoff water quality and drainage rates into local creeks and streams.

Highlights or challenges: The project included a change from concrete pavement to hot mix asphalt. Hot mix asphalt roundabouts in urban areas, where there is more truck volume than at these two intersections, perform well. The change saved \$170,000 to be used on other statewide needs.



This project built new roundabouts at the interchanges of SR 542 and Everson Goshen Road (right) and SR 9 (left).

Budget Performance: The project cost \$6 million at completion, about \$500,000 below the last approved budget, due to mitigated risks.



Schedule Performance: The project was operationally complete in October 2011 on time with the last approved schedule.

SR 22/I-82 to Toppenish – Safety Improvements (Yakima)

This project expanded SR 22 to include wider lanes and shoulders and other safety improvements, including flattening slopes, upgrading guardrail, installing new sidewalks, and building new turn lanes at intersections with Fraley and McDonald Roads.

Project benefits: The wider lanes and shoulders, and the addition of turn lanes, will help improve safety for drivers between I-82 and Toppenish. Installing new sidewalks with ADA compliant ramps will improve safety and access for pedestrians.

Highlights or challenges: The project used existing parking area alongside SR 22 near the intersections to widen SR 22 and install the turn lanes.

Budget performance: This project cost \$4.54 million at completion, \$383,000 below its last approved budget of \$4.93 million. The reduction was due in part to lower than anticipated risks for utility relocations and material costs.



Schedule performance: The project was completed in November 2011, on time with the last approved schedule.

TPA/Recovery Act project also completed this quarter in Yakima County

I-82/Valley Mall Boulevard – Rebuild Interchange (Yakima)

This TPA project, which also received Recovery Act funds, was completed on time in October 2011. Its project completion report is included in the Recovery Act article on page 45.

WSDOT's Capital Project Delivery Programs

Special Report: Tacoma Pierce County HOV Program Quarterly Update

Tacoma Pierce County HOV Program Highlights

Construction has begun on the new I-5/SR 16 Eastbound Nalley Valley project.

Project details are available on the website at www.wsdot.wa.gov/Projects/PierceCountyHOV/SR16_EBNalleyValley/

Construction on the I-5: Portland Avenue to Port of Tacoma Road – Stage 1 is nearly complete.

I-5: Portland Avenue to Port of Tacoma Road – Northbound HOV project construction advertisement date changed from late January 2012 to March 2012 to accommodate permits and easements.

Construction start

I-5/SR 16 Eastbound Nalley Valley Interchange

Construction has started on the new Eastbound Nalley Valley project with demolition beginning in December. The contractor began demolishing the original westbound Nalley Valley Viaduct to make room for the new eastbound viaduct, and started by taking down a small bridge adjacent to I-5. While most of the demolition is routine, demolishing the unique tetrapods (supporting piers) of the old viaduct has required more care. These tetrapods were cast in concrete at a 30-degree angle, and support both the old westbound and eastbound bridge structures. Since traffic is still driving on the original eastbound structure, only two of the eight legs on each set of tetrapods can be demolished now. The remaining six legs will continue to support the eastbound bridge until the bridge is no longer needed.

Construction progress

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

The \$22 million Stage 1 project is the first of several stages that will reconstruct I-5 between Portland Avenue and the Port of Tacoma Road in Tacoma (see September 2011 *Gray Notebook* 43, page 72, for full project description). The project includes widening four I-5 bridges: two over Portland Avenue; and two over Bay Street. The in-ground work has been completed for the bridge widening with only the superstructure work to complete. Four retaining walls included in the project are nearly complete. Column jacketing to seismically retrofit the two existing bridge structures has been completed (see June 2011 *Gray Notebook* 42, page 13, for information about bridge conditions and seismic retrofits).

Design progress

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

In *Gray Notebook* 43, WSDOT incorrectly reported this project to cost \$203 million dollars; the actual cost is valued at \$311 million dollars, and includes a new northbound I-5 bridge over the Puyallup River. Design plans are nearly complete, and the construction ad date has been changed from January 2012 to March 2012 to accommodate permit and right of way easement acquisitions. Once construction begins, the project will take about three years to complete.

I-5: M Street to Portland Avenue – HOV

In this \$191 million project, crews will widen northbound and southbound I-5 to four general-purpose lanes and one additional HOV lane from M Street to Portland Avenue. To allow for the widened roadway, WSDOT will replace the Pacific Avenue, McKinley Way, and L Street bridges over I-5, and the northbound I-5 bridge over the I-705 interchange. Other improvements will include a new stormwater collection and treatment system, and new northbound and southbound I-5 pavement with new reinforced concrete. Design is nearly 60% complete, and the team has updated the project delivery plan, the project schedule, and the budget. This project is scheduled to be advertised for construction in August 2013.



This dramatic photo highlights the stages of demolition crews are using to take down the original westbound Nalley Valley Viaduct. The concrete road deck was the first portion removed, revealing this "netting" of structural rebar exposed for the first time since the bridge was built in 1971.

Special Report: New Ferry Construction

All three Kwa-di Tabil Class (64-car) ferries are now complete

The final Kwa-di Tabil class ferry, the *M/V Kennewick*, was delivered by Vigor Shipyards to WSDOT on October 31, 2011, ahead of the contract delivery date of January 2012 (see September 2011 *Gray Notebook 43*, page 71).

The *Kennewick* was temporarily located at Dakota Creek Industries shipyard in Anacortes for additional rub rail installation, then returned to Eagle Harbor in mid-December for final outfitting and crew training. When the work at Eagle Harbor was done, the *Kennewick* moved to Port Townsend for additional crew training, sea trials, and proficiency drills. The vessel is scheduled to begin service in February 2012.

Kwa-di Tabil Class ferries: projected vs. actual costs

As of December 31, 2011

	Scheduled delivery date	Actual delivery date	Original projected cost	Final actual cost
M/V Chetzemoka	6/29/2010	9/15/2010	\$76,930,000	\$80,514,388
M/V Salish	5/5/2011	5/12/2011	\$68,957,669	\$66,592,159
M/V Kennewick	1/29/2012	10/31/2011	\$62,692,045	\$58,665,735*

Data source: WSDOT Ferries Division.

* Note: The final cost of the *M/V Kennewick* is an estimated amount because final invoices were not processed before publication.

Construction on the first new 144-car ferry to begin in February 2012

As reported in the September 2011 *Gray Notebook 43*, page 71, WSDOT plans to build up to three new 144-car ferries needed to replace vessels in the aging fleet. A design-build contract for these ferries was awarded in 2007, and after some negotiations, WSDOT has accepted Vigor Shipyards' design. A change order was successfully negotiated and signed on November 1, 2011, to set the price and timeline to construct the first 144-car ferry. Vigor has assigned the contract to their new construction division, US Fab. Currently, US Fab is purchasing materials, finalizing the master construction schedule, and signing subcontractors for the project. Steel fabrication will begin in February 2012, keel laying is planned for the spring of 2012, and delivery of the vessel is scheduled for February 2014.

Contract awarded for Keller Ferry project

WSDOT is moving forward to replace the 12-car ferry *Martha S.*, also known as the Keller Ferry, which operates on the Columbia River in eastern Washington (see June 2011 *Gray Notebook 42*, page 60). A contract has been awarded and 'notice to proceed' issued to Foss Maritime Corporation. The new \$12 million ferry will be all aluminum with a 20-car capacity. The contractor has already made the first submittal to the U.S. Coast Guard for regulatory approval of the design. The vessel will be constructed in modules at the Foss Rainier Oregon Yard, in the city of Rainier, Oregon, and trucked to Lake Roosevelt for final assembly. Delivery is scheduled for spring of 2013.



The Keller Ferry sitting on a dry dock cradle just upstream from Grand Coulee Dam.

Project Highlights

The *M/V Kennewick* is scheduled to start service in February 2012.

Work on the first of the new 144-car ferries is scheduled to begin with steel fabrication in February 2012. Delivery is currently scheduled for February 2014.

The contract has been awarded for the Keller Ferry project. Delivery of the new 20-car, \$12 million vessel is scheduled for spring of 2013.

WSDOT's Capital Project Delivery Programs

Watch List: Projects with schedule or budget concerns

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 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. Projects paid for through Pre-Existing Funds are discussed on pages 71-74.

The number of projects appearing on the Watch List can rise and fall over time with the number of projects under way (WSDOT reports on the project whether it is under construction or in planning and design phases). By tracking problem projects more closely on the Watch List, WSDOT can keep its stakeholders informed while evaluating possible solutions.

Common problems affecting projects

Some of the common problems that may affect the successful progress of a project from design through construction are organized in seven categories. These categories are coordination, environmental, design, utilities, right of way, construction, and litigation. The gray box in *Gray Notebook 43*, p. 73 includes a more detailed description of the problems in these categories.

Added to Watch List

I-5/Mellen Street To Blakeslee Junction – Add Lanes (Lewis)

This project, budgeted for \$155 million, will; construct collector-distributor lanes between the existing Mellen Street and Harrison Avenue interchanges, widen I-5 from two lanes to three lanes in each direction north of Harrison Avenue, build a new overcrossing south of Mellen Street, improve the Harrison Avenue interchange, repair and paint the existing Skookumchuck River bridges, and raise 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 schedule is at risk. WSDOT needs to acquire 40 parcels for this project, and some of the parcel negotiations will delay advertisement. To keep the project on schedule, construction will be split into two stages. Stage 1, scheduled for advertisement in April 2012, will construct several bridges, build retaining walls, place fill material, begin environmental mitigation work, and complete in-water work required during the first year of construction. Some parcel acquisitions are required for this work, and are on schedule to be complete. Once all the remaining properties are acquired, the second stage will complete the collector-distributor lanes, and finish the project. WSDOT expects to advertise Stage 2 in early 2013. The operationally complete date remains planned for December 2013, and no additional funding is required.

Watch List projects with schedule or budget concerns

Quarter ending December 31, 2011

Added to Watch List	Project type	Watch List issue
I-5/Mellen Street to Blakeslee Junction–Add lanes (Lewis)	Highway	Right of way: land acquisition
Updates to Watch List		
US 2/Wenatchee River Bridge – Replace Bridge (Chelan)	Highway	Construction: weather, contractor issues, timing problems
SR 3/Belfair Area – Widening and safety improvements (Mason)	Highway	Right of way: land appreciation, design changes
US 395/NSC – US 2 to Wandermere and US 2 Lowering (Spokane)	Highway	Construction: site problems, timing problems
SR 520/Medina to SR 202 Vicinity – Eastside Transit and HOV (King)	Highway	Coordination: local concerns, litigation, design changes
SR 9/Pilchuck Creek – Replace Bridge (Snohomish)	Highway	Environmental: permitting, design alternatives
SR 11/Padden Creek – Fish Passage Barrier Removal (Whatcom)	Highway	Design: design element changes
SR 99/Spokane St Bridge – Replace Bridge Approach (King)	Highway	Coordination: Interagency coordination
Removed from Watch List		
I-405/Thunder Hills Creek Culvert – Emergency repair (King)	Highway	Environmental: fish passage barrier

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

Watch List: Projects with schedule or budget concerns

Updates to Watch List

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

200201L Related project: U.S. 2/Chiwaukum Creek – Replace bridge 2/212

These projects, budgeted for \$12.5 million, and known as US 2 – Tumwater Canyon Bridge Replacements, will replace three old, narrow bridges over the Wenatchee River and Drury and Chiwaukum creeks with new, wider bridges designed to current standards. The added width will potentially improve safety for motorists, cyclists, and pedestrians. This project will also include new turn lanes into Tumwater Campground and fish passage enhancements in the creekbed.

The projects are in the construction phase; the schedule continues to be at risk. As reported in *Gray Notebook 43*, the permitting schedule for in-water work, higher-than-normal water levels in the Wenatchee River, and large boulders encountered while drilling pier shafts have delayed construction. Drilling operations have stopped because of the boulders, and the WSDOT Bridge Office is now re-evaluating and redesigning the bridge. The redesign will delay completing the in-water work until summer, when the fish-windows reopen.

The operationally complete date has been delayed from December 2012 to September 2013. Possible impacts to the operationally complete date and contract costs will be determined after the design revisions are completed in spring 2012.

SR3/Belfair Area – Widening and safety improvements (Mason)

This project, budgeted at \$18.1 million, will extend the center turn lane and provide paved shoulders and sidewalks on both sides of SR 3 from the intersection of SR 3 and SR 106 (milepost 24.91) to just north of NE Ridgepoint Boulevard (milepost 27.08). The work will address traffic congestion, safety, bicycle and pedestrian facilities, storm sewer improvements, and storm-water mitigation requirements.

The project is in the design phase; the cost and scope of the project are at risk. As reported in *Gray Notebook 43*, cost estimates to deliver the entire project have risen by \$6 million due to right-of-way and construction costs. WSDOT initially proposed to construct the improvements in two stages. Current project funding is adequate to complete Stage 1 of the project, which will construct improvements from just south of Belfair Elementary School and Theler Center to Ridge Point Boulevard. Stage 2 will extend from the intersection of SR 3 with SR 106 to just south of Belfair Elementary School and Theler Center.

The Governor's proposed 2012 Budget request includes the

additional \$6 million funding for the entire project. The stages will be combined into one project if full funding is provided in the 2012 final budget.

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

This project, budgeted for \$128.1 million, will construct a new four-lane divided freeway between US 2 and US 395 at Wandermere, new structures at Wandermere and at US 2, and a pedestrian/bike path from US 2 to Wandermere. When complete, it will open a new two-mile section of the North Spokane Corridor. The project is in the construction phase; the schedule is at risk. As reported in *Gray Notebook 43*, the project's operationally complete date of November 2011 was at risk due to early onset of winter conditions. This risk has been realized; the project is in winter shutdown until March or April of 2012. Project completion is now delayed until June 2012. An update will be provided when construction resumes.

SR 520/Medina to SR 202 – Eastside Transit and HOV (King)

This project, valued as a \$306 million design-build contract, will feature a continuous six-lane SR 520 corridor between Medina and Redmond. The project will include an inside HOV/transit lane, build wider shoulders, construct nine fish passable stream crossings and associated habitat improvements, build lids and a regional trail extension, and create two new median transit stops and other transit improvements. When completed, the project will reduce the potential for serious injury and fatal collisions along the SR 520 corridor, and improve mobility and fish habitat.

As reported in *Gray Notebook 43*, the project has completed design, is in construction, and is on schedule to be completed by the end of 2013. WSDOT and the design-builder continue to evaluate budget and schedule risks that developed after contract award. Any potential schedule and cost effects will be determined after further consultation, and WSDOT expects the issues to be resolved by spring 2012. WSDOT is also responding to a lawsuit by Fairweather Basin residents alleging reduced property values as a result of project actions. The lawsuit is not expected to be resolved until mid-2012, at the earliest.

SR 9/Pilchuck Creek – Replace Bridge (Snohomish)

This project, budgeted for \$19.5 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 if I-5 has to be closed and traffic rerouted.

WSDOT's Capital Project Delivery Programs

Watch List: Projects with schedule or budget concerns

The project is in the design phase; the budget is at risk. As reported in *Gray Notebook 43*, the cost increase to \$19.7 million is now included in the proposed 2012 Supplemental budget request.

The schedule remains at risk. Last quarter, advertisement was delayed from January 2012 to April 2012 because the environmental permitting process was held up waiting for a decision on the disposition of the existing, historically significant bridge. WSDOT and the Federal Highway Administration, with concurrence from the Department of Archaeology and Historic Preservation, reached a decision that would not adversely affect the historic bridge, and would retain the bridge for local access. However, the schedule continues to be at risk, because resolving this issue may not have left enough time to obtain the required environmental permits needed to advertise in April. An update will be provided next quarter.

SR 11/Padden Creek (Whatcom)

This project, budgeted for \$1.1 million, will replace a portion of a brick tunnel that channelizes Padden Creek and is a barrier to fish passage, with a new bridge on SR 11. WSDOT is coordinating this work with the City of Bellingham. Bellingham has received a grant to restore Padden Creek, which includes removing the tunnel so the city can recreate a natural streambed that receives more daylight.

The project is in the design phase; the budget and schedule are at risk. As reported in *Gray Notebook 43*, the original plan to install a box culvert was changed to constructing a 40-foot bridge structure. This change increased costs by \$1.3 million, and brought the total project cost to \$2.4 million.

The schedule is also at risk. In *Gray Notebook 43* WSDOT incorrectly reported that the advertisement date was delayed. The advertisement date was not delayed. The project completion date, however, has been delayed from September 2013 to October 2013 as a schedule adjustment to match the schedule planned by the project office. The project is pending approval on the cost increase and the schedule delay which are included in the proposed 2012 Supplemental budget request. An update will be provided next quarter.

SR 99/Spokane St Bridge - Replace bridge approach (King)

This project, budgeted for \$14 million, will replace the southern two-thirds of a timber-pile-supported bridge section with a lightweight structural fill material. The northern one-third will be replaced with a concrete bridge that will allow port traffic to pass beneath. WSDOT will construct the structure in two stages.

The project is in the design phase; the schedule remains at risk. As reported in *Gray Notebook 43*, advertisement was delayed to December 2011 to revise the stormwater runoff design. The advertisement was further delayed from December 2011 to April 2012 to accommodate a redesign request from the Port of Seattle. As a result of the redesign, and to coordinate with the community's construction projects within the local area, the advertisement is now delayed to October 2012.

The Port of Seattle requested that WSDOT relocate the proposed bridge columns in order to accommodate the Port of Seattle project. The relocation will allow for freight and general traffic to pass between the columns supporting WSDOT's new bridge. The Port has agreed to pay for the additional design and construction costs associated with the change. While this redesign only delays the advertisement date by three months to April 2012, an additional delay to October 2012 results from coordination with other construction projects to minimize traffic impacts in the surrounding area.

The operationally complete date for the project has been moved from October 2013 to October 2014.

Removed from Watch List

I-405/Thunder Hills Creek Culvert Emergency Repair/Mitigation (King)

This project, budgeted for \$18.1 million, addresses a culvert on I-405 that failed during record rainfall in 2007, and which was a barrier to fish passage. WSDOT and key parties found that modifying the culvert at Thunder Hills Creek for fish passage requirements was not feasible. A replacement site more favorable to fish passage was selected at Panther Creek on SR 167.

This part of the project is in the design phase. As reported in *Gray Notebook 43*, WSDOT has been working with the US Army Corps of Engineers (USACE), Washington Department of Fish and Wildlife (WDFW), and Muckleshoot Indian Tribe Fisheries Division, to obtain their concurrence on the design for retrofitting the Panther Creek culvert crossing at SR 167 as mitigation for the Thunder Hills Creek emergency culvert repair work. In November, WSDOT received approval of the Panther Creek mitigation site location and design methodology, as required by the USACE permit issued for the Thunder Hills Creek culvert repair project. This final concurrence allows the project to proceed with construction during the summer of 2012. This project remains on schedule for advertisement in February 2012.

WSDOT's Capital Project Delivery Programs

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 funded at the program level.

Funding is aligned to commitments to address set priorities such as preserving pavement each biennium. Each biennium, new PEF projects are programmed based on prioritized needs and available funds, and the list of PEF projects changes each biennium. However, unexpected projects can arise during the biennium that require urgent action, and WSDOT will re-portion 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.

PEF project performance is reported at two levels

Six individually tracked projects

Six projects are reported individually due to their size or significance (see table below). This quarter, the SR 303 Manette Bridge Replacement project was completed early.

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 pages 73-74).

The definitions of important terms used in this article are on page 74.

Six individually tracked Pre-Existing Funds (PEF) projects: results through December 31, 2011

Dollars in millions

Project Description	First legislative budget & year	Baseline current legislative approved & year	Scheduled date to begin preliminary engineering		Scheduled date for advertisement		Schedule date to be operationally complete	
			Date	On time	Date	On time	Date	On time
US 2/Ebey Island Viaduct and Ebey Slough Bridge (Snohomish)*	\$32.1 2002	\$6.2 2007	Dec-98	√	Nov-00	√	Dec-03	√
• US 2/50th Avenue SE vicinity to SR 204 vicinity – Bridge rehabilitation		\$10.8 2007	Jul-06	√	Feb-07	√	Sept-07 complete	√
• US 2/43rd Avenue SE vicinity to 50th Ave SE vicinity – Bridge rehabilitation	\$26.7 2009	\$14.0 2010	Jan-09	√	Dec-10	Late	Oct-11	√
Advertisement delayed due use of weather sensitive materials. By delaying advertisement four months, the project avoided a winter shutdown.								
SR 202/SR 520 to Sahalee Way – Widening (King)	\$36.9 2001-03	\$81.2 2010	May-98	√	Aug-05	√	Feb-08	√ Early
Project operationally complete February 2008.								
SR 539/Horton Road to Tenmile Road – Widen to five lanes (Whatcom)	\$32.0 2001-03	\$68.3 2010	Oct-90	√	Jan-07	√	Nov-08	√
Project operationally complete November 2008.								
SR 28/E End of the George Sellar Bridge – Construct bypass (Douglas)	\$9.4 2004	\$28.0 2010	May-04	√	May-11	Late	Aug-13	
Advertisement delayed due to right-of-way issues.								
US 101/Purdy Creek Bridge – Replace bridge (Mason)	\$6.0 2004	\$10.2 2010	Aug-04	√	May-08	Late	Aug-09	√ Early
Advertisement delayed due to additional design needed to bring plans up to WSDOT Standards when they were returned from the consultant. Project operationally complete August 2009.								
SR 303/Manette Bridge Bremerton vicinity – Replace bridge (Kitsap)	\$25.5 2002	\$82.9 2010	Sep-96	√	Mar-10	√	Jan-12	√ Early

Data source: WSDOT Capital Program Development & Management.

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds (PEF)

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	\$779.8
Planned advertisements through December 31, 2011	42	\$125.7	\$114.2
Actual advertisements through December 31, 2011	29	\$56.8	\$40.7

Data source: WSDOT Capital Program Development & Management.

PEF project advertisements schedule performance

July 1, 2011 through December 31, 2011

	Number
Projects advertised as scheduled	17
Projects advanced or advertised Early	2
Projects advertised Late	0
Emergent projects advertised	10
Total projects advertised	29
Projects delayed (delayed within the biennium)	24
Projects deferred (delayed out of the biennium)	1
Projects deleted	0

Data source: WSDOT Capital Program Development & Management.

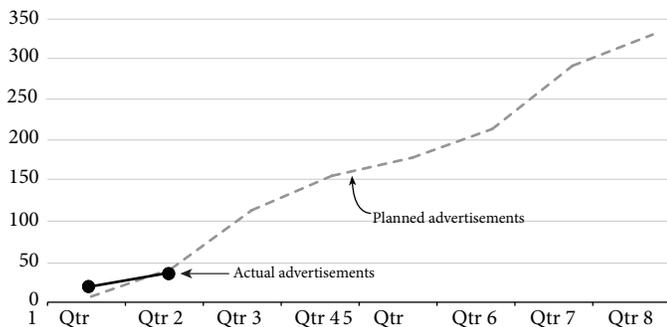
Note: See page 74 for PEF advertisement definitions.

Pre-Existing Funds project advertisements

Planned vs. actual advertisements

2011-2013 biennium, quarter ending December 31, 2011

Number of advertisements



Data source: WSDOT Capital Program Development and Management.

Note: As of Quarter 2 (October 1 - December 31, 2011), Original planned cash flow values have been updated based on the 2011 Legislative Final Budget.

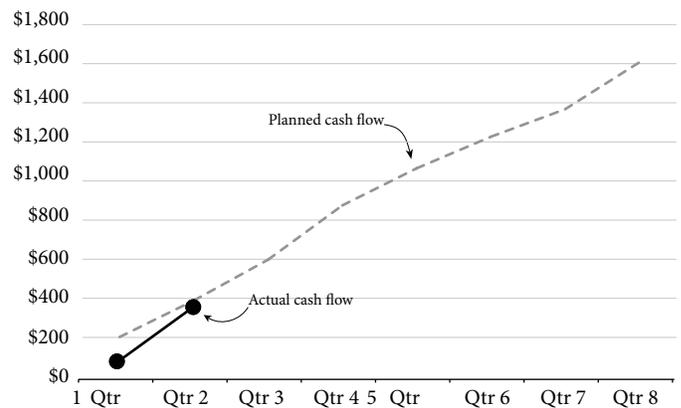
WSDOT plans to advertise 328 projects in the 2011-2013 biennium

WSDOT plans to advertise 328 PEF projects, valued at \$794.9 million, in the 2011-2013 biennium. WSDOT advertised 29 projects through December 31, 2011, the first two quarters of the biennium. Twenty-four of the 42 projects planned for advertisement to date have been delayed, two projects projects have been advanced and ten were added due to emergent needs.

Pre-Existing Funds improvement program cash flow

Planned vs. actual expenditures for 2011-2013 biennium

Quarter ending December 31, 2011; Dollars in millions



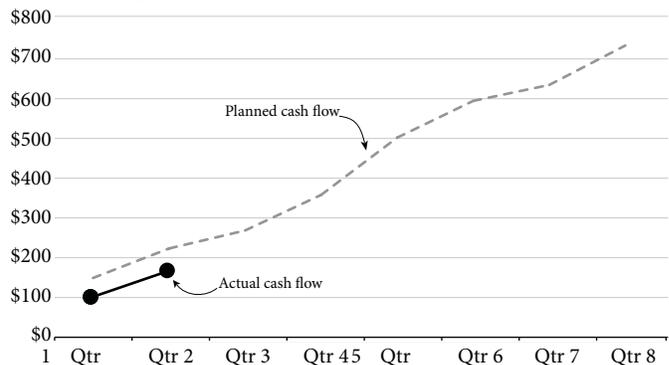
Data source: WSDOT Capital Program Development and Management.

Note: As of Quarter 2 (October 1 - December 31, 2011), Original planned cash flow values have been updated based on the 2011 Legislative Final Budget.

Pre-Existing Funds preservation program cash flow

Planned vs. actual expenditures for 2011-2013 biennium

Quarter ending December 31, 2011; Dollars in millions



Data source: WSDOT Capital Program Development and Management.

Note: As of Quarter 1 (July 1-Sept 30, 2011), original planned cash flow values have been updated based on the 2011 Legislative Final Budget.

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds (PEF)

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

October 1 – December 31, 2011

Title	Advertised as scheduled
I-5/ITS Advanced Traveler Information Systems	√
I-5/Slater Rd to Birch Bay-Lynden Rd Vic. – ATIS	√
SR 21/Curlew State Park to N of Rin Con Creek Rd – Paving	√
SR 21/Vic. Malo to Kettle River – Paving	√
SR 410/Nile Valley Landslide – Reconstruct route	√
US 101/S of Beacon Point Dr - Culvert replacement	√
US 2/Grant County Line – Culvert Repair	√
US 2/Stevens Pass West – Unstable Slopes	√
US 2/West of Wenatchee – Paving	√
US 97A/0.5 Mile So of Rocky Reach Dam – Unstable slope	√
US 97A/Wenatchee to South of Rocky Reach Dam – Paving	√
US 12/Rimrock Lake Vicinity – Stabilize slope	Deferred
Construction has been deferred four years to re-scope and design an appropriate solution per the latest geotechnical report. The cost has increased \$185,522 due to inflation.	
I-82/US 12 to Valley Mall Blvd Vic – Paving	Delayed
The project has been changed due to signs of fatigue in the left lane. The change will increase the cost by \$2,262,712.	
NCR Pavement Crack Sealing	Delayed
The work will be done by staff forces in May 2012. It was planned for a possible start in October 2011.	
SR 10/Bristol Fill Bridge - Deck replacement	Delayed
The project advertisement date and completion date have been delayed due to workload.	
SR 155/Electric City Southward – 2012 seal	Delayed
The favorable reevaluation of the Washington Pavement Management System rating moved the construction of this project to be included in the 2013 Chip Seal project.	
SR 172/US 2 Northward – 2012 seal	Delayed
This project was delayed due to coordination.	
SR 193/SR 128 I/S to Wawawai Rd – Chip seal	Delayed
This project was delayed to the 2013 construction season to coordinate with the SR 128 Chip Seal Program for construction efficiencies.	
SR 28/Lakeview Vicinity – Illumination system rebuild	Delayed
Project advertisement delayed to tie with other electrical projects for efficiencies.	
SR 31/Pend Oreille County – Pedestrian improvements	Delayed
Delayed awaiting a change to federal authorizing legislation to fund the project.	
SR 970/SR 903 Spur I/S to US 97 Vicinity – Chip seal	Delayed
Delayed due to regional workload efficiencies.	
SR 99/Lincoln Way Vic to Airport Rd. Vic – Southbound sidewalk	Delayed
An extension in the length of the sidewalk required eight additional parcels of right of way, resulting in a one-year delay of the project's construction.	
US 12/2 Miles E of Mayview Rd to Alpowa Summit – Chip seal	Delayed
The construction delivery was delayed to align with regional work load and tie with other projects.	
US 12/Alpowa Summit to Howell Grade Rd Vicinity – Chip seal	Delayed
The construction delivery was delayed to align with regional work load and tie with other projects.	
US 12/.75 miles E of Clear Creek Falls Viewpoint – Slope stabilization	Delayed
Advertisement was delayed in order to allow more time for a design adjustment resulting from a geotechnical report recommendation.	
US 12/Rimrock Tunnel Vicinity – Stabilize slope	Delayed
Advertisement delayed due to engineering staff availability. The advertisement delay will not impact the construction phase.	
US 12/Waitsburg to Dayton – Chip seal	Delayed
The advertisement was delayed due to staff availability. The advertisement delay will not impact the completion date.	

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds (PEF)

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

October 1 - December 31, 2011

US 195/East Half of Cheney-Spokane Rd – New interchange Severe collisions resulted in a change to the project, delaying the advertisement date.	Delayed
US 2/Bickford Avenue – Intersection safety improvements Ad date delayed due to workforce availability to complete structural design.	Delayed
US 2/Coulee City Eastward – 2012 seal Delayed to allow time for an Americans with Disabilities Act engineering review.	Delayed
US 2/Orondo to Moses Coulee – 2011 seal Delayed due to changed Americans with Disabilities Act requirement interpretations.	Delayed
US 2/Stevens Pass – Variable message signs Delayed to combine with US 2/Replace Variable Message Signs project for contract efficiencies.	Delayed
US 97/Cameron Lake Road - Intersection improvements Project delay is due to development of an updated intersection design to improve turning safety.	Delayed
US 97/Desmond Rd to Lower Green Canyon Rd – Chip seal Delayed due to regional workload efficiencies.	Delayed
SR 21/Curlew Creek – Culvert replacement	Advanced
SR 9/Eaglefield Dr. Intersection – Paving	Advanced
I-405/NE 85th St Interchange – Pedestrian access	Emergent
SR 522/SR 523 Intersection – Pedestrian improvements	Emergent

Data source: WSDOT Capital Program Delivery Management.

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 period being reported but which missed the original ad date.

Emergent

A new project that addresses unexpected needs such as emergency landslide repair.

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.

Cross-Cutting Management Issues

Construction Cost Trends

Construction cost inflation remained low in 2011, continuing the good news for WSDOT as the remaining Nickel and TPA projects are put out for bids. In 2011, WSDOT awarded more than \$1.2 billion dollars in construction contracts, with ten contracts accounting for \$1 billion, or 81% of the total. Bids for contracts awarded in 2011 were \$161 million less than estimated.

Reduced cost inflation rate makes staying on budget easier in 2011

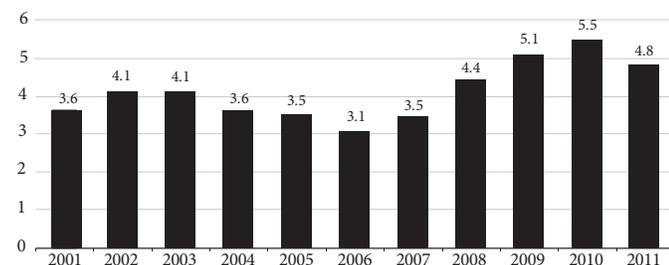
WSDOT tracks construction cost information and calculates a Construction Cost Index (CCI) based on low prices for seven work activities that commonly occur on highway construction projects (see *Gray Notebook 40*, p. 84 for an extended discussion about the CCI and the number of bidders on WSDOT contracts). The weighted index provides an inflation rate for WSDOT's highway construction program as a whole. The graph below shows that WSDOT's CCI increased 5.8% in 2011, which is slightly higher than the predicted rate of inflation used by the agency to estimate the cost of projects, and similar to the trends observed in 2010. The highest rate of inflation observed in WSDOT's CCI occurred when WSDOT began delivering the 2003 Nickel and 2005 Transportation Partnership Act (TPA) programs; this rate then began to slow in 2007. The reduced cost inflation rate is making it easier for WSDOT to stay within budget on remaining projects, especially since project budgets were revised in 2007 to account for increasing construction costs.

Average number of bids falls to 4.8 in 2011

The number of bids WSDOT receives on an advertised project is the best indicator of contractor capacity in the construction sector. When more contractors are interested in bidding on WSDOT projects, the agency tends to receive better prices. In 2011, WSDOT received an average of 4.8 bids per project, which is down slightly from an average of 5.5 bids per project in 2010. Although WSDOT received fewer bids, nearly 80% of contracts had three or more bids. Of the bids received, 70% came in lower than the engineer's estimate.

Bids on large projects valued at \$10 million or more also remained high in 2011. Since 2006, the number of contractors bidding on WSDOT's largest projects has doubled. This increase in the number of contractors available to construct large projects helps WSDOT to deliver the remaining Nickel and TPA projects on time and on budget.

Average number of bidders per WSDOT contract 2001-2011



Data source: WSDOT Construction Office.

Construction Cost Trends Highlights

In 2011, WSDOT awarded over \$1.2 billion in construction contracts.

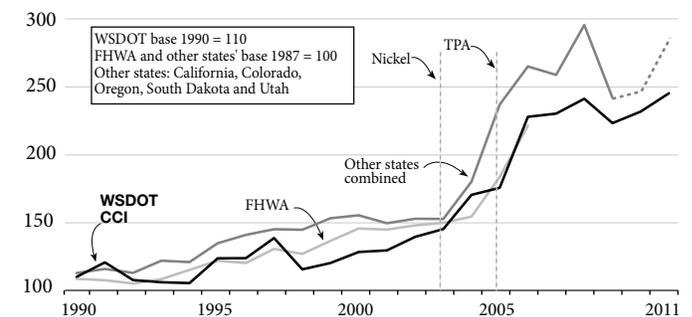
Ten large contracts made up 81% of the total award.

WSDOT received an average of 4.8 bids per project in 2011.

While the average is down from 2010, WSDOT still receives a competitive number of bids and competitive pricing.

WSDOT's CCI increased 5.8% in 2011—slightly higher than the predicted rate used to estimate project costs.

Construction Cost Indices (CCI) Washington state, FHWA, and selected western states 1991-2011



Data source: WSDOT Construction Office.

Note: WSDOT index is for the 2011 calendar year. FHWA index was discontinued in 2007. Other states 2010 are the average of South Dakota and Utah annual data, and Oregon quarters 1 and 2. Other states 2011 data are Utah 2011 calendar year data and Colorado quarters 1, 2 and 3 data. The California index was included until the method of calculation changed in 2010. The 2003 and 2004 WSDOT CCI data points adjusted to correct for spiking bid prices on structural steel.

Cross-cutting Management Issues

Utilities

Utilities Highlights

Of the 22 projects advertised between July 1 and December 31, 2011, one PEF project was assigned Risk Level 3.

There were no Nickel and TPA projects assigned a utilities risk level above Risk Level 1.

Utilities risk levels for 2011

For advertised Nickel, TPA, and PEF Projects

Risk level	Jan-Jun 2011	Jul-Dec 2011
1	9	22
2	3	0
3	3	1

Data source: WSDOT Utilities Office, WSDOT CPDM.

Risk level definitions

Risk Level 1 – Low – Utilities have been relocated, and/or are clear of construction.

Risk Level 2 – Moderate – Utility companies are actively pursuing relocation and WSDOT has assurances the utilities will be clear by the date bids are opened.

Risk Level 3 – High – Utilities have not been relocated, and will not be relocated by the bid opening date that has been cited in the contract provisions. WSDOT has assurance that the utility company will be able to meet the date stipulated on the contract.

Some WSDOT projects present challenges in coordinating construction with existing utilities. Utilities such as water, electricity, sewer, storm drains, telephone lines, cable, and internet locations often need to be accommodated, and sometimes even relocated. WSDOT's goal is to use active planning to avoid such conflicts and potential delays before and during construction.

When existing utilities are in the way of highway construction projects, affected utility companies are given reasonable time to design and relocate facilities. In order to deliver construction projects on time, risk levels related to utilities are assigned to individual projects to better prioritize WSDOT's coordination between engineers, contractors, and utility companies.

WSDOT tracks utility risks for all Nickel, TPA, and PEF projects. For projects advertised between July 1 and December 31, 2011, there was one PEF project at Risk level 3 and no Nickel and TPA projects at Risk Levels 2 and 3. The definitions for different risk levels are provided in the gray box below.

Background information on the project assigned Risk Level 3

Project funded by Pre-Existing Funds Program

US 101 South of Beacon Point Drive–Culvert replacement (Mason)

This project will replace the existing culvert with a steel casing pipe using a trenchless method; it is located on US 101 in Mason County near milepost 316, and covers 0.20 miles. The work will require removing three utility poles and relocating the utilities. The construction will include temporary stream diversion, clearing and grubbing, ditch excavation, embankment construction, and other work. The project was advertised on October 10, 2011 at Risk Level 3. The winning bid came in 14% below the engineer's estimate.

The utility agreements are in place with Mason County PUD and CenturyLink that must relocate their facilities. Mason County PUD has installed anchors on nearby poles so that the wires can be quickly and easily removed before construction begins. WSDOT will contact the Mason County PUD in April 2012 to schedule

the removal of the wires before construction begins. CenturyLink will relocate their lines to new poles on the opposite side of the highway, out of the construction footprint. CenturyLink plans to move the phone lines in April 2012, three months before the work begins. WSDOT will contact CenturyLink to ensure utility relocation work is complete before construction.



US 101 South Beacon Point Drive project will replace the existing culvert to mitigate the failing pipe shown above.

Workforce Level and Training Quarterly Update

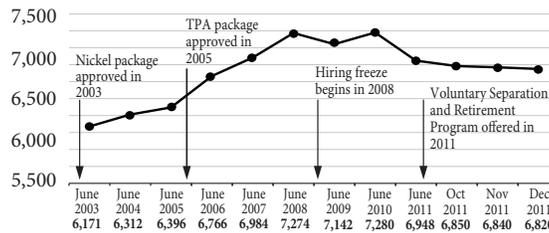
Workforce Level and Learning Management System

On December 31, 2011, WSDOT employed 6,820 permanent full-time employees, 38 fewer than the third quarter ending September 30, 2011. This is 288, or 4.1%, fewer employees than the 7,108 employees at the end of December 2010. About 30% of the decrease from year-end 2010 was due to the voluntary separation and retirement incentive program which concluded in June 2011. Eighty-nine employees accepted the incentive and left state service. More information on the incentive program is in June 2011 *Gray Notebook* 42, page 81.

The chart shows the number of full-time permanent 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) transportation funding package. The current number of permanent full-time employees is 6.3% below the peak level of 7,280 in June 2010.

The total number of full-time equivalencies (FTEs) 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.

Number of permanent full-time employees
From June 2003 to December 2011



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

Workforce Level & Training Highlights

WSDOT employed 6,820 full-time permanent workers as of December 31, 2011, 4.1% below the 7,108 in 2010.

Over 400 employees completed mandatory training online using the new Learning Management System within three weeks of its launch.

Learning Management System online training for mandatory courses is expected to save up to 37% compared to instructor-led training.

Compliance for four of the seven mandatory policy and diversity courses met or exceeded the 90% compliance goal.

New learning management system increases training

The Office of Financial Management and the Department of Enterprise Services have contracted with Sumtotal Systems to provide an enterprise Learning Management System (LMS) for all state agencies. In December 2011, WSDOT began using LMS to manage employee training. LMS will replace the mainframe Automated Training Management System that WSDOT has used in the past. WSDOT's goal is to transition all training management to LMS by the middle of 2012. WSDOT is deploying LMS in stages, starting with employees who were due for sexual harassment awareness and prevention (SHAP) training. More than 1,000 employees needed training and received electronic notification of the assigned course. Within three weeks over 400 employees completed the course online. This increased the completion rate from 82% in the September 30, 2011, quarter (Q3), to 90% by the December 31, 2011 quarter (Q4).

LMS provides 37% cost savings through online courses

Previously, WSDOT instructors led all sexual harassment and awareness prevention courses. This course is mandatory for all WSDOT employees; managers must take a refresher every three years and other employees must take it every five years. About 150 employees become due or overdue for SHAP training every month, totalling 1800 people a year. On average, 25 participants can attend each instructor-led course, requiring at least 72 classes each year to maintain compliance. Each session costs \$600 for instructor wages, benefits, materials, per diem, and travel expenses. The annual cost for the course totals \$43,200, plus expenses incurred by the participants such as travel and wages. The online course offered through LMS costs WSDOT \$15 per participant, for a total of \$27,000, saving the agency \$16,200 annually, or 37%. WSDOT's goal is to offer all mandatory training courses online in order to increase training completion and reduce the costs of employee training.

Workforce Level and Training: Quarterly Update

Mandatory Diversity and Policy Training Compliance

Required training for all employees, by region

Compliance as of December 31, 2011

Course	Ferries	Northwest	North Central	Olympic	Southwest	South Central	Eastern	Headquarters	Total
Disability awareness	91%	94%	89%	95%	97%	94%	92%	92%	93%
Ethical standards ¹	83%	85%	82%	56%	89%	95%	96%	61%	78%
Sexual harassment/discrimination ²	83%	94%	83%	93%	98%	93%	92%	89%	90%
System security awareness	87%	85%	74%	89%	99%	82%	96%	87%	87%
Valuing diversity	91%	96%	88%	95%	97%	95%	92%	94%	94%
Violence that affects the workplace	91%	94%	85%	91%	99%	97%	99%	87%	92%
Information security ³	37%	55%	54%	14%	68%	97%	29%	63%	51%

Data source: WSDOT Office of Human Resources, Staff Development.

1 Training required every three years. 2 Training required every three years for managers; every five years for employees. 3 Training is required annually.

Mandatory training completion improves

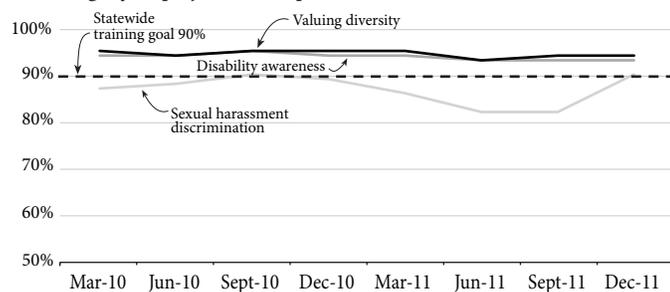
WSDOT employee training completion improved or remained steady for six of the seven mandatory courses for Quarter 4 2011, compared to Quarter 3 2011. The graphs and table on this page show diversity and policy training completion rates.

Diversity training completion

WSDOT conducts mandatory training for employees to educate and inform a diverse workforce on agency policies and methods for maintaining a respectful workplace. Employee training completion for the disability awareness and valuing diversity courses remained above the 90% completion goal at 93% and 94% respectively, for the entire year of 2011.

Required diversity training for all WSDOT employees

Percentage of employees in compliance; March 2010 to December 2011



Data source: WSDOT Human Resources Office, Staff Development.

Policy training completion

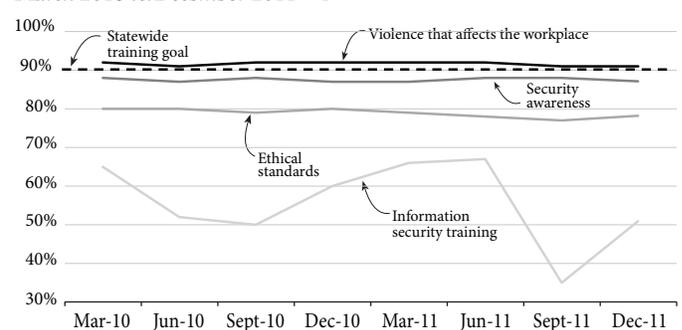
Information security training is required annually for all state employees. Training completion dipped to a low of 35% in Q3, but improved to 51% in Q4.

Completion for the course relating to violence that affects the workplace remained above the 90% completion goal, at 92%. This course has held steady between 91% and 92% over the past two years, in part because refresher courses are not required.

In Q4 2011, completion for ethical standards and system security awareness training were at 78% and 87% respectively, each changing by 1% from Q3 2011.

Required policy training for all WSDOT employees

By percentage of employees in compliance; March 2010 to December 2011



Data Source: WSDOT Human Resources Office, Staff Development.

Worker Safety and Maintenance Training Compliance Data Collection

Transitioning data collection and reporting methods for maintenance and safety training

WSDOT has identified weaknesses in how the maintenance and safety training compliance has been recorded in the mainframe training management system. WSDOT Safety and Maintenance units are partnering with Human Resources to improve WSDOT's reporting of safety and maintenance training. This will be accomplished through new data collection processes, and will use LMS as it is deployed to the entire agency for all training management functions.

WSDOT will be training managers in the new LMS, beginning in March 2012. The primary anticipated benefits for the Maintenance and Safety units include that the interface is easier to use, and the technology is web-based and available on and off site, allowing them to report training needs and completion as it occurs, which may fall outside of normal office business hours.

Existing data documenting maintenance and safety training completed to date will be reviewed and input into LMS as it is verified, to retain the training compliance status of employees.

During the transition between ATMS and LMS, WSDOT will not be able to comprehensively report on maintenance and safety training compliance. However, WSDOT will report on the progress of the transition in *Gray Notebook 46*.



WSDOT Office of Emergency Management conducts aerial search and rescue training.



WSDOT maintenance ESA field best management practices course conducted in Northwest Region at the Monroe Pit Site in 2011.

Transportation Research Annual Report

Strategic Transportation Research and Funding

Transportation Research Highlights

WSDOT has 80 research projects, worth about \$7.6 million in progress during the 2011-2013 biennium.

25% of State Planning and Research (SPR) funds are spent on transportation research, development, and technology transfer.

65% of the total research funds received go to Washington universities.

Research on bituminous surface treatments (BST) or “chip seal” paving saved WSDOT more than \$28 million in the past six years.

WSDOT benefits from research partnerships with a wide range of groups, from universities to state and national research organizations.

Research projects target all six transportation policy goal areas.

More information on WSDOT research projects can be found on research website at www.wsdot.wa.gov/research/.

WSDOT is a nationally recognized leader in developing transportation innovations, technologies, and best practices. WSDOTs’ work is often the focus of studies by other agencies across the nation. Transportation research provides information and innovation for Washington’s transportation system. Research helps WSDOT build better roads and bridges, create safer and more efficient travel, develop innovative and less expensive ways to construct or rehabilitate the system, and improve our understanding of emerging issues affecting the transportation system. For more information on WSDOT involvement on the national research front, please see page 93 of the December 2010 *Gray Notebook 40*.

WSDOT’s research program provides specialized research and information that leads to innovation while saving time and money. For example, in 2011, stormwater best management practices research led to flow control exemptions that save WSDOT an estimated \$200 million or more in related construction costs.

Funding for transportation research

WSDOT’s transportation research is funded primarily from federal sources with state match requirements. Research investments total \$7.6 million in the 2011-2013 biennium, involving 80 research projects.

To maximize funding, WSDOT seeks partnerships with other agencies and sponsors to support research projects.

Total value of 2011-2013 research projects

Number of projects by funding source

Funding source	Amount	Projects
State Planning & Research (SPR) Fund	\$4,052,035	49
Client-sponsored research	\$2,714,789	17
Transportation Pooled Fund projects	\$870,000	14
Total all funding sources	\$7,636,824	80

Data source: WSDOT Research Office.

WSDOT supported research results

The projects highlighted by policy goal area are some of the most recent research that helped towards WSDOT’s goals.

Transportation policy goal: Safety

Testing innovative technology to improve roadway safety

Mobile LiDAR is a vehicle-mounted Light Detection and Ranging (LiDAR) technology that captures geospatial data at highway speeds. The new tool’s capabilities would improve the efficiency and accuracy of WSDOT’s data collection and survey operations. It also minimizes safety risks to highway workers by limiting their exposure to highway traffic. More research is needed to determine if the technology helps avoid duplication in data collection that may result in savings and efficiencies. This research was performed between July 2010 and July 2011 with \$60,000.

Strategic Planning & Research fund distribution

For 2011-2013 biennium approved projects

Safety	\$325,000
Preservation	\$1,687,000
Mobility/Congestion Relief	\$440,000
Environment	\$1,028,035
Stewardship	\$235,000
Economic Vitality	\$337,000
Total all funded projects	\$4,052,035

Data source: WSDOT Research Office.

Strategic Research by Transportation Policy Goal

Number of WSDOT research projects planned

Projects with State Planning & Research funding only; 2011-2013

New research projects planned for the biennium	27
Research projects continued from previous biennium	22
Research projects started	45
Research projects completed	7
Research projects cancelled	0
Research projects on schedule	49
Research projects on budget	100%

Data source: WSDOT Research Office.

Transportation policy goal: Preservation

Bituminous surface treatments (BST) or “chip seal” paving saves money

WSDOT chip seals (or BSTs – bituminous surface treatments) continue to evolve in specification and in application. Research on chip seals conducted by WSDOT and the University of Washington resulted in a change to the agency policy for pavement preservation. (For more details on this research, see June 2009 *Gray Notebook 34*, page 117.) WSDOT now applies, by policy, chip seals to most routes with average daily traffic volumes up to 5,000 vehicles a day. WSDOT has saved more than \$28 million in the past six years by converting low-volume HMA pavements with sufficient structural capacity to chip seal routes. This research was performed between December 2009 and December 2011 with \$60,000.

Transportation policy goal: Mobility

Bluetooth Media Access Control (MAC) address matching – an effective, low-cost way to collect travel time data

Roadway users understand travel time as one of the most important transportation metrics. A new methodology for obtaining travel time measurements relies on recording the MAC addresses of the Bluetooth-enabled devices passing by one location, and noting the time difference when those matching MAC addresses pass by a different location. This approach is popular because it has significantly lower overall costs, easy deployment, and has fewer privacy concerns compared to traditional methods. Bluetooth-based data collection technology opens doors for more affordable, project-specific data. This research was performed between April 2009 and December 2011 with \$125,000.

Transportation policy goal: Environment

Stormwater Best Management Practices

WSDOT has conducted multiple research projects on stormwater treatment that have resulted in changes in practice. Flow control exemptions are estimated to have saved over \$200 million in pond-related construction costs for western Washington transportation projects. Recently, the Department of Ecology approved a compost-amended bioswale design for general use as a basic and/or enhanced stormwater treatment. This ongoing research started in July 2005, \$250,000 has been spent to date.

Transportation policy goal: Economic vitality

Economic impact of truck congestion in Washington contributes to higher priced goods

Recently completed research quantifies the estimated economic impact of truck congestion in Washington. Data from a survey of freight-dependent businesses was used to model the costs of congestion and estimate the annual economic impact of increased congestion. Research results indicate that a 20% increase in congestion could result in a loss of \$3.3 billion in total output (in 2011 dollars) and a loss of over 27,000 jobs. This research was performed between October 2010 and December 2011 with \$130,000.

Transportation policy goal: Stewardship

Critical infrastructure types vulnerable to climate impacts assessed

This research project evaluated future regional climate scenarios. Results provided a preliminary vulnerability assessment of the risks climate change poses to the surface transportation infrastructure system in the Pacific Northwest and Alaska region.

This research gives transportation professionals and policy makers information about regional climate change impacts and an understanding of the transportation system’s vulnerabilities. Key focus areas included:

- Developing quantitative risk assessment models
- Data and modeling for refining future vulnerability and risk analysis
- Scenario models
- Database integration with GIS for specific vulnerability zones
- Evaluating existing tools to integrate regional data.

This research was performed between January 2010 and January 2012 with \$200,000, of which WSDOT contributed \$25,000.

WSDOT *Lean* Special Report

WSDOT *Lean* Highlights

WSDOT is adapting the *Lean* philosophy to continue to improve the agency's efficiency.

WSDOT is currently implementing several *Lean* projects in various divisions throughout the agency.

WSDOT is implementing *Lean* processes to reduce the collision data backlog to prevent it from growing to 11 months in the 2011-13 biennium.

WSDOT has implemented the *Lean* process to automate the collection of maintenance data.

In December 2011, the Governor directed all executive cabinet agencies throughout state government to use *Lean* principles and methods to improve value for taxpayers' money. Many state agencies have been using *Lean* tools with good results (for more information, see Executive Order 11-04 online at www.governor.wa.gov/execorders/eo_11-04.pdf.)

WSDOT has a long-standing history of using management tools to improve efficiency within the department. *Lean* is an improvement system and philosophy that will help improve delivery of excellent services and programs to the state. Based on the Toyota Production System, *Lean* provides methods and tools that encourage creativity and problem-solving skills. Many Washington businesses and health care industries have discovered the value of *Lean* as a way of doing business and garnered the rewards.

Lean is not a test for job performance; rather, it seeks to improve the entire agency's performance. *Lean* initiatives often improve staff morale, as employees have a hand in designing work processes that enable success.

WSDOT's *Lean* pilot projects

Lean practices are being adapted throughout WSDOT to improve efficiency, lower costs, and improve agency performance. WSDOT has developed several *Lean* pilot projects for the 2011-2013 biennium, such as: reducing the collision data backlog, improving the payment process and supply management, and automating maintenance data collection.

Lean project: Reduce the collision data backlog

The Statewide Travel and Collision Data Office (STCDO) is working to implement *Lean* practices through a project that will streamline WSDOT's process for adding collision data into the Collision Location and Analysis System (CLAS). The anticipated result will be a reduction in the collision data backlog. This project aligns with WSDOT's Strategic Plan, as a key component of the agency's safety objectives are prioritization of safety projects, which collision data directly supports.

Before 2000, Washington State Patrol (WSP) processed all collision data reports and the backlog was in excess of four years, with 1996 data being the most current year with complete data sets available for analysis. Collision records for 1996 and earlier years had duplication and data quality issues. In 2000, WSDOT began processing state route collisions to improve the timeliness and accuracy of collision data. Legislation was passed, transferring the responsibility for a statewide collision database to WSDOT.

WSDOT's goal was to bring the collision data backlog down to two months, doing so by 2006. Due to reduced budgets and staffing, the current backlog has grown to about seven months. It is estimated that for every collision coding FTE lost, the data backlog increases by one month a year or two months each biennium. By June 30, 2012, the backlog is expected to grow to nine months and by the end of the 2011-2013 biennium, it is expected to reach 11 months.



WSDOT's Statewide Travel and Collision Data Office is implementing the *Lean* process to make sure collision reports are recorded in a database in a timely manner.

Lean project: Improve the payment process and supply management

WSDOT's Procurement and Materials Management office instituted the *Lean* philosophy several years ago in response to emerging professional best practices learned through association with organizations such as the National Institute of Governmental Purchasing and the Institute for Supply Management. *Lean* has long been associated with supply management and logistics disciplines. The following are examples of *Lean* projects:

- Streamlining the payment process for small purchases by using purchasing cards has resulted in improved service to customers, higher inventory turn rates, rapid payment to suppliers (2-3 days), and \$600,000/year in rebates.
- Implementing a supply management business model to reduce regional process variations and better manage WSDOT inventory. Doing so has reduced inventory adjustments by 72%, improved data quality, and higher satisfaction with inventory systems and information.

In addition team members continue to take professional education courses that include *Lean* concepts, the status of *Lean* projects are monitored and reported, and the procurement and materials management business plan includes *Lean* projects and performance objectives aligned with the WSDOT Strategic Plan.



WSDOT's Procurement and Materials Management Office has streamlined the payment process through the use of WSDOT purchasing cards (pictured).

Lean project: Automate maintenance data collection

WSDOT's Maintenance office has implemented *Lean* practices over the past several years, through development of a system that automatically collects detailed information about maintenance activities from maintenance equipment and electronically transmits it to an information management system. While this system was initially developed to track snow and ice control activities, it is flexible and is being expanded into the fields of incident response, vegetation management, and drainage facility maintenance.

The current project is called Automated Data Collection on Highway Maintenance Equipment. This project's goal is to determine if program efficiencies can be gained through the improved standardization of controllers, data devices, and vendors. By standardizing controllers, mechanics would be working with less varied equipment and could perform work from truck to truck without employing different procedures for different trucks and controllers. By standardizing data devices, equipment operators need to become proficient with fewer types of devices rather than working with many different types as they change trucks.

This project is aligned with WSDOT's Strategic Plan and will help achieve "Stewardship Objective 5.3. Information Technology and Decision Support Systems". (See *Business Directions: WSDOT's 2011-2017 Strategic Plan* for more information www.wsdot.wa.gov/Accountability/PerformanceReporting/StrategicPlan.htm.)



WSDOT's Maintenance Operations Division is implementing *Lean* practices through automation of data collection with maintenance equipment.

Highlights of Program Activities

For the quarter ending December 31, 2011

Project starts, updates, and completions

Project starts

I-5 West Coast Electric Highway Bellingham (Whatcom)

Construction started on the state's first public charging station that can recharge electric vehicles in 30 minutes. It's the first sign of a border-to-border network of public electric-vehicle charging stations and the first stop on Washington's segment of the West Coast Electric Highway along 276 miles of I-5 between the state's borders with Oregon and Canada. The Electric Highway is part of the West Coast Green Highway, a three-state initiative to promote the use of cleaner fuels along the 1,350 miles of I-5 from British Columbia to Baja California in Mexico.

On December 28, WSDOT officials joined Bellingham Mayor Dan Pike and local business leaders to celebrate a ground breaking for the state's first fast charger. Mayor Pike said he was eager to join WSDOT and charging station manufacturer and operator AeroVironment Inc. to open the first public fast-charging station in the state. WSDOT extended AeroVironment's project deadline from November 2011 to March 2012, due to delays encountered when identifying the sites and obtaining lease agreements. The station will provide a 30-minute recharge for all-electric cars such as the Nissan Leaf and Mitsubishi iMiEV, and a Level 2 "medium-speed" charging pedestal for other plug-in vehicles, such as the Ford Focus and Chevy Volt.

SR 520 Tolling (King)

Tolling began on the SR 520 bridge at 5 a.m. on December 29. This is the first time that Washington state has implemented all-electronic tolling, which uses the *Good To Go!* transponder to charge drivers the current toll rate. While the *Good To Go!* pass is the primary mechanism for paying tolls, drivers have a range of other choices. Drivers can cross the bridge without a pass for a photo-toll rate of \$1.50 more than the *Good To Go!* rate each way. This Pay By Mail option uses a license-plate identification system and mails a bill to the vehicle's registered owner for the highest current toll rate each time the vehicle crosses the bridge. Drivers without a pass can save 50 cents on Pay By Mail tolls by registering their license plate with *Good To Go!*

WSDOT is working with local agencies and monitoring traffic flow and signal performance to determine if adjustments on other roadways are appropriate. Traffic engineers collect daily traffic data from 34 key locations on state highways and 28 monitoring points on streets in Seattle, Bothell, Kenmore, Kirkland, Redmond and Woodinville. They will track travel times, signal coordination, and traffic behavior on I-405, I-5, I-90, SR 520, and SR 522, as well as on numerous ramps and local roads.

Tolling on the SR 520 floating bridge is expected to raise \$1 billion toward the \$4.65 billion SR 520 Bridge Replacement and HOV program, which builds 12.8 miles of safety and mobility improvements from I-5 in Seattle to SR 202 in Redmond.

Project Updates

U.S. 2 Trestle (Snohomish)

Construction to repair more than 844 damaged girders that support the westbound lanes of the U.S. 2 trestle wrapped up as planned in October after four-and-a-half months of lane and ramp closures. Crews were able to complete the work with 25 night closures, less than half the 65 planned closures. This construction project is one of several planned for U.S. 2 in Snohomish County in the next year. This winter, crews will begin building a roundabout at Rice Road in Sultan to improve traffic flow and safety. Next summer, construction will begin on a new overcrossing from Bickford Avenue to westbound U.S. 2.



Inspection and repairs of the U.S. 2 trestle girders occurs from temporary platforms suspended underneath the bridge.

I-5 Centralia (Lewis)

I-5 near Centralia is faster and wider as of November 4, when crews opened a brand-new third lane of I-5 in both directions and increased the speed limit to 70 mph. WSDOT and contractor Tri-State Construction, Inc. have been working for the past year and a half to remove a bottleneck and alleviate congestion on I-5 between the Blakeslee railroad junction and Grand Mound interchange.

Just north of the widening project, crews are working to replace the U.S. 12 interchange at Grand Mound. This project is occurring five months after I-5 was widened in Thurston County from two to three lanes in both directions between Grand Mound and Maytown. WSDOT is investing \$390 million from the 2003 and 2005 gas-tax packages in four projects to improve traffic flow and safety along 18 miles of I-5 in Lewis and Thurston counties. The I-5, Mellen Street to Blakeslee Junction project is scheduled to begin construction next summer, and it will be the fourth and final project in this series.

For the quarter ending December 31, 2011

SR 99 Alaskan Way Viaduct (King)

The Alaskan Way Viaduct reopened between the West Seattle Bridge and the Battery Street Tunnel nearly two days ahead of schedule on October 29. In less than eight days, demolition and construction crews reduced a 2,825-foot-long stretch of double-decked highway to thousands of tons of concrete rubble and steel rebar. Drivers now travel on a new, temporary construction bypass that serves an estimated 110,000 vehicles a day, while construction on a tunnel to replace the seismically vulnerable SR 99 viaduct continues through the end of 2015.

To raise awareness of the extended closure, WSDOT sponsored a contest allowing one lucky person and 24 of their friends to win exclusive access to the viaduct's downtown section for 30 minutes. Two celebrated Seattle outfits were chosen out of nearly 600 creative entries for "One Last Shot" to express themselves on the viaduct before it started coming down. Rat City Rollergirls members, decked out in roller derby gear, used their 30 minutes to speed skate and "bout" along several blocks of the viaduct, while the Seattle Cossacks built human pyramids and performed stunts with their vintage Harley-Davidson motorcycles. The contest winners helped Governor Gregoire kick off the viaduct demolition on October 22.



The Rat City Rollergirls and Seattle Cossacks perform on the Alaskan Way Viaduct during the "One Last Shot" demolition celebration.

U.S. 395 North Spokane Corridor (Spokane)

A new interchange opened November 16, on the North Spokane Corridor (NSC) just north of Spokane for a smoother, safer transition between U.S. 2 and U.S. 395. Contractor crews built five new vehicle bridges and one pedestrian-bicycle bridge along the NSC, and built a 30-foot arch culvert at Deadman Creek beneath U.S. 2. The new culvert creates a better stream for fish and a safer crossing for resident deer, elk, and moose. The Legislature provided \$43 million for this project in the 2003 "Nickel" transportation funding program.

Project completions

SR 20 Red Cabin Creek Bridge (Skagit)

During every major storm for the last several years, crews have had to battle Red Cabin Creek to keep SR 20 open near Lyman. Heavy rain and debris would plug a culvert and flood the highway, causing big headaches for crews and drivers. Now, a new bridge is open over the troubled creek that will keep the highway open during storms. WSDOT and contractor Interwest Construction Inc. of Burlington opened the new bridge on October 6. The new bridge means safer passage for both drivers and fish. The new streambed should help numerous species of fish move upstream to spawning grounds, including cutthroat and rainbow trout, coho, Chinook and chum salmon. The project cost was \$5.1 million.

For additional projects completed by December 31, 2011, see pages 60-65.

Ferries

New ferry vessels named "Significant Boats of 2011"

WorkBoat Magazine honored the *Chetzemoka*, *Salish*, and *Kennewick* ferries by naming the vessels Significant Boats of 2011. The maritime industry publication notified WSF in early November that the three 64-car vessels were among the 50 boats nominated for the prestigious annual award. Each year, the magazine's editors review the boats they've featured in the magazine and choose 10 deserving special recognition. They announced the winners at the International WorkBoat Show in New Orleans on November 30, and will feature the vessels in the January 2012 issue of *WorkBoat Magazine*. For additional updates on ferry construction, see page 67.

Aviation

Improvements started at Methow Valley State Airport

A series of runway closures began in October at Methow Valley State Airport as crews started construction on several projects that will improve safety at the airport. The projects will upgrade lighting, remove obstructions, install fencing, and improve runway safety areas. Methow is one of 17 airports operated by WSDOT, and is the only state-operated airport eligible for federal funds. The Federal Aviation Administration provided most of the funding for the \$972,750 project.

Three WSDOT airports to remain open year-round

In November, WSDOT announced that the Lower Monumental, Lower Granite, and Little Goose airports along the Snake River in Walla Walla, Whitman, and Spokane counties, will remain

Highlights of Program Activities

For the quarter ending December 31, 2011

open year-round. These airports have typically closed between October and June. WSDOT and the U.S. Army Corps of Engineers weighed a number of factors, including interest by pilots and recreational organizations, when making the decision to keep these airports open all year. Nine of the 17 WSDOT-operated airports are currently closed for the winter for several reasons such as snow accumulations on airport runways, lease agreements, and state law requirements. While the Lower Monumental, Lower Granite, and Little Goose airports are not scheduled to close, pilots should review the latest Notices to Airmen (NOTAM) and check WSDOT's state-operated airports website for updated information when planning travel.

Rail

Rail funding advances King Street Station restoration

King Street Station, with its grand interior and ornate decorative features, first opened in May 1906. On November 21, 2011, WSDOT and the Federal Railroad Administration (FRA) signed agreements securing \$16.7 million in federal high-speed-rail funds to support the next phase of the King Street Station restoration project; construction will start in March 2012. The station is the busiest in the Pacific Northwest, serving nearly half a million Amtrak *Cascades* passengers in 2010. The investment will strengthen King Street Station and its clock tower to better withstand earthquakes, restore the historical features of the station's main hall, and upgrade electrical, mechanical, and plumbing systems to modern standards. To restore the main hall to its original grandeur, the building's white marble walls, decorative lighting, and other features removed during "modernization" of the station more than 50 years ago, will be rehabilitated or replaced. Changes to both the Jackson Street and the King Street entrances will significantly improve public access to the station.

Since 2008, nearly \$30 million in federal, state, and local funding has been invested in restoration and improvements to bring back the station's historic character. This includes replacing the station's roof with historically accurate terra-cotta tiles, repairs to the four tower clocks to make them operational, and a more pedestrian-friendly Jackson Street plaza. The city is using current sustainability practices wherever possible, adhering to Leadership in Energy and



Photo courtesy of Allie Gerlach, SDOT.

Environmental Design (LEED) criteria. The ongoing effort at King Street Station is a partnership between WSDOT, FRA, Amtrak, Federal Transit Administration, and the city of Seattle.

Traveler Information and Safety

Ferry estimated arrival times now available online

Washington State Ferries (WSF) launched a new feature in December that gives customers the estimated time of arrival (ETA) for vessels throughout the system. The system calculates ETA based on a vessel's current location, departure terminal, and destination. It compares the GPS and historical sailing data to the record of similar vessels at similar locations along the same route. Factors such as weather and marine traffic conditions can affect the ETA calculations. This new feature joins the customer web-based toolkit, which includes VesselWatch, best travel times, and terminal cameras; ETA data is available at the bottom of the WSF VesselWatch page.

Public Transportation

Federal grants to help Washington veterans

Washington's military veterans will be among the first in the country to benefit from on-demand transportation options and upgrades funded by a new federal grant program. The grants aim to meet the transportation needs of veterans with disabilities and those who live where transportation options are limited. The Federal Transit Administration announced on November 10 that WSDOT will receive three grants totaling more than \$737,000 to be distributed to selected veterans' transportation projects. The three grants administered by WSDOT, plus a fourth grant awarded to Pierce County, add up to nearly \$1 million to improve affordable, accessible transportation options for veterans in Washington. (These projects are among 55 in the U.S. and Guam receiving a total of \$35 million in grant funding.)

- \$168,000 for Hopelink One Stop Access in King County with a new smart phone app and one-click website to connect veterans to community transportation providers.
- \$130,315 for the Human Services Council Veterans Transportation Technology Improvement Project, a one-call/one-click transportation resource center that will ease access and improve ride scheduling for veteran families on various transportation programs in the region.
- \$438,776 for Paratransit Services, to turn an existing call center into a one-call/one-click transportation service connected directly to systems at regional Veterans Administration hospitals and additional transportation providers.

For the quarter ending December 31, 2011

Announcements, awards, and events

Commute Smart Awards celebrates 20 years

Two decades of saving commuters money, curbing air pollution, conserving fuel, and easing traffic congestion were celebrated at the 2011 Governor's Commute Smart Awards. The Governor's Chief of Staff Marty Loesch and state Transportation Secretary Paula Hammond joined award winners to celebrate 20 years of smart commuting through workplace programs. The programs support more than 810,000 commuters across the state, empowering them to reduce their driving by 170 million vehicle miles annually. The Commute Smart Awards recognize innovation and dedication by communities, businesses, agencies, and workplace transportation coordinators as they promote ridesharing and other alternatives to driving alone. Vehicle emissions account for nearly half the greenhouse gas (GHG) released in our state. Since 2007, CTR participants have prevented about 69,000 metric tons of GHG from entering the atmosphere each year. That is the weight of eight Space Needles.



Tacoma Lutheran Retirement Community was one of several Commute Smart Employer Champions.

I-5 congestion relief work wins national award

Fast action by an innovative partnership reduced a northbound traffic surge on I-5 in Pierce and Thurston counties last year – and won a \$10,000 donation to a state charity. WSDOT's I-5 Partnership to Relieve Congestion won the coveted America's Transportation Awards "People's Choice" prize. The project alleviated morning backups on I-5 between Lacey and DuPont by retiming area traffic signals, increasing WSDOT incident

response team presence, and reopening the Mounts Road Gate to Joint Base Lewis-McChord during peak commute times. The award was presented during the AASHTO annual meeting on October 16, in Detroit, Michigan. WSDOT earned more than 42% of the popular vote, topping a field of ten finalists. WSDOT donated the \$10,000 prize money to the WSDOT Memorial Foundation, a nonprofit organization created to preserve the memory of transportation workers killed on the job, and help support active and retired WSDOT employees and their families.

Forty projects from 29 states competed for this year's America's Transportation Awards. Of the 147,000 votes cast for the top-10 nominated projects, 62,000 went to WSDOT for its first "People's Choice" award. It was WSDOT's third showing in the top 10 in the last four years.

Contractors recognized for inclusion of small and disadvantaged businesses

WSDOT, the Port of Seattle, and Sound Transit honored contractors for their outreach to and inclusion of small and disadvantaged businesses in construction projects. The agencies presented their "Champion of Inclusion" awards at an event on November 16, at the Port of Seattle:

- WSDOT recognized Seattle Tunnel Partners, the design-builder for the SR 99 Tunnel Project in Seattle for its innovative efforts to team up with small businesses and those owned by minorities and women on their \$1.35 billion contract. Within the first year of a six-year contract, the tunnel team awarded contracts worth \$8 million to 30 qualified firms and has recruited firms in non-traditional areas for design-build projects, such as architecture and design.
- Manson Construction Co. is the Port of Seattle's "Champion of Inclusion" award recipient. For many years, the marine construction and dredging company has demonstrated their commitment to using small businesses and providing contracting opportunities to small firms. Manson Construction sponsors small business training classes and seminars designed to educate and contribute to the success and growth of small firms in the Puget Sound region.
- Sound Transit honored Parsons Brinckerhoff, a global infrastructure consulting firm, for involving small and disadvantaged businesses in Link light rail construction projects. On its two contracts with Sound Transit, Parsons Brinckerhoff achieved 32.4% and 36.7% small and disadvantaged business participation rates, exceeding its goals.

Gray Notebook 10th Anniversary Celebration

Edition 4: December 31, 2001

This is the final article in a series looking back at the measures published in WSDOT's first year of accountability and performance reporting in the Gray Notebook. All previous editions of the Gray Notebook may be browsed online at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm; measures and topics may be searched at www.wsdot.wa.gov/Accountability/GrayNotebook/SubjectIndex.htm.

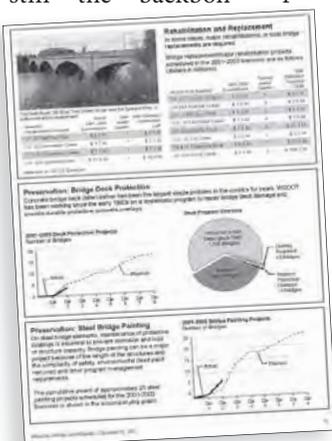
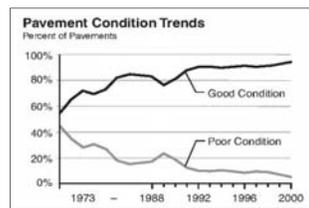
The fourth edition, published in February 2002, capped the first full year of *Gray Notebook* reporting. It added a dozen pages, with content that ranged across 15 programs and activities. New articles introduced topics that remain important to WSDOT and Washington's citizens ten years later, such as water quality (most recently covered in the March 2011 *GNB 41*) and bridge condition assessments (in the June 2011 *GNB 42*).

New measures and analysis appeared in many existing articles, such as worker safety (planned safety activities); highway construction (cash flow and the value of projects under construction); commute trip reduction (comparing commuting trends at Seattle workplaces with and without CTR sites); and the Ferries quarterly update (a comparison of vehicle ferry fares nationwide). The highway maintenance program delivery article featured a short report on snow and ice control, plus analysis of "failed maintenance activity targets for 2001" that included information on WSDOT's planned corrective actions.



Pavement conditions on state highways introduced

The first article on pavement condition explained the lowest life cycle cost model and how WSDOT uses it to determine when a stretch of pavement is due for rehabilitation or repair. Pavement performance was reported in terms of condition trends, rehabilitation needs from 1997 through 2003, and roadway smoothness. While noting that Washington ranked tenth nationally using the International Roughness Index, the article pointed out that WSDOT measured its pavement performance using two additional ratings: pavement structural condition and rutting. The measures are still the backbone of WSDOT's pavement program (see pages 10-16).

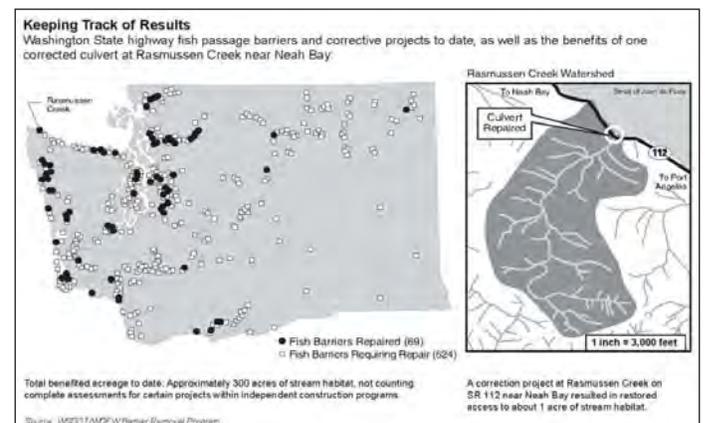


Bridge condition reporting launched in GNB 4

Another important preservation topic, bridge condition assessment, was also introduced in *GNB 4*, with graphs, tables, and photographs to help readers understand the many elements affecting bridge condition. A key concern at the time was the number of bridges built in the early years of the interstate

program – aging structures which would soon be likely to need more repairs or even replacement. The concrete decks of almost 1,000 bridges were being monitored, and a two-year program of deck protection projects was set out in graphs. Today, deck condition is an important part of WSDOT's bridge rating system.

Environmental reporting began with water quality



The first article on WSDOT's environmental programs included a discussion of water quality and the fish passage barrier removal program. The report explained how WSDOT works with Washington's Department of Fish & Wildlife to identify and prioritize barriers in the state highway system that prevent fish from reaching spawning grounds; a map showed the location of barriers and details of an improved watershed at Rasmussen Creek. The latest inventory of barriers and corrective projects is reported in this quarter's edition (see pages 36-37).

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. 91-96) to find earlier coverage; all previous editions are available online at www.wsdot.wa.gov/accountability.

Navigating the WSDOT Information Stream

Navigating the Information Stream

Through more than 40 editions, in fact ten 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.

Gray Notebook Subject Index

Calendar year	Edition number / date (Washington state fiscal year & quarter)			
2001	1 / Mar 31, 2001 (FY01 Q3)	2 / June 30, 2001 (FY01 Q4)	3 / Sept 30, 2001 (FY02 Q1)	4 / Dec 31, 2001 (FY02 Q2)
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)
2004	13 / Mar 31, 2004 (FY04 Q3)	14 / June 30, 2004 (FY04 Q4)	15 / Sept 30, 2004 (FY05 Q1)	16 / Dec 31, 2004 (FY05 Q2)
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)
2006	21 / Mar 31, 2006 (FY06 Q3)	22 / June 30, 2006 (FY06 Q4)	23 / Sept 30, 2006 (FY07 Q1)	24 / Dec 31, 2006 (FY07 Q2)
2007	25 / Mar 31, 2007 (FY07 Q3)	26 / June 30, 2007 (FY07 Q4)	27 / Sept 30, 2007 (FY08 Q1)	28 / Dec 31, 2007 (FY08 Q2)
2008	29 / Mar 31, 2008 (FY08 Q3)	30 / June 30, 2008 (FY08 Q4)	31 / Sept 30, 2008 (FY09 Q1)	32 / Dec 31, 2008 (FY09 Q2)
2009	33 / Mar 31, 2009 (FY09 Q3)	34 / June 30, 2009 (FY09 Q4)	35 / Sept 30, 2009 (FY10 Q1)	36 / Dec 31, 2009 (FY10 Q2)
2010	37 / Mar 31, 2010 (FY10 Q3)	38 / June 30, 2010 (FY10 Q4)	39 / Sept 30, 2010 (FY11 Q1)	40 / Dec 31, 2010 (FY11 Q2)
2011	41 / Mar 31, 2011 (FY11 Q3)	42 / June 30, 2011 (FY11 Q4)	43 / Sept 30, 2011 (FY12 Q1)	44 / Dec 31, 2011 (FY12 Q2)

Edition ranges (e.g. 3-12) include first and last edition in the range. All editions can be accessed at:
www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm

Topic (Edition)

Aviation

- Air Cargo (25, 29, 33, 37, 41)
- Air Search and Rescue (6, 13, 17, 26, 29, 33, 37, 43)
- Airport Aid Grant Program: Amount Awarded (6, 13, 17, 21, 25, 29, 33, 37, 43)
- Airport Land Use Compatibility and Technical Assistance (21, 25, 29)
- Airport Pavement Conditions (17, 21, 25, 29, 33)
- Airports in Washington (6, 13, 17)
- Aviation System Planning (17, 43)
- Fuel: Taxable Gallons (6)
- Project Delivery (21, 25, 29, 33, 37, 43)
- Registrations of Pilots, Mechanics or Aircraft (6, 10, 13, 17, 21, 25, 29, 33, 37, 43)
- Registration Revenue (10, 13, 17)
- Training of Pilots and Mechanics (6)

Benchmarks (RCW 47.01.012)

- Administrative Efficiency (9, 14, 18, 22)
- Bridge Condition Goal (14, 18, 22)
- Non-Auto Share Commute Trips Goal (14, 18, 22)
- Pavement Goal (14, 18, 22)
- Transit Efficiency (9, 14, 18, 22)
- Safety Goal (14, 18, 22)
- Vehicle Miles Traveled (VMT) per Capita (9, 14, 18, 22)

Bridge Conditions on State Highways

- Age of WSDOT Bridges (4, 38)
- Bridge Ratings (FHWA): Structurally Deficient and Functionally Obsolete (4, 26, 30, 34, 38, 42)
- Bridge Condition Ratings and Safety (26, 30, 34, 42)
- Bridge Condition Ratings: State Comparison (8, 30)
- Bridge Replacements (19, 23, 26, 30, 34, 38, 42)
- Bridge Structural Condition Ratings (11, 15, 19, 22, 23, 26, 30, 34, 38, 42)
- Deck Condition Rating (26, 38, 42)
- Deck Protection Program: Overview (4, 8, 11, 15, 23, 26, 30, 34, 38, 42)
- Deck Protection Projects: Planned vs. Actual Projects (4, 5, 8, 11, 15, 23, 26, 30, 34, 38, 42)
- Floating Bridge Preservation (38, 39)
- Hood Canal Bridge Update (11-35)
- Inspection Program (4, 11, 15, 19, 23, 26, 38, 42)
- Inventory of WSDOT Bridges (4, 5, 8, 11, 15, 19, 23, 26, 30, 34, 38, 42)
- Movable Bridge Repair (19, 26, 30, 42)
- Preservation Program Results (11, 15, 19)
- Rehabilitation and Replacement Project Schedule (4, 11, 15, 19, 23, 26, 30, 34)
- Repairs (19, 23, 26, 30, 34, 38, 42)

Topic (Edition)

Bridge Conditions, continued

- Risk Reduction (19, 23, 26, 30, 34, 38, 42)
- Scour Mitigation (4, 11, 15, 19, 23, 26, 30, 34, 42)
- Seismic Retrofit Program**
 - 1990-2020 Status (4, 8, 22, 23, 30)
 - Planned vs. Actual Projects (4, 5, 8, 11, 15, 23, 26, 30, 34, 38)
 - Risk Reduction (19, 23, 26, 30, 34)
 - Top 10 Priority Bridges (4, 8)
 - Transportation Partnership Account Bridges (26, 34, 38)
- Steel Bridge Painting (4, 5, 8, 11, 15, 26, 30, 34, 38, 42)
- Tacoma Narrows Bridge Update (8-28)

Commute Options

- City Case Studies (19, 35*, 38)
- Commute Mode Share Trends (4, 6, 7, 13, 39*)
- Commute Option Strategies (15, 19, 33, 38, 39*, 42*)
- Commute Trip Reduction**
 - Award for the Commute Trip Reduction Program (6, 11)
 - Commute Trip Reduction Efficiency Act (27)
 - Commuting Trends at CTR Work Sites and Work Sites in General (4, 19, 22, 23, 27, 38, 39*)
 - CTR Task Force Report: Biennial Results (4, 13)
 - Effectiveness of CTR Program Biennial Results (4)
 - Growth Transportation & Efficiency Centers (GTECs) (27, 31, 33, 35*, 38, 39*)

- Drive Alone (6, 7, 20, 23, 27, 33, 35*, 38)
- Employer Participation, Investment, and Benefits (2, 35*, 38, 39*)
- Gasoline Consumption and Prices (7, 35, 38, 39*)
- Grant Programs (20, 23, 26, 38)
- Non-motorized commute share, trend, or percentage (40)

Park and Ride Lots

- Eastgate Park and Ride Expansion (9)
- Lot Security (5)
- Occupancy Rates: Central Puget Sound (4, 14, 23)
- Occupancy Rates: King County (3, 5-14, 23, 27)
- Puget Sound System (8)
- Transit (33, 35*, 38, 39*)

Vanpools

- Number of Vanpools in Washington State (27, 33)
- Vanpool Investments (15, 23, 27, 33, 38)
- Vanpool Operation in the Puget Sound Region (2-15, 23, 27, 33, 38)
- Vanpooling Share of Daily Puget Sound Area VMT (2, 15)
- Van Share Trends (8, 9, 11, 12, 15, 33, 38, 39*, 42*)

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

Gray Notebook Subject Index

Topic (Edition)

Congestion on State Highways

- Accidents on Interstate 405: 2001 and 2002 (9)
- Automated License Plate Recognition Technology (23, 31)
- Benchmark Policy Goals for Congestion: Analysis (5)
- Case Studies: Before and After Results (15, 19, 23, 27, 31, 35*, 39*, 42*)

Comparisons of Conditions

- 2002-2003 (15)
- 2003-2005 (23)
- 2004-2006 (27)
- 2005-2007 (31)
- 2006-2008 (35*)
- 2007-2009 (39*)
- 2008-2010 (42*)
- Six Month Reports (31, 33, 34, 36, 38, 40, 42, 44)
- Congestion Measurement Principles (5, 6, 19, 23, 27, 31, 35, 39*, 42*)
- Congestion Monitoring (19, 23, 27, 31, 33, 35*, 36, 39*, 42*)
- Construction Management (35*, 42*)
- Cost of Delay (15, 23, 27, 31, 35*, 39*, 42*)
- Cross-Border (US/Canada) Traffic Volumes (35)
- Distribution of Traffic Between Freeways and Arterials (9, 35*)
- Earlier Congestion Measurement Efforts: (9)
- Employment in the Puget Sound Region (9, 31, 33, 35*, 36, 39*, 42*, 44)
- Highway Improvements Have Reduced Congestion (9, 3, 35*, 36, 38, 39*, 42*)

HOV Lane Performance

- Person Throughput (19, 23, 27, 31, 35*, 39*, 42*)
- Lane Miles Added to the System (35*)
- Travel Time Performance by Corridor (35*, 39*, 42*)
- Induction Loop Detectors (5)
- Intelligent Transportation Systems in Washington (5, 22, 31, 35*, 39*, 42*)
- Lost Throughput Efficiency (19, 23, 27, 31, 35*, 39*, 42*)

Measuring Delay

- By Time of Day (2, 5)
- By Route (19, 23, 27, 31, 35*, 39*, 42*)
- Distribution Statewide (in 3-D) (23, 27, 31, 35*, 39*, 42*)
- Peak Travel Times by Route (15, 19, 23, 27, 31, 33, 35*, 36, 39*, 42*)
- Percentage of Weekdays with Average Speeds 35 MPH or Below (Severe Congestion) (19, 23, 27, 31, 35*, 39*, 42*)
- Sources of Congestion (15, 19, 23, 27, 39*, 42*)
- Texas Transportation Institute's Urban Mobility Report (27, 35*, 39*, 42*)

Tolling

- Affecting Congestion (27, 35*, 39*, 42*)
- High Occupancy Tolling (35*, 39*, 42*)
- Travel Times for Electronic *Good to Go!* Lanes (27, 35*, 39*, 42*)
- Volume of Users (27, 35*, 39*, 42*)
- Traffic Speeds (9, 27, 35*, 39*, 42*)

Travel Times

- Before and After Results of Capacity Additions, Projects (27, 31, 35*, 36, 38, 39*, 42*)
- Before and After Results of System Efficiencies (27, 31, 35*, 39*, 42*)
- Performance by Corridor (19, 23, 27, 31, 33-35*, 36, 39*, 42*)
- Reliability (95% Confidence Interval) by Corridor (6, 9, 15, 27, 31, 35*, 39*, 42*)
- Travel Time to Work Comparison: State and County Rankings (5)
- With and Without Incidents (6, 33)

Vehicle Miles Traveled

- By Corridor (35*, 39*, 42*)
- Statewide (35*, 39*, 42*)
- Trends and related effects (33, 34, 35*, 36, 39*, 42*)

Volume

- By Corridor (5, 9, 31, 35*, 39*, 42*)
- Statewide (35*)
- Trends from 1993-2002 (9)

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

Topic (Edition)

Construction Program for State Highways

- Advertisements Process (13)
- Advertisements by Subprogram: Planned, Actual and Deferred (4, 5)
- CIPP Value of Advertised & Deferred Projects by Subprogram (4, 5)
- Construction Program Cash Flow: Planned vs. Actual Expenditures (4-19, 23-44)
- Construction Program Delivery: Planned vs. Actual Advertisements (1-19, 23-44)
- Contracts Awarded: Award Amount to Engineer's Estimate (6, 10, 14, 18, 22, 26, 30, 34, 38, 42)
- Contracts Completed: Final Cost to Award Amount (6, 10, 14, 18, 22, 26, 30, 34, 38, 42)
- Contracts Completed: Final Cost to Engineer's Estimate (6, 10, 14, 18, 22, 26, 30, 34, 38, 42)
- End-of-Season Highway Construction Project Evaluations (12, 16, 20, 24, 28)
- FHWA Federal Performance Report Card (12)
- Hot Mix Asphalt Awards (3, 5, 7, 9, 11, 13, 15, 17, 19, 21-23, 25-27, 29-33, 35, 37, 39, 41, 44)
- Lane Miles Added to State Highway System (2, 13, 23, 32)
- Rising Cost of Construction Materials (15, 19, 23, 25-30, 32, 34, 38, 40, 42, 44)
- Safety Construction Program: Planned vs. Actual Advertisements (3, 6-17, 19)

Major projects special reports

- Hood Canal Bridge Update (11-35)
- New Ferry Vessel Construction (32-44)
- Tacoma/Pierce County HOV I-5 Lane Additions (25-44)
- Tacoma Narrows Bridge Update (8-30)
- Southwest Washington I-5 Corridor Expansion Program (36, 38, 39, 43)
- SR 520 Floating Bridge Replacement (39, 41, 43)

Design

- Age Related Safety Issues (10)
- Cable Median Barrier Installation: Before and After Collision Data (12, 20, 30, 34)
- Driving Speeds on State Highways (4, 23, 27)
- Guardrail Retrofit Program (11, 24, 28)
- Roundabout Installations (12, 22, 26, 40)
- Value Engineering (6, 10, 32)

Environmental Stewardship

- Agencies Approve Projects (18, 25)
- Climate Change**
 - Air Quality (22, 26, 31, 34, 35, 39, 43)
 - Diesel, Particulate Matter (17, 26, 31, 39, 43)
 - Green House Gas(es), Emissions (34)
 - Mitigation Strategies (34)
 - West Coast Green Highway Initiative (38)
- Compost Use (7)
- Congestion Mitigation Measures (26, 33)
- Construction Site Erosion and Runoff Protection (4, 6, 9, 12, 16, 28, 32, 37, 41)
- Chronic Riverbank Erosion**
 - Hoh River (15)
 - Sauk River, SR 530 (32)
- Ecology Embankment Pollutant Removal (8, 28)
- Endangered Species Act (23, 27-33, 38, 43)
- Environmental Compliance (9, 12, 16, 18, 20, 23, 24, 25, 28, 32, 36, 40, 44)
- Environmental Management Systems Update (20, 24, 28)
- Erosion Control Preparedness (20, 24, 28, 32, 37)
- Fish Passage Barriers (4, 13, 17, 22, 26, 30, 36, 40, 44)
- GIS Workbench (14)
- Hazardous Materials Removal (15)
- Herbicide Usage Trends (5, 8, 12, 16, 24)
- National Environmental Policy Act**
 - Environmental Assessments (18, 28, 32, 36, 40, 44)
 - Environmental Impact Statement Concurrence Request Approval Rate (13)
 - Environmental Impact Statement Processing Time (9, 13, 28, 32, 36, 40, 44)

Gray Notebook Subject Index

Topic (Edition)

Environmental Stewardship, continued

National Environmental Policy Act

Issues, policies, and research (33, 36)

Noise

Barriers & Walls (22, 26, 31, 35, 39, 43)

Impact (23, 26, 31)

Retrofits (35, 39, 40, 43)

Quieter Pavement Testing (22, 24, 26, 28, 31, 35, 39, 43)

Operational Improvements (22)

Organic Recycling Award for WSDOT (12)

Programmatic Permits (13, 17, 22, 26, 30, 33, 34, 38, 42)

Recycling Aluminum Signs (7)

Stormwater Treatment Facilities (12, 16, 20, 24, 28, 32, 37, 41)

Violations (9, 12, 16, 24, 28, 32, 36, 40, 44)

Water Quality Impacts (16, 20, 24, 28, 32, 37, 41)

Wetland Internship (14)

Wetland Replacement (Mitigation) Monitoring (5, 9, 12, 14, 16, 20, 24, 25, 28, 33, 37, 41)

Wildlife Crossings (18, 40)

Ferries (WSF)

Capital Performance

Capital Expenditure Performance: Actual vs. Authorized (19, 20, 21, 23-26)

Capital Expenditure Performance: Planned vs. Actual (4-18, 21-26, 29-34)

Capital Project Delivery Summary: Ferries (24-44)

New Vessel Construction (32-44)

Customer Comments (3-44)

Environmental Stewardship (26, 31, 34, 35, 39, 43)

Farebox Recovery and Revenue

Comparison of WSF to Other Auto Ferries and Transit (4, 5)

Electronic Fare System and Smart Card (17, 25, 26, 27, 34)

Farebox Recovery Rate (5, 12, 16)

Farebox Revenues by Month (3-14, 16-38)

Farebox Revenues by Quarter (39-44)

Life Cycle Preservation Performance

Terminals: Condition Ratings (35, 37, 41)

Vessels: Condition Ratings (35, 37, 41)

Vessels: Fleet Condition Ages by Class of Vessels (13, 21)

Vessels: Planned vs. Actual (12-33, 35, 37)

Service Reliability

On-Time Performance (3-44)

Terminal and Vessel Incidents (26, 29)

Trip Planner (17, 18)

Trip Reliability Index and Trip Cancellation Causes (3-44)

Trip Completion and On Time Performance Comparison to WA Transit Services (25)

State Audit Findings and Response (27)

Ridership by Month (3-24, 29-38)

Ridership by Quarter (40-44)

GPS at WSDOT

Tour the State Highway system – SR view Development of the “Smart Map” (13)

Using GPS for Snow and Ice Control (13)

Using GPS to generate freight performance measures (37, 41)

Maintenance of State Highways

Anti-Litter Campaign Update (5, 11)

Capital Facilities

Age (34, 38, 43)

Americans with Disabilities Act (ADA) (26, 30, 37, 38, 43)

Benchmarks (18, 22, 26, 30)

Backlog of Maintenance and Replacement (22, 34, 38, 43)

Topic (Edition)

Maintenance of State Highways, continued

Capital Facilities Construction Projects (18, 22, 26, 30, 34, 38, 43)

Environmental Stewardship, Sustainability (18, 22, 26, 30, 34, 38)

Facility Conditions, Ratings, and Trends (18, 22, 26, 30, 34, 38, 43)

Locations of Facilities (34)

Preventative Maintenance (18, 22, 26, 30, 34, 38, 43)

Cooperative Maintenance Partnerships with Counties and Cities (25)

Costs of State Highway Maintenance (4, 16, 25)

Culvert Management System (27)

Customer Satisfaction with WSDOT Highway Maintenance Activities (3)

Debris Pusher Maintenance Attachment (6)

Emergency Operations Centers (27, 33)

Facilities (19, 22, 26, 30)

Facilities Condition Rating (18, 22, 26, 30)

Guidepost Driver (11)

Herbicide Usage Trends (5, 8, 12, 16, 24, 28, 32)

Highway Sign Bridges: Planned vs. Actual Repairs (3, 4, 6, 8)

Highway Signs: Number of Maintenance Actions (6, 8)

Intelligent Transportation Systems (35, 39)

Integrated Vegetation Management (5, 12, 16, 20, 24, 28, 32)

Landscape (19)

Litter Removal from State Highways (5, 6, 8, 11, 15)

Litter Violations Issued by WA State Patrol (23)

Maintenance Accountability Process (MAP)

Achievement of Biennial Maintenance Targets (3, 4, 8, 12, 16, 24, 28, 32, 36, 40, 44)

Estimated Costs of Maintenance Backlog (36, 40, 44)

Percentage of Maintenance Backlog (28, 32, 36, 40, 44)

Percentage of Targets Achieved (24, 28, 32, 36, 40, 44)

Pavement Striping

Achieving Straight Pavement Stripes (6)

Planned vs. Actual Miles Painted (3, 4, 6, 8)

Winter Field Test (18)

Road Kill on State Highways (5, 23)

Safety Rest Areas (SRA)

SRA Condition Report (21, 25, 29, 33, 37, 41)

SRA Improvement Program (21, 25, 29, 33, 37, 41)

SRA Locations and Amenities (9, 13, 17, 19, 33, 37, 41)

SRA Level of Service (17, 21, 25, 29, 33, 37, 41)

SRA Preservation (17, 21, 25, 29, 33, 37, 41)

SRA Survey (9, 17, 21, 25, 29, 33, 37, 41)

SRA Truck Parking and Security (17, 21, 25, 29, 33, 37, 41)

SRA Visitors (21, 25, 29, 33, 37, 41)

SRA Wireless Internet Access (19, 25, 29)

Stormwater Treatment Facilities (31, 37, 41)

Suspender Cable Painting (23)

Sustainability Initiatives and Programs (26, 30)

Traffic Signals: Annual Energy Costs and Incandescent Bulb Conversion (3)

Vortex Generators (5)

Water Conservation (19)

West Nile Virus (16)

Winter Highway Maintenance

Anti-Icer Evaluation (17, 18, 21, 25, 29, 33, 37, 41)

Automated Anti-Icing Systems (7)

Avalanche Control (15, 21, 29, 33, 37, 41)

Living Snow Fence on SR 25 (9)

Mountain Pass Highway Closures (7, 9, 17, 21, 25, 29, 33, 37, 41)

Salt Pilot Project (7, 10, 17, 18)

Snow and Ice Control Operations (4, 7)

Snow and Ice Expenditures (17, 21, 25, 29, 33, 37, 41)

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

Gray Notebook Subject Index

Topic (Edition)

Maintenance of State Highways, Winter Highway Maintenance - continued

- Survey on Pass Travel Conditions & Anti-Icer Use (2, 13,17)
- Tools for Winter Driving (17, 25, 29, 37)
- Trucks to Get Through the Winter (17)
- Winter Overtime Hours and Snowfall Amount (7, 9)
- Winter Roadway Condition Level of Service and Anti-Icer Chemicals (9, 13, 17, 21, 25, 29, 33, 37, 41)
- Winter Severity and Snow & Ice Expenditures (4, 9, 13, 17, 21, 25, 29, 33, 37, 41)

Pavement Conditions on State Highways

Pavement Conditions:

- Bridge Condition by Deck Area (26, 38, 42)
- City and Local Conditions (40, 44)
- Economic Performance Measures for Pavement (44)
- Pavement Condition Trends (4, 8, 12, 16, 20, 22, 24, 28,32, 36, 40, 44)
- Pavement Ratings (20, 24, 28, 32, 36, 40, 44)
- Pavement Smoothness Rankings by State (4, 8, 12, 16, 20, 24, 28, 32)
- Various Pavement Types (2, 32, 36, 40, 44)

Pavement Types:

- Chip Seal Pavements (28, 32, 36, 40, 44)
- Concrete Pavement (16, 36, 40, 44)
- Portland Cement Concrete Pavement (16, 28, 32, 36, 40, 44)
- Selecting Pavement Types (16, 36, 40, 44)
- Quieter Pavement (35, 43)

Repair and Rehabilitation

- Concrete Pavement Lane Miles by Age and Dowel Bar Retrofit Status (12)
- “Due” Pavement Rehabilitation Needs (4, 8, 28, 32, 36, 40, 44)
- Pavement Lane Miles, Annual Vehicle Miles Traveled, and Programmed Dollars (12, 16, 32, 36, 40, 44)

Program Activities Highlights

- Project Starts, Completions, Updates, and Highlights (20, 21, 23-44)

Project Reporting (Beige Pages) – see also

Construction program for state highways

- Capital Project Delivery: Executive Summary (26-44)
- Capital Project Delivery: Executive Summary, Rail and Ferries (24-44)
- Completed Projects Wrap-Ups (31-44)
- Construction Cost (20-44)
- Construction Employment Information (20, 21, 22, 23, 24, 25, 26, 27, 33-44)
- Construction Safety Information (20, 21)
- Consultant Usage (12-14, 16, 18, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43)
- Current Project Highlights and Accomplishments (10-19, 21-44)
- Environmental Documentation, Review, Permitting and Compliance (20, 24-33, 38, 42, 44)

Financial Information

- 2009 American Recovery and Reinvestment Act (Recovery Act) funds (33-44)
- Transportation 2003 (Nickel) Account (20-44)
- Multimodal Account (20-44)
- Transportation Partnership Account (20-44)
- Pre-Existing Funds (PEF) (20-44)
- Hot Mix Asphalt (21, 23-27, 29, 30, 32, 33, 35, 37, 39, 41, 44)
- Overview of WSDOT’s Three Capital Project Delivery Mandates (20-29)
- Planned vs Actual Number of Projects (20-44)
- Pre-Existing Funds Projects (20-29, 31-44)
- Program Management Information (10-44)
- Project Delivery (11-44)
- Public - Private Partnerships (38, 40, 42)

Recovery Act Projects

- Local Projects Advertised and Awarded (33-43)
- Local Projects Completed (33-44)
- Jobs and other Economic Estimates (33-44)

Topic (Edition)

- State Projects Advertised and Awarded (33-43)
- State Projects Completed (33-44)

Project Reporting (Beige Pages) - continued

- Right of Way Risks (20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44)
- Roll-Up of Performance Information (20-44)

Special Project Reports

- I-405 Congestion Relief Projects (31, 39*, 42*)
- I-5 Everett HOV Lane Project (30)
- I-90 Snoqualmie Pass Project (40)
- Hood Canal Bridge (20-35)
- New Vessel Construction for WSF (32-44)
- SR 104 Nile Valley Landslide Detours (37)
- SR 520 Floating Bridge Pontoon Program (39, 41, 43)
- Southwest Washington I-5 Corridor Improvement Programs (36, 38, 39, 43)
- Tacoma Narrows Bridge (20-30)
- Tacoma/Pierce County HOV program (25-44)
- US 12 Corridor from Walla Walla to Tri-Cities (32)
- US 395 North Spokane Corridor (34, 41)
- US/Canadian Border Crossing Project Improvements (35)
- West Coast Green Highway Initiative (38)
- Utilities (20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44)

Rail: Freight – see also Trucks, Goods, & Freight

- Economic Trends (18, 31, 35, 37, 39, 41, 43)
- Freight Rail Corridors & Maps (5, 9, 29, 39, 41)
- Freight Rail Study (18, 25)

Grain Train and/or Produce Car Demand

- Carloads (5-9, 11-33, 35, 37, 39, 41, 43)
- Grains (26, 28, 33, 35)
- Meat, Fruit, & Produce (5, 8, 35, 37, 39, 43)
- Palouse River Coulee City Railroad (24, 42)

Rail: State-Supported Amtrak Cascades Service

- Amtrak’s Outlook: Financial and Programmatic (5, 6, 7, 9, 10, 17, 18)
- Canadian Service (25, 35, 37)
- Capital Improvement Program and WSDOT Service Goals (2, 26, 30-32, 35)
- Capital Project Delivery Executive Summary: Rail (24-44)
- Customer Satisfaction (2-4, 7, 9, 12, 14, 16, 21, 23-27, 42)

Farebox Recovery and Revenue

- Recovery (4, 8, 12, 16, 20, 24, 28, 32, 37, 40)
- Revenue by Quarter (35-44)
- Analysis of Farebox Revenue (35-44)
- Internet Reservations and Automated Ticketing (6)
- Investment in Intercity Rail Comparison (5)
- New, Additional, Seasonal, and Temporary service (18, 31, 39)
- On-Time Performance (2-44)
- Operating Costs (4)
- Passenger Trips by Station (6, 20)
- Rail Plus Program (15, 16, 19, 20)

Ridership

- by Funding Entity (25-44)
- by Month (2-34)
- by Quarter (35-44)
- by Year (20, 24)
- by Year: Long-Term Trends (2, 4, 8, 12, 16)
- Patterns by Segment (Seats Sold) (3)
- Route Map: Amtrak in Washington (6, 31)
- Schools on Trains (18)
- Station Updates (11, 13, 14, 15, 16, 17, 22, 31, 36)
- Vehicles Diverted Annually from I-5 by *Cascades* (2)

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

Gray Notebook Subject Index

Topic (Edition)

Safety on State Highways – see also Worker safety

- Age-Related Safety Issues (10)
- Alcohol-Related Fatalities: State Comparison (7)
- Alcohol-Related Fatality Rate (12, 22, 38)
- Before and After Collision Data for Highway Safety Improvement Projects (12, 16, 20, 24, 26, 27, 28, 33-35, 38, 39*)
- Before and After Collision Data: Cable Median Barrier Installations (12, 20, 24, 30, 34, 38)

Corridor Safety Program

- Active and Completed Projects (27, 34, 37)
- Before & After Results (8, 19, 23, 27, 34, 37)
- Case Studies (27, 34)
- Fatal and Disabling Collisions (27, 34, 37)
- Driving Speeds on State Highways (4, 23, 27, 38)
- Fatal and Disabling Collisions: Circumstances and Type (8, 27, 38, 42)
- Fatal and Disabling Collisions: at Intersections (9, 41)
- Fatal and Disabling Crashes and VMT, Percent Change (3, 7, 11, 16, 22, 26, 30)
- Fatal and Disabling Accident Rates by County (22, 26, 30)
- Fatalities and Fatality Rates in Washington (13, 16, 22, 26, 30, 34, 38, 42)
- Fatalities by Gender and Age Group (10, 27)
- Fatalities per Capita by State (13, 22, 26, 34, 38, 42)
- Fatality Rates: State Highways, All State Public Roads & U.S. (3, 7, 11, 16, 42)

Roadside Safety Features

- Guardrail (11, 24, 28, 35, 41)
- Other (20, 24)
- Rumble Strips (14, 18, 26, 30, 34, 35, 38, 40, 41)
- Roundabouts (12, 18, 22, 27)
- Wildlife Crossings (18)

High Accident Corridors and Locations

- Locations by Region (4)
- Locations Statewide (3, 15, 20)
- Revisions to Program (38)
- Top Ten (20)

Intermediate Driver's License Program (13)

Low Accident Locations and Corridors in Cities Over 22,500 (20)

Low Cost Safety Enhancement Program

- Before and After Analysis (20, 26)
- Planned vs. Actual Projects (3, 4, 5)
- Sample Projects (4, 6)

Motorcycles

- Fatalities and Injuries (23, 27)
- Safety (23, 27)

Safety and bicyclists

- Bicyclist Fatality Federal Safety Benchmark (9, 40, 44)
- Bicyclist Fatality Locations and Relatable Actions (28, 32, 36, 40, 44)
- Bicyclist Fatality Rates: State Comparison (9, 20, 24, 28, 32, 34, 36, 40, 44)

Safety and pedestrians

- Pedestrian Risk Demographics (20, 36, 40, 44)
- Pedestrian Fatality Federal Safety Benchmark (9, 40, 44)
- Pedestrian Factors in Vehicle/Pedestrian Collisions (8, 28, 32, 36, 40, 44)
- Pedestrian Fatality Rates by State (8, 16, 20, 24, 28, 32, 36, 40, 44)
- Pedestrian Safety in Washington (16, 32, 36, 40, 44)
- Safe Routes to Schools Grant Program Status (9, 12, 40, 44)
- Photo Enforcement (16)
- Safety Construction Program: Planned vs. Actual Project Advertisements (3, 6-13, 15-17)
- Washington State Safety Data (13)
- Safety Laws: Booster Seats and Mandatory Seat Belts (5)

Topic (Edition)

Seatbelt Use

- State Comparison (7, 11, 22, 26, 30, 34, 38, 42)
- By Type of Road (26, 30, 34)

Safety Rest Areas

- Level of Service Trends (13, 17, 21, 25, 29, 33, 37, 41)
- Locations and Amenities (9, 13, 17, 21, 25, 29, 33, 37, 41)
- Preservation: Capital Investment Program (13, 17, 21, 29, 33, 37, 41)
- Program Information (13, 17, 21, 25, 29, 33, 37, 41)
- Survey (9, 17, 21, 25, 29, 33, 37, 41)
- Truck Parking and Security (17, 21, 25, 33, 37, 41)
- Usage (13, 17, 21, 25, 29, 33, 37, 41)
- Strategic Highway Safety Plan: *Target Zero* (34, 38, 42)
- Speeding Enforcement (23)

Special Features

- 2 Dots 2 Safety (23)
- Ecosystem Initiative Award (23)
- Eruption Watch (15)
- Gray Notebook History (30, 41, 42, 43, 44)
- Guardrail Sign Mount (15)
- Lean (44)
- Legislative Changes to Statewide Transportation Performance Reporting (26)
- Making of a Project (32)
- Overweight and Oversize Permit (16)
- Performance Audits and Reviews (16)
- Photo Enforcement (16)
- Portable Incident Screens (20, 22)
- "Smart Map" Development (13)
- Tour the State Highway System with WSDOT's SR view (13)
- Traffic Signal Operations (17)
- Using Plain English at WSDOT (17)
- Water Conservation Activities (17)
- West Nile Virus (15)

Traffic Operations on State Highways

- Blocking Disabled Vehicles and Debris – Trends (15, 35, 37, 39*)
- FHWA Self-Assessment (9)

Incident Response Program

- Governor's Strategic Action Plan for Incident Response (25-44)
- History of Incidence Response (16, 41, 43)
- Incidents On I-5- Everett to Seatac (15)
- A Day in the Life of IR (19)
- Anatomy of a 90-Minute Incident (18)
- Anatomy of an Extraordinary (6 hours +) Incident (27, 34, 39, 40)
- Average Duration of Over 90 Minute Incidents by Route (26, 27, 28, 36)
- Calls Responded to by Region (2, 44)
- Clearance Times (2-5, 8-14, 16-44)
- Commercial Motor Vehicle (27-29, 33, 34, 37, 42)
- Customer Comments (8, 43, 44)
- Economic Analysis (10, 39*, 43, 44)
- Extraordinary (6 hours +) Incidents (26-34, 36, 37, 40-44)
- Instant Tow Program (27, 28, 29, 36, 39*)
- Major Incident Tow (MIT) Program (29, 36, 43, 44)
- Non-Collision Response Types (8-14, 19-44)
- Program Activities on Urban Commute Routes (15)
- Program: Construction Zone Traffic Management (19)
- Program: Types of Responses (9-14, 17-29, 40-44)
- Roving Units Compared to Response by Called-Out Units (13, 14, 18)
- Service Actions Taken (7, 10-14, 18, 22-40)
- Teams Go to the Olympics (5)

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

Gray Notebook Subject Index

Topic (*Edition*)

- Teams: Location and Type (7)
- Time line (6)
- Times (2, 3, 4, 5)

Traffic Operations on State Highways, Incident Response - continued

- Total Number of Responses by Month (7-13, 15-18)
- Total Number of Responses by Quarter (19-23, 25-44)
- Incidents with Clearance Times Over 90 Minutes (6-14, 16, 18-44)
- Injury Collisions in Over 90 Minute Blocking Incidents (25, 26)
- Joint Operations Policy Statement (JOPS) between WSDOT and Washington State Patrol (5, 17, 44)
- Number of Responses to Incidents (18, 20, 23-44)
- Operational Efficiency Program Strategies (2, 29)
- Over 90 Minute Blocking Incidents by Type (25)
- Over 90 Minute Fatality and Non-Fatality Incidents on 9 Key Corridors (26)
- Over 90 Minute Accidents by Duration Period (28)
- Overall Average Clearance Time (20-44)
- Response Modes (16, 43)
 - Responses to Fatality Collisions (20-44)
 - Roving Coverage (16, 18, 35)
 - Service Patrols Contacts (3, 4)
 - Spokane Interstate 90 Peak Hour Roving Service Patrol Pilot (5)
- Traffic Incident Management Assessment (17, 39, 40)
 - Training & Recruiting Incident Responders (16, 29, 39)
- Induction Loop Detectors (5)
- Intelligent Transportation Systems in Washington (5, 27, 31, 35*, 39*)

Transportation Research

- Case Studies (34, 40, 44)
- Funding and Value of Research Projects, Activities (34, 40, 44)
- Number of Research Activities (34, 40, 44)
- Number of Research Projects: Planned vs. Actual (34, 40, 44)

Travel Information

- Award for Traveler Information Website (11)
- Calls to 1-800-695-ROAD and 511 (7-14, 18-24, 26, 28, 30, 33, 37, 41)
- Camera Views (7, 8)
- Other web-based tools (blog, YouTube, Twitter, podcasting, RSS, mobile internet)(26, 33, 37, 41)
- Evaluation Survey (10)
- Three-Year Milestones (22)
- Traveler Information Services Overview (7, 26, 30)
- Types of Information Requested to 511 (18, 20, 23, 24, 26, 28, 30, 37, 41)
- Website Daily Usage (7-14, 18-26, 28, 30, 33, 37, 41)
- Website Feedback (8, 9)

Trucks, Goods, and Freight – see also Rail Freight

- Air Cargo Forecast (25, 29, 33, 37, 41)
- Automatic De-icers Help Keep Truckers Safe (16)
- CVISN - Commercial Vehicle Information Systems and Networks (15, 26, 29, 33, 37, 41)
- Cross Border Truck Volumes (6, 10, 16, 21, 25, 29, 33, 37, 41)
- Freight Industry Survey (16, 33)
- Freight Shipments To, From, and Within Washington (10, 41)
- Impediments to Truck Shipping (6, 37)
- Intelligent Transportation Systems Use for Trucks (6, 10, 37, 41)
- Managing Over-Sized Truck Loads (6, 42)
- Marine Cargo Forecast (16, 21, 25, 29, 33, 37, 41)
- Osoyoos/Oroville Border Facts (10)
- Over dimensional Trucking Permits (6, 16, 42)
- Projects with Freight Benefits (10, 16, 21, 25, 29, 32-35, 42)
- Revenue Prorated to Washington for Trucks in Interstate Use (6, 10, 16, 21, 25, 29)
- Road Segment Ranking (16, 29)
- Severe Weather Closures (16, 21, 25, 29, 33)

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

Topic (*Edition*)

- Supply Chain Performance (25)
- Truck Registrations in Washington (6, 21, 25, 29, 33, 37, 41)
- Truck Counts/Share of Total Daily Vehicle Volumes (6, 37)

Worker Safety

- Accident Prevention Activities (14-21, 23-44)
- Compensation Claims (38, 41)

Hearing Loss

- Focus Areas (26, 27, 28, 31, 33-43)
- Rate of Injury (35-44)

OSHA-Recordable Injuries

- Administrative Staff (35-44)
- Annualized Rate (22-36)
- By Type of Injury (28-44)
- Engineering and Maintenance Workers (1-21, 23-44)
- Ferry System Workers (2-21, 23-44)
- Fiscal-Year-to-Date (23-33)
- Quarterly Rate (22-27)
- WSDOT Regions and Ferry System (22-44)

North American Association of Transportation Safety & Health Officials Meeting (3)

Sprains & Strains

- Focus Area (26, 27, 28, 31, 33-44)
- Rate of Injury (35-44)

Work Days Lost to Injuries (38, 40, 42-44)

WSDOT Safety Stand-Down (26, 27, 28, 31, 33-36)

Workforce Levels and Training

- Driver Safety Training (26, 27, 34, 38)
- Highway Maintenance Workers Safety Training (5-13, 16-43)

Required Training

- For all WSDOT Employees (7-44)
- For Human Resources Personnel (35-36)
- For Maintenance Workers by Region (20-43)

Workforce Levels (5-44)

Americans with Disabilities Act (ADA) 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 calling the Washington State Department of Transportation Office of Equal Opportunity (OEO) at (360) 705-7097. Persons who are deaf or hard of hearing may contact OEO through the Washington Relay Service at 7-1-1.

Civil Rights Act of 1964, Title VI Statement to Public

WSDOT ensures full compliance with Title VI of the Civil Rights Act of 1964 by prohibiting discrimination against any person on the basis of race, color, national origin or sex in the provision of benefits and services resulting from its federally assisted programs and activities. For questions regarding WSDOT's Title VI Program, you may contact the Department's Title VI Coordinator at (360) 705-7098 or (509) 324-6018.

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/.

Prepared by the Strategic Assessment Office of the Washington State Department of Transportation.
310 Maple Park Ave SE, Olympia, WA 98504.
© 2011 WSDOT. All rights reserved. Printed in Washington electronically and on recycled paper.