

The Gray Notebook

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

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



GNB 40

**Quarter ending
December 31, 2010**

published
February 18, 2011

In this edition

Annual Reports

- Pedestrian & Bicyclist Safety
- Pavement Conditions
- Highway Maintenance
- Fish Passage Barriers
- Environmental Compliance
- NEPA Documentation
- Transportation Research

Quarterly Reports

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

Special Reports

- Federal Recovery Act funded Projects
- Travel Time Trends

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

Executive Summary



On this quarter's cover (from top):

Workers put finishing touches on the sidewalk of a new street on the west side of the Alaskan Way Viaduct.

Smarter Highways signage over I-5 instructs drivers to change lanes to avoid a stalled vehicle ahead, keeping traffic flowing.

Tokul Creek runs freely beneath SR 202 since the old piers – which trapped logs and debris, blocking the flow of water – were removed.

An aerial view of the new roundabout at Grandview and Blaine roads on SR 548. It reduces congestion at a busy intersection where BP moves large trucks in and out of a refinery.

Waiting for scissors: the ribbon celebrating the completion of the new I-405 on-ramp in Renton.

This page: A hoarfrost crystal is a sign of winter on Washington's passes.

Performance highlights in this edition of the *Gray Notebook*

Since 2001, WSDOT has employed the quarterly *Gray Notebook* (also called the *GNB*) as one of the agency's primary accountability reporting tools. The *GNB* contains quarterly, semi-annual, and annual updates on a range of agency activities, programs, and capital project delivery.

GNB 40 marks the publication's 10-year anniversary. Over time, it has grown from eight pages to one of the most in-depth transportation system performance reports in the country. WSDOT's continued goal is to track, analyze, and communicate performance results in transparent, clear, and effective ways. As always, we welcome comments and feedback from readers (see page xi for contact details).

Reports for the quarter ending December 31, 2010

This edition of the *Gray Notebook* presents information on WSDOT's performance for the quarter ending December 31, 2010, as well as seven annual and four semi-annual reports. Selected highlights from this edition include:

- **Washington reduced the rate of both cyclist and pedestrian fatalities slightly, although it fell in state-to-state rankings nationally.** Annual national rankings are often volatile, but the state trend has been towards lower fatality and serious injury rates. 85% of collisions involving pedestrians or cyclists occurred in urban areas on state highways and city streets. (*Bicycle & Pedestrian Safety: System Safety Annual Report*; pp. 6-10)
- **In 2009, 93% of WSDOT-managed pavement was in fair or better condition.** Surveys showed that the condition of all three types of paving – chip seal, asphalt, and concrete – declined slightly, by 2% or less each. Recovery Act investments helped reduce the backlog of paving needs. (*Pavement Condition Annual Report*; pp. 13-17)
- **Performance of WSDOT's Highway Maintenance Program remained steady year-on-year, with 65% of maintenance targets achieved again in 2010.** Thirteen maintenance activities achieved a slightly higher score than 2009, eight were slightly lower, and 10 remained the same. (*Highway Maintenance Annual Report*; pp. 18-20)
- **Travel time results on 18 key Puget Sound area commute routes were mixed in the second half of 2010.** Ten routes posted longer travel times compared to the second half of 2009, five routes took less time, and three routes were unchanged. However, almost all July-December 2010 travel times were shorter than in the same period of 2007. (*Travel Time Trends Semi-annual Report*; pp. 22-25)
- **Seven WSDOT fish-passage barrier removal projects opened up 67 additional miles of potential upstream habitat in 2010,** bringing the total of correction projects to 245. Eight more are planned for construction in 2011. (*Fish Passage Barriers Annual Report*; pp. 38-39)
- **As of December 31, 2010, WSDOT has delivered a total of 296 Nickel and Transportation Partnership Account (TPA) projects valued at \$4.035 billion,** on target with the funding provided in the 2010 Supplemental Transportation Budget. Within the quarter ending December 31, 2010, WSDOT had completed 14 projects, and 42 projects were under construction; an additional 17 projects are scheduled for advertisement by June 30, 2011. (See the *Beige Pages* for a quarterly report of WSDOT's *Capital Project Delivery Program*; pp. 51-60.)
- **219 American Recovery and Reinvestment Act (Recovery Act) highway projects were awarded to contractors by the end of December, including 185 that have been completed.** The *Special Report* includes employment data through the end of December 2010, and discusses how Washington's Recovery Act projects are creating and preserving jobs. (pp. 46-50)

Table of Contents

Executive Summary	ii	Environmental Compliance Annual Report	40
Table of Tables & Graphs	iv	National Environmental Policy Act (NEPA) Documentation Annual Report	42
Navigating the WSDOT Information Stream	vi		
Performance Dashboard	vii		
Contributors	xii		
Safety		Economic Vitality	
Worker Safety Quarterly Update	2	Economic Vitality Project Overview	44
WSDOT employees: Rates of injuries and illnesses	3		
WSDOT Wellness	5	Stewardship	
Pedestrian and Bicyclist Safety:		Special Report on Federal Recovery Act-funded Projects	46
System Safety Annual Report	6	Recovery Act-funded Projects Overview	46
National Pedestrian and Bicyclist Safety Rankings	6	Recovery Act Project Delivery and Performance Review	48
Fatal and Serious Injury Collisions Involving Pedestrians and Bicyclists	7	High-Speed Rail and TIGER projects	50
Fatal Collision Locations and Actions	8	WSDOT's Capital Project Delivery Program	46
Improving Safety for Pedestrians and Bicyclists	9	Highway Construction: Nickel and TPA Project Delivery Performance Overview	46
Context Sensitive Solutions to Improve Pedestrian and Bicyclist Safety	10	<i>Current 2011 Legislative Transportation Budget Performance Dashboards:</i>	
Preservation		Highways	52
Asset Management: Pavement Conditions Annual Report	12	Rail and Ferries	53
Pavement Conditions in 2009	12	Schedule and Budget Summary	54
Recovery Act Funding	13	Advertisement Record	56
International Roughness Index (IRI) / Lowest Life-Cycle Cost	14	Projects To Be Advertised	60
Strategic Maintenance / Pavement Backlog	15	Original 2003 and 2005 Transportation Funding Packages (Nickel & TPA)	61
WSDOT's Flexible Pavement Plan	16	Paying for the Projects: financial information	63
Highway Maintenance Annual Report	18	Completed Projects: Delivering performance and system benefits	65
Maintenance Accountability Process	18	<i>Special Reports:</i>	
Task Completion and Asset Condition	19	I-90 - Snoqualmie Pass East Project	72
Highway Maintenance Backlog	20	Special Report: New Ferry Construction	73
Mobility		Tacoma Pierce County HOV Program Quarterly Update	74
Travel Time Trends Semi-Annual Report	22	Watch List: Projects with schedule or budget concerns	75
Travel Trends in the Seattle Area: July-December 2010 vs. 2007-2009	22	<i>Pre-Existing Funds (PEF) Reporting:</i>	
Factors Influencing Travel Trends	24	Programmatic Reporting	80
Influences on Travel Times: Transit ridership	25	Advertisement and financial overviews	81
Incident Response Quarterly Update	26	Advertisement record	82
Over-90-Minute Incidents, Enhanced Incident Report Pilot Project	27	Cross Cutting Management Issues	84
Extraordinary Incidents / IR Program helps accomplish agency goals	28	Construction Cost Trends	84
Improved IR Program Performance Evaluation	29	Utilities	86
Washington State Ferries Quarterly Update	31	Right-of-Way	88
Service Reliability	32	Workforce Level and Training Quarterly Update	90
Customer Feedback	34	Mandatory safety and maintenance training compliance	92
Rail: Amtrak <i>Cascades</i> Quarterly Update	35	Transportation Research Annual Report	93
Passenger Rail: Amtrak <i>Cascades</i>	35	State Planning & Research Funded Projects	94
Environment		Case Studies	95
Fish Passage Barriers Annual Report	38	Highlights of Program Activities	97
Future Corrections	39	Gray Notebook Subject Index	101
		Americans with Disabilities Act (ADA) Information	107

In this issue

2 :: The number of work-days lost to injury in 2010 marks the lowest point in five years, reports the **Worker Safety** quarterly update.

22 :: Results from the new I-405 Bellevue project are highlighted in the **Travel Time Trends Semi-Annual Update**.

26 :: WSDOT's quarterly update on **Incident Response** discusses response times and volume during poor winter weather.

35 :: The **Amtrak Cascades** update posts a 14.4% increase in ticket revenues in the fourth quarter of 2010.

40 :: The annual **Environmental Compliance** report addresses WSDOT's efforts to adapt its practices to meet current and future compliance challenges.

44 :: Two WSDOT projects that benefit their local economies are profiled in the **Economic Vitality** update.

48 :: This quarter's report on **Recovery Act-funded Projects** covers safety and bridge preservation projects, as well as TIGER and High-Speed Rail programs.

93 :: The **Transportation Research Annual Report** covers the activities and projects of WSDOT's extensive research programs.

Table of Tables & Graphs

Table or graph title	page	Table or graph title	page
Safety		Mobility	
Worker Safety		Travel Time Trends Semi-Annual Report	
WSDOT reduces the number of lost work-days	2	Travel time performance for July-December in 2008-2010 on a sample of 18 high demand commute routes	23
WSDOT strain/sprain injuries per 100 workers, by organizational unit	3	Washington statewide quarterly gasoline prices	24
WSDOT hearing loss injury rates per 100 workers, by organizational unit	3	Seattle-Bellevue-Everett metropolitan statistical area employment quarterly trends	24
Number of OSHA-recordable injuries sustained by category of worker	4	Puget Sound region transit ridership	25
Bicycle and Pedestrian Safety Annual Report		Incident Response	
Pedestrian fatality rate per 100,000 people	6	Number of responses and overall clearance time	26
Bicyclist fatality rate per 1,000,000 people	6	Number of responses and average clearance time of fatality collisions	26
Number of pedestrian fatalities in Washington, by route type and posted speed	7	Number and percentage of responses by duration	27
Number of pedestrian collisions and fatalities compared to population by age group	7	Progress toward the goal for reducing average clearance times for over-90 minute incidents on the nine key western Washington highway segments	27
Fatal pedestrian incident locations	8	Washington State Ferries	
Bicyclist incident locations and actions	8	WSF planned and actual ridership levels	31
Comparison of cities by population: Congestion vs non-motorized mode share	9	WSF planned and actual farebox revenue levels	31
Preservation		Washington State Ferries missed-trip reliability comparison	32
Pavement Condition Annual Report		Reasons for missed trips	32
Pavement conditions, funding programmed, and lane miles paved by type of pavement	12	Washington State Ferries on-time performance comparison	33
State highway pavement trends, 1989–2009	12	Average number of complaints per 100,000 customers	34
Recovery Act pavement preservation funding	13	Common WSF complaint categories	34
Pavement quality vs. life-cycle cost	14	Passenger Rail: Amtrak <i>Cascades</i>	
Two funding scenarios for pavement rehabilitation: 10-year cost vs. 10-year asphalt backlog	15	Amtrak <i>Cascades</i> ridership by funding partner	35
Pavement preservation funding 1992 – 2018	15	Amtrak <i>Cascades</i> quarterly ridership	35
Four conditions that must be met to convert asphalt pavement to chip seal pavement	16	Amtrak <i>Cascades</i> on-time performance	35
Asphalt vs. chip seal: number of miles paved annually	16	Amtrak <i>Cascades</i> ticket revenue by quarter	36
IRI roughness distribution by percentage of total vehicle miles traveled, 2009	17	Amtrak <i>Cascades</i> farebox recovery	36
Washington city pavement conditions	17	Environment	
Highway Maintenance (MAP) Annual Report		Fish Passage Barriers Annual Report	
Maintenance targets achieved: 2010 vs. planned	18	Completed fish passage construction in 2010	38
Statewide maintenance targets achieved	19	Planned fish passage construction for 2011	39
Total projected investment in maintenance backlog	19	U.S. 97 wildlife project MP 15 - 22	39
Tasks completion and asset condition (LOS) for selected maintenance activities	20	Environmental Compliance Annual Report	
		Annual number of reportable environmental incidents and formal violations received 2006-2010	40
		WSDOT's reportable events by category, 2008-2010	41
		NEPA Documentation Annual Report	
		Number of WSDOT projects by environmental documentation type	42

Table of Tables & Graphs

Table or graph title	page	Table or graph title	page
Stewardship		Pre-Existing Funds (PEF) Reporting	
Recovery Act Reporting		Value of planned PEF advertisements: 2009-11 biennium	81
Recovery Act highway projects by type	46	PEF project advertisements schedule performance	81
Recovery Act-funded highway projects through December 31, 2010	47	Pre-Existing Funds projects construction program	81
Recovery Act-funded state highway 'bucket' projects through December 31, 2010	47	Pre-Existing Funds improvement program cash flow	81
Recovery Act highway project employment data	48	Pre-Existing Funds preservation program cash flow	81
Recovery Act funds advanced additional projects	48	Pre-Existing Funds (PEF) projects scheduled for advertisement or advertised this quarter	82
Recovery Act pavement preservation funding	49	Six individually tracked Pre-Existing Funds (PEF) projects: results through December 30, 2010	83
Capital Project Delivery Programs		Cross-Cutting Management Issues	
Highway construction performance dashboard	52	Components that make up WSDOT's CCI	84
Rail construction performance dashboard	53	Construction Cost Indices (CCI): Washington state, FHWA, and selected western states	84
Ferries construction performance dashboard	53	Average number of bidders per WSDOT contract	85
Biennial summary of all projects completed 2003-2010	54	Average number of bidders by size of contract	85
14 Projects completed as of December 31, 2010	55	Utilities risk levels for advertised Nickel and TPA projects	86
42 projects in construction phase as of December 31, 2010	56	Projects with certification-related issues	88
17 Projects in the delivery pipeline for January 1, 2011 through June 30, 2011	60	On time right-of-way certification results	88
Project delivery update: Original 2003 Transportation Funding Package (Nickel)	61	Acquisitions for all Nickel, TPA, and PEF projects	89
Project budget delivery update: Original 2003 Transportation Funding Package (Nickel)	61	Condemnations for all Nickel, TPA, and PEF projects	89
Project delivery update : Original 2005 Transportation Partnership Account (TPA)	62	Worker Training	
Project budget delivery update: Original 2005 Transportation Partnership Account (TPA)	62	Number of permanent full-time employees	90
Transportation 2003 (Nickel) account revenue forecast	63	Required policy training for all WSDOT employees	90
Multimodal Account (2003 Package) revenue forecast	63	Required diversity training for all WSDOT employees	90
Transportation Partnership Account (TPA) gas tax revenue forecast	64	Required training for all employees, by region	91
Completed Projects: Delivering performance & system benefits		Maintenance and safety training compliance	91
SR 503/Lewisville Park vicinity - Add climbing lane	65	Statutorily required maintenance and safety training	92
I-5/Ship Canal Bridge – Noise mitigation study	66	Region maintenance and safety training compliance	92
SR 11/I-5 Josh Wilson Road - Rebuild interchange	68	Transportation Research Annual Report	
SR 532/General Mark W. Clark Memorial Bridge – Replace Bridge	69	Total value of 2009-2011 research projects	93
SR 510/Yelm Loop – New Alignment	70	Funding distribution by strategic transportation goals, 2009-2011 biennium	94
I-90 - Snoqualmie Pass East Phase 1 location	72	Number of WSDOT research projects planned	94

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

In 2007, the Governor and Legislature enacted a law establishing five policy goals for transportation agencies in Washington State (Chapter 516, Laws of 2007).

The five 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; and
- **Stewardship:** To continuously improve the quality, effectiveness, and efficiency of the transportation system.

In March 2010, the Governor and Legislature added a new policy goal for transportation: **Economic Vitality**. It directs WSDOT to “promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy.” WSDOT is developing the necessary business direction plans through the agency's strategic planning process.

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/.

About WSDOT's Performance Dashboard

The ‘dashboard’ of performance measures on the facing page offers readers a snapshot glance at WSDOT's progress against the five 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. 83-88) to find earlier coverage; all previous editions are available online at www.wsdot.wa.gov/accountability.

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 pages viii-ix illustrates this alignment. WSDOT's 2011-17 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 2001-13 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.

Performance Dashboard



Goal has been met.



Performance is trending in a favorable direction.



Trend is holding.



Performance is trending in an unfavorable direction.

Linking performance measures to strategic goals	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: 2008 & 2009)	0.94	0.87	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, 7} (quarterly measure: FY11 Q1, FY11 Q2)	2.5/ 0.5	3.3/ 1.4	2.4/ 0.4	—	↓	Both strains/sprains and hearing-loss were well over their goals for the quarter, and for the year
Preservation						
Percentage of state highway pavements in fair or better condition (annual measure, calendar years: 2008 & 2009)	94.7%	93.0%	90.0%	✓	↔	Recovery Act-funded projects helped with backlog, but does not address all long-term needs
Percentage of state bridges in fair or better condition (annual measure, fiscal years: 2009 & 2010)	97.0%	98.0%	97.0%	✓	↑	Recovery Act funds contributed to increase in Good/Fair rating
Mobility (Congestion Relief)						
Highways: annual weekday hours of delay statewide at maximum throughput speeds ² (annual measure: calendar years 2007 & 2009)	32 million	25 million	N/A	N/A	↑	Reduction of 21% as a result of reduced demand due to the economy, and increased capacity
Highways: Average clearance times for major (90+ minute) incidents on 9 key western Washington corridors ⁷ (quarterly: FY11 Q1, FY11 Q2)	154 minutes	168 minutes	155 minutes	—	↓	Two extraordinary (6+ hour) incidents and seasonal weather affected the program's average clearance time this quarter.
Ferries: Percentage of trips departing on time ^{3, 7} (quarterly, year to year: FY10 Q2, FY11 Q2)	93%	92%	90%	✓	↔	Performance is lower than one year ago, higher than previous quarter
Rail: Percentage of Amtrak <i>Cascades</i> trips arriving on time ^{4, 7} (quarterly, year to year: FY10 Q2, FY11 Q2)	73%	734%	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 2009 & 2010)	238	245	N/A	N/A	↑	Ten additional retrofits were completed in 2009
Stewardship						
Cumulative number of Nickel and TPA projects delivered, and percentage on time ⁷ (quarterly: FY11 Q1, FY11 Q2)	212/ 89%	226/ 90%	90% on time	✓	↑	Performance improved slightly from previous quarter, met goal ⁸
Cumulative number of Nickel and TPA projects completed and percentage on budget ⁷ (quarterly: FY11 Q1, FY11 Q2)	212/ 94%	226/ 94%	90% on budget	✓	↔	Competitive bidding and construction environment contribute to controlling costs ⁸
Variance of total project costs compared to budget expectations ^{6, 7} (quarterly: FY11 Q1, FY11 Q2)	under-budget by 1.0%	under-budget by 1.0%	on budget	✓	↔	Total Nickel and TPA construction program costs are within 1% of budget ⁸

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 expectations are defined in the last approved State Transportation Budget.

7 Washington's fiscal year (FY) begins on July 1 and ends on June 30. FY11 Q2 refers to the quarter ending December 31, 2010.

8 See pages 52-53 for more information on the expanded view of capital projects in the current 2010 Legislative Transportation Budget for highway construction.

Navigating the WSDOT Information Stream

Linking performance measures to strategic goals

This table illustrates the alignment of WSDOT's performance measures with the five statewide transportation policy goals and the WSDOT strategic plan, *Business Directions*. (See also page vi.)

State policy goal	WSDOT business direction	Key WSDOT performance measures	Reporting cycle	Last Gray Notebook report
1. Safety: To provide for and improve the safety and security of transportation customers and the transportation system	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.	Number of traffic fatalities	annual	GNB 38 p. 5
		Rate of traffic fatalities per 100 million miles traveled	annual	GNB 38 p. 6
		Percent reduction in collisions before and after state highway improvements	annual	GNB 38 p. 7
		Number of recordable workplace injuries and illnesses	quarterly	GNB 40 p. 4
State policy goal	WSDOT business direction	Key WSDOT performance measures	Reporting cycle	Last Gray Notebook report
2. Preservation: To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services.	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.	Percent of state highway pavement in fair or better condition	annual	GNB 40 p. 12
		Percent of state bridges in fair or better condition	annual	GNB 38 p. 12
		Percent of targets achieved for state highway maintenance activities	annual	GNB 40 pp. 18-20
		Number of ferry vessel life-cycle preservation activities completed	annual	GNB 37 pp. 14-15
		Percent of ferry terminals in fair or better condition	annual	GNB 37 p. 16
State policy goal	WSDOT business direction	Key WSDOT performance measures	Reporting cycle	Last Gray Notebook report
3. Mobility (Congestion Relief): To provide for the predictable movement of goods and people throughout the state.	Move people, goods, and services reliably, safely, and efficiently by adding infrastructure capacity strategically, operating transportation systems efficiently, and managing demand effectively.	Travel times and hours of delay on the most congested state highways	annual	GNB 40 p. 23
		Reliable travel times on the most congested state highways around Puget Sound	annual	GNB 39 p. 11
		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 40 p. 27
		Ferry ridership	quarterly	GNB 40 p. 31
		Ferry trip reliability	quarterly	GNB 40 p. 32
		Percent of ferry trips on time	quarterly	GNB 40 p. 33
		Amtrak Cascades ridership	quarterly	GNB 40 p. 35
		Percent of Amtrak Cascades trips on time	quarterly	GNB 40 p. 35

Navigating the WSDOT Information Stream

Linking performance measures to strategic goals

State policy goal	WSDOT business direction	Key WSDOT performance measures	Reporting cycle	Last Gray Notebook report
4. Environment: Enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment.	Protect and restore the environment while improving and maintaining Washington's transportation system.	Conformance of WSDOT projects and programs with environmental legal requirements	annual	GNB 36 p. 37-38
		Number of fish passage barriers fixed and miles of stream habitat opened up	annual	GNB 36 pp. 34-36
		Number of WSDOT stormwater treatment facilities constructed or retrofitted	annual	GNB 37 p. 38
		Number of vehicle miles traveled	annual	GNB 39 p. 10
		Transportation-related greenhouse gas emissions (measure to be developed)	n/a	n/a
5. Stewardship: To continuously improve the quality, effectiveness and efficiency of the transportation system	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.	Capital project delivery: on time and within budget	quarterly	GNB 40 pp. 51-53
		Recovery Act-funded project reporting	quarterly	GNB 40 pp. 46-50
6. Economic Vitality: To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy.	Note: Performance measures and WSDOT strategic business directions for the new policy goal "Economic Vitality" are under development as part of the 2011-13 strategic planning process. Information will be added to this table in a future edition of the <i>Gray Notebook</i> .			GNB 39 pp. 30-31

Navigating the WSDOT Information Stream

Organization of the *Gray Notebook*

Through more than 35 editions, in fact nine years, WSDOT has published a quarterly performance report known as the *Gray Notebook*. The original publication, bound in gray paper, was organized in two sections:

- the Beige Pages, so-called for the color of paper they were printed on, which covered project delivery on the Nickel, Transportation Partnership Account (TPA), and Pre-Existing Funds project programs, and
- the White Pages, which presented quarterly and less frequent reports on a wide variety of transportation-related topics.

How is the *Gray Notebook* organized?

The *Gray Notebook* (GNB) presents articles in a way that makes the topics' relationship to the six Legislative policy goals – and WSDOT's own strategic business directions – more clear. (These goals are discussed in detail on page vi.)

The *Gray Notebook* is organized into sections devoted to those strategic goals, each marked by a page that recaps WSDOT's goals for Safety, Preservation, Mobility/Congestion Relief, Environment, and Stewardship. A new section, for topics related to ways in which the transportation system supports the Legislature's policy goal of economic vitality, was added in the March 2010 *Gray Notebook* 37. Each section divider carries a mini-directory to the topics covered within the section, and points to other articles within the *Gray Notebook* that contain information relevant to that goal.

The white pages primarily feature quarterly and annual reports on key agency functions, providing regularly updated system and program performance information that was previously covered in the White Pages. 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 finance, capital project delivery, workforce, and agency highlights appear in the Stewardship section. Since *Gray Notebook* 33, the Stewardship section leads off with coverage of WSDOT's Federal Recovery Act-funded projects, including high speed rail and TIGER grant projects.

The Beige Pages immediately following address the delivery of the projects funded in the 2003 Transportation Funding Package (Nickel), 2005 Transportation Funding Package (TPA), and Pre-

Existing Funds (PEF). They contain summary tables, detailed narrative project summaries, and financial information supporting WSDOT's "no surprises" reporting focus.

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.

Navigating the WSDOT Information Stream

Online capital project reporting and using the 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. The *Gray Notebook*, in the Beige Pages section, highlights each quarter's progress and reports on financial and other program management topics, but much more 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.

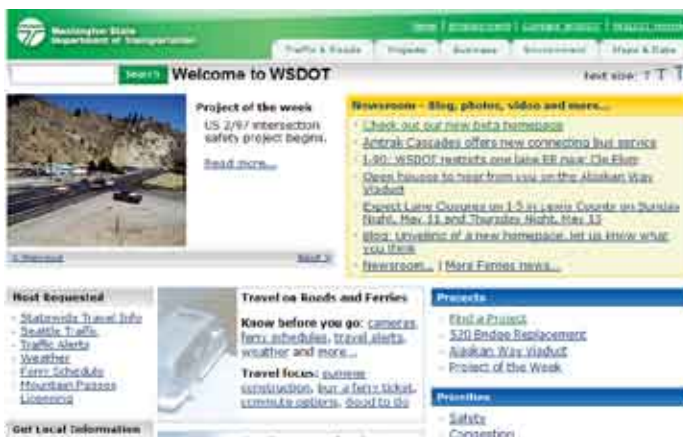
Project Pages cover:

- Overall project vision
- Financial table, funding components
- Roll-up 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:

- Highlights
- Milestones
- Status description
- Problem statement
- Risks and challenges
- Project costs, cash flow
- Contact information.



Navigate the WSDOT website

The WSDOT home page (shown above; 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) and the most recent edition of the *Gray Notebook*.

Project Pages

Project Pages (found at www.wsdot.wa.gov/projects/, typical page shown below) 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.



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. On-line versions of this publication are available at www.wsdot.wa.gov/accountability/

Contributors

Safety	Worker Safety	Joel Amos, Kathy Dawley, Cathy English, Kathy Radcliff, Ernst Stahn
	Bicycle & Pedestrian Safety	Ian Macek
Preservation	Highway Maintenance	Rico Baroga, Anna Zaharris
	Pavement Condition	David Luhr, Jeff Uhlmeyer
Mobility/ Congestion Relief	Travel Time Trends Six Month Update	Mark Hallenbeck, John Ishamaru, Matt Beaulieu, Basma Makari, Marjorie Vanhoorelbeke, Shuming Yan, Mani Goudarzi
	Incident Response	Paula Connelley, Vince Fairhurst, Diane McGuerty. For WSP: Captain Chris Gundermann, Jim Hill, Lila Kirkaby, Marcia Marsh, Jennifer Meyer, Captain Jeff Sass
	Washington State Ferries, including new ferry construction program	Jean Baker, Matt Hanbey, Laura D. Johnson, Al McCoy, Ron Wohlfrom, Brett Wolfe
	Passenger Rail	George Xu
Environment	Fish Passage Barriers	Jon Peterson
	NEPA Documentation	Chris Regan
	Environmental Compliance	Eric Wolin, Steve Yach
Economic Vitality	Economic Vitality	Rachel Knutson
Stewardship	Federal Recovery Act Reporting	WSDOT offices including: Capital Project Delivery & Management, Highways & Local Programs, SAPD, 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
	I-90 Project Spotlight	Meagan McFadden
	Tacoma/Pierce Co. HOV Lanes Update	Claudia Cornish
	Construction Cost Trends	Jenna Fettig
	Utilities	Rhonda Wiest, Ahmer Nizam
	Right of Way	Mike Palazzo
	Workforce Level and Training	Sue Briggs, Norma Chavez, Kathy Dawley, Matthew Moreland, Cathy Roberts, David Supensky
	Research	Rhonda Brooks
	Program Highlights	Ann Briggs
GNB Production	Performance Analysis Team	Laura Cameron, Sreenath Gangula, Dan Genz, Rachel Knutson, Todd Lamphere, Anna Lee, Colleen Rozillis, Tyler Winchell
	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
Bicycle & Pedestrian Safety Annual Report	6

See also

Incident Response	26
Workforce Training	90

Earlier articles concerned with safety

Highway Safety, GNB 38
Safety Rest Areas GNB 37
Highway Corridor Safety GNB 37

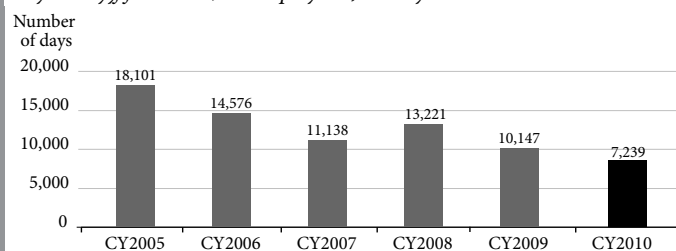
Worker Safety Quarterly Update

Worker Safety Highlights

Work-days lost to injuries in 2010 mark a five-year record low, and are 30% down from 2009.

WSDOT reduces the number of lost work-days

Days away from work, all employees January 2005-December 2010



Data source: WSDOT Safety Office.

WSDOT employees sustained 102 OSHA-recordable injuries or illnesses in the fourth calendar quarter of 2010, 16 more than the same quarter a year earlier; 653 work-days were lost due to these injuries.

Two WSDOT regions and the Ferries Division met the 2010 sprain/strain injury reduction goal, and one region met the hearing loss reduction goal.

WSDOT has a strong commitment to improve the safety of its employees as they perform their jobs. In 2009, WSDOT 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 go home safely at the end of the day. Though much has been accomplished, WSDOT recognizes that there are still many opportunities to improve the safety of its workforce.

Number of work-days lost to injury at five-year record low

WSDOT has made excellent progress in its efforts to reduce the number of days that employees are unable to report to work due to injury or illness. The number of days lost in 2010 – 7,239 – is the lowest since 2005, and a 30% reduction on 2009's 10,147 lost work-days. About 1.8% fewer people worked for WSDOT between 2009 and 2010, making the 30% reduction a strong indicator of both the reduced severity of the injuries that resulted in claims and the significant impact of the Return to Work Unit in reducing lost work-days.

Contributing factors that help reduce lost work days for WSDOT employees

WSDOT has been investigating ways to continue reducing both the number of work-days lost to injury and the likelihood of similar injuries recurring.

For example, the Ferries Division has been conducting timely investigation of all accidents, injuries, near misses, and illnesses to examine workplace conditions, behaviors and underlying systems in order to evaluate what happened and what measures could be taken to prevent a similar incidents from occurring in the future. An investigation is conducted and a report is written by the Ferries' Safety Office Investigator to determine hazardous conditions or unsafe behaviors to recommend corrective actions to "surface causes" and to address the underlying "root causes" of system weaknesses that caused the incident. These investigation reports are given to the responsible department manager to support immediate remedial action and future system corrections.

WSDOT attributes a significant drop in the number of sprains/strains and OSHA-recordable injuries of Ferries' workers to this more refined accident data collection and analysis in targeting the safety problem areas.

Employee fatality prompts investigation

The ultimate goal of the WSDOT Safety Program is to have all employees go home at the end of their shift. On January 16, 2011, Billy "Bud" Rhynalds, a 12-year veteran of the WSDOT maintenance team out of Preston, was killed by a falling tree during a storm. When communications lines fell on Highway 203, south of Carnation, he went to the area to set up cones to keep traffic moving but protect drivers from the wires. A cottonwood fell and hit Mr Rhynalds and his truck.

Although fatalities are a rare occurrence, nonetheless 59 WSDOT employees have lost their lives in work zone-related activities since 1950. WSDOT takes this matter very seriously, as it does all injuries to its workforce. The agency has opened an internal investigation seeking information that can be used to understand if this type of accident may be prevented in the future.

WSDOT employees: Rates of injuries and illnesses

WSDOT safety performance: 2010 versus 2009

OSHA-recordable injuries down in 2010

The number of OSHA-recordable injuries to WSDOT employees fell from 403 in 2009 to 369 in 2010, an 8% drop. In addition, the number of sprains and strains injuries – the target of a

concerted injury-reduction effort for several years – fell from 217 in 2009 to 175 in 2010, a 19% drop over all. In particular, the Ferries Division posted a 17% reduction in the number of recordable injuries from 2009 to 2010, and a 36% reduction in sprains and strains injuries during same period.

WSDOT strain/sprain injuries per 100 workers, by organizational unit

Quarterly rate October-December 2010, cumulative rate January-December 2010

Organizational unit	CY 2009 sprains/ sprains results	Rate of sprain/strain injuries in Q4 CY 2010	Cumulative rate of sprain/strain injuries through Q4 CY 2010	CY 2011 sprain/ strain reduction goal	Met 2010 sprain/strain reduction goal?
Northwest Region	2.9	5.3	3.3	2.2	N
North Central Region	4.8	3.2	2.0	2.2	Y
Olympic Region	2.9	1.2	2.6	2.2	N
Southwest Region	1.8	3.7	2.5	2.2	N
South Central Region	3.2	1.6	1.2	2.2	Y
Eastern Region	3.0	4.9	4.6	2.2	N
All regions combined	3.0	0.8	2.9	2.2	N
Headquarters	1.0	0.7	0.8	0.4	N
Ferry System	5.9	4.5	3.8	4.7	Y
Agency-wide	3.2	3.3	2.7	2.4	N

Data source: WSDOT Safety Office.

Data note: Previously reported by fiscal year, the data now compare rates and results for calendar years (CY). Performance results for 2010 are reported against 2011 goals.

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

Quarterly rate October-December 2010; Results of audio testing to date, December 31, 2010

Organizational unit	CY 2009 hearing loss results	Rate of hearing loss injuries Q4 CY 2010	Cumulative rate of hearing loss injuries through Q4 CY 2010	CY 2011 hearing loss reduction goal	Met 2010 hearing loss reduction goal?
Northwest Region*	0.4	0.3	0.3	0.4	Y
North Central Region*	0.4	0.0	2.4	0.4	N
Olympic Region*	0.9	4.1	1.0	0.4	N
Southwest Region*	1.4	2.8	0.6	0.4	N
South Central Region*	2.4	1.6	1.4	0.4	N
Eastern Region*	0.7	0.0	0.5	0.4	N
All regions combined	0.9	0.3	0.8	0.4	N
Headquarters*	0.1	0.0	0.1	0.0	N
Ferry System*	0.8	2.9	1.2	0.4	N
Agency-wide	0.7	1.5	0.7	0.4	N

Data source: WSDOT Safety Office.

Data notes: * All regions have now completed 2010 hearing testing. Previously reported by fiscal year, the data now compare rates and results for calendar years (CY). Performance results for 2010 are reported against 2011 goals.

Worker Safety Quarterly Update

OSHA-Recordable Injuries / Headquarters Safety Initiatives

Progress made on regional injury reduction goals

Two WSDOT administrative regions, North Central and South Central, achieved their 2010 sprains and strains reduction goals. Employees in the Northwest region achieved their 2010 hearing loss reduction goal. The Ferries Division also reached the 2010 sprains and strains reduction goal, cutting the rate of injuries by more than a third compared to 2009.

Number of OSHA-recordable injuries sustained by category of worker

October 1-December 31, 2010 (Quarter 4, calendar year 2010)

Injuries	Highway maintenance	Highway engineering	Admin staff	Ferry system
Number of injuries Oct-Dec 2010	51	9	3	39
Percent of all injuries that these numbers represent	50%	9%	3%	38%
Total number of days away from work associated with these injuries	218	0	0	435
<i>Days away due to sprains/strains</i>	185	0	0	203
For comparison				
Number of injuries Jul-Sept 2010	49	14	3	20
Number of injuries Oct-Dec 2009	34	13	8	31

Data source: WSDOT Safety Office.

Headquarters Safety Office staff help office-based workers lessen the likelihood of injury

WSDOT's headquarters office did not meet its sprains and strains reduction goal in 2010. In an effort to reach out to workers and identify possible sources of such injuries, the HQ Safety Office recently initiated a proactive approach to workstation ergonomics by making unscheduled visits to work units at the Olympia offices. Experts meet with employees to perform workstation evaluations and provide helpful hints to lessen the risk of repetitive strain injury, back pain from poor posture or desk layout, and so on. The goal is to keep workstation-related aches and pains at bay by addressing proper ergonomics before an injury can occur.

The HQ Safety Office is also tracking the use of new voice recognition software by a few employees. The goal is to determine how the application is most useful and in what circumstances it might help employees reduce repetitive typing and mousing, and potentially prevent repetitive motion injuries. The software uses spoken commands to open, save, and file documents in a wide range of other applications (such as Microsoft Office), and can be used to enter or edit text and numbers.

Winter Safety Fair at headquarters promotes all aspects of keeping safe in wintry weather conditions

The agency's headquarters kicked off a winter safety campaign by holding a safety fair. Among the items featured at booths hosted by internal offices as well as external suppliers were first aid and emergency kits, shelf-stable foods, reflective wear for dark winter work days, and products to provide traction for vehicles and pedestrians alike.



Workers are encouraged to wear footwear with slip resistant soles and heels year-round. A number of regions have tested additional traction devices including cleats or other similar materials for use under certain conditions such as ice and snow with favorable results.



WSDOT Wellness

Wellness Program activities

WSDOT Wellness encourages employees to take control of their own health. Several programs that were active during this quarter give them additional important tools to do so.

Health Risk Assessments

From October 1 through December 31, WSDOT Wellness asked employees to take their 2010 Health Risk Assessment (HRA) by offering incentives. During this period 856 WSDOT employees reported completion of their HRA. As of November 30 WSDOT ranked 34 out of 83 agencies with a 17.8% HRA completion rate. 2010 year end results will be available in mid-January 2011.

Blood pressure monitoring pilot project launched

In October, the Blood Pressure Self Monitoring Program pilot began in Southwest Region. SWR has set up blood pressure checking stations in several areas throughout the region. Since October 19, employees have used the stations on 126 occasions. Self-monitoring of blood pressure is a valuable addition to the management of hypertension.

Wellness Fair a hit in Eastern Region

In October WSDOT HQ's had its 2nd Annual Wellness Fair and Eastern Region conducted its first ever Wellness Fair. Both were great successes with over 500 employees attending. In Eastern Region Employees were invited to have their blood pressure and Body Mass Index (BMI) checked, discuss nutrition and exercise, and get preventative health and self-exam information.

More than 20 vendors and speakers were on hand to discuss fitness and goal setting, food as medicine, and exercise in the workplace. About 100 employees received flu shots in the region, at the Fair or during the reporting period.

Agency employees ward off influenza with immunization program offered at workplaces

WSDOT offered employees flu shots at WSDOT worksites statewide in October and November. About 10% of the workforce took up the workplace option; all WSDOT-offered health insurance programs also covered flu shots given at doctors' offices, pharmacies, and clinics.

Future Wellness Program plans include pilot program to manage chronic diseases

During the upcoming quarter, WSDOT Wellness will begin a Chronic Disease Self-Management pilot program at WSDOT Headquarters. Training will be available to employees who themselves have a chronic disease or are caring for someone with chronic illness. Such programs can improve health status while reducing health care utilization and costs.

The training was developed by the Stanford University Patient Education Research Center; it focuses on improving healthful behaviors (exercise, cognitive symptom management, coping, and communications with physicians) and improving health status (self-reported health, fatigue, disability, social/role activities and health distress). The training consists of six weekly training sessions, each lasting two and a half hours.

Participation in local farm produce program approved for WSDOT employees, offices

In 2010, the Ethics Board clearly stated state government organizations may – as part of their wellness program – be a delivery site for weekly pre-paid and pre-packaged local farm produce to be picked up by employees who choose to use the service. Four WSDOT regional offices (Olympic, Headquarters, South West, and Eastern) participated in the Community Supported Agriculture Program in 2010. WSDOT looks forward to additional participants joining the program in spring 2011.

Pedestrian and Bicyclist Safety: System Safety Annual Report

National Pedestrian and Bicyclist Safety Rankings

Pedestrian and Bicyclist Safety Highlights

Pedestrian fatality crash rate for Washington state was 0.92 per 100,000 people ranked 21st nationally, for year 2009.

Bicyclist fatality crash rate for Washington state was 1.35 per 1,000,000 people ranked 18th nationally, for year 2009.

Washington tops 'Bicycle Friendly State' ranking for the third consecutive year.

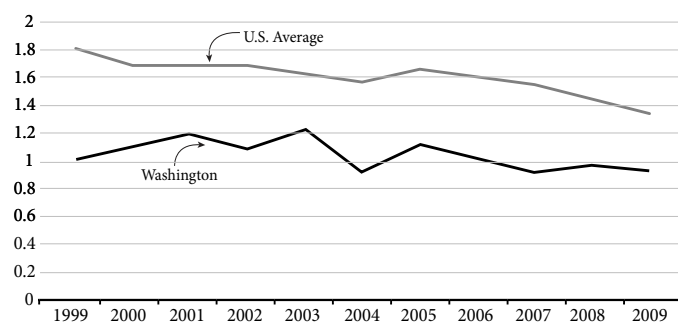
Walking and bicycling are critical components of the transportation system, both as their own major modes of transportation, and by providing connections between destinations and other modes. WSDOT is committed to improving conditions for bicycling and walking, and has set an aggressive target to reduce serious injuries and fatalities statewide. WSDOT and numerous partners at the state, local, and regional levels established a goal of reducing the number of pedestrians and bicyclists killed or injured in traffic crashes by 5% each year for next 20 years, while doubling the amount of biking and walking.

Washington's national pedestrian and bicycle safety rankings

Each year, the National Highway Traffic Safety Administration (NHTSA) reports pedestrian and bicyclist fatality rates normalized by population for all 50 states and the District of Columbia. For pedestrian safety, Washington fell in ranking from 16th lowest in 2008 to 21st in 2009 with a fatality crash rate of 0.92 pedestrian involved crashes per 100,000 people.

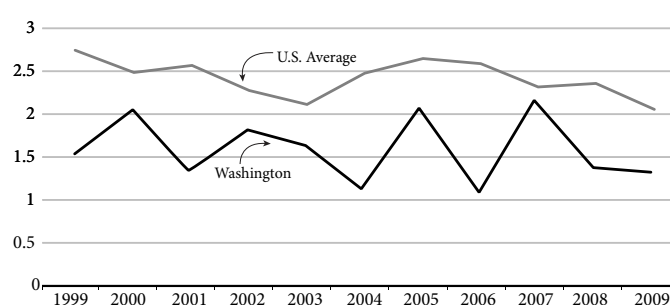
Washington's rankings also fell when compared nationally in bicyclist safety performance from 14th lowest in 2008, with a crash rate of 1.37 to 18th in 2009 with a bicyclist-involved fatality crash rate of 1.35 per 1,000,000 people. Rankings of state bicyclist fatality crash rates often fluctuate significantly due to the annual changes in the rates of each individual state.

Pedestrian fatality rate per 100,000 people 1999-2009



Data source: National Highway Traffic Safety Administration.

Bicyclist fatality rate per 1,000,000 people 1999-2009



Data source: National Highway Traffic Safety Administration.

Between 2001-2009, pedestrian- and bicycle-related fatal and serious injury collisions accounted for 14% of total traffic collisions.

Between 2001-2009, 85% of all collisions involving pedestrians and bicyclists occurred in urban areas of the state.

Washington pedestrian and bicycle safety statistics

Between 2001 and 2009, there were 4,300 fatal and serious injury pedestrian or bicycle collisions, accounting for 14% of all traffic fatal and serious injury collisions. The number of pedestrian and bicycle fatalities has generally trended downward over the years due to an overall decrease in walking and biking, yet the fatality rate remains high in many urban areas on higher speed arterials.

Urban area focus

Between 2001 and 2009, 85% of collisions involving pedestrians or bicyclists occurred in urban areas on state highways and city streets.

Children, particularly school-aged children under 15, people over 65, and ethnic minorities are disproportionately represented, and have been identified as at-risk populations for collisions involving pedestrians.

Increasing the number of pedestrians and cyclists is key to reducing the number of fatal and serious injury collisions. Studies have shown that motorists are less likely to collide with

Pedestrian and Bicyclist Safety: System Safety Annual Report

Fatal and Serious Injury Collisions Involving Pedestrians and Bicyclists

Number of pedestrian fatalities in Washington, by route type and posted speed 2001-2009

Road class	Centerline miles	Not stated	Posted speed limit (mph)													Total
			15	20	25	30	35	40	45	50	55	60	65	70	Unknown	
City street	17,669	1	1	3	73	108	86	31	16	12	4	56	0	4	2	397
State highway	6,029	0	0	0	0	0	8	7	4	23	23	28	1	6	1	101
County road	39,907	0	0	1	11	2	44	19	6	28	3	0	0	0	2	116
Other	19,651	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
Total	83,256	2	1	4	84	110	139	57	26	63	30	84	1	10	5	616

Data source: Fatality Analysis Report System (FARS).

Note: The 'city street' category also includes pedestrian fatalities on state highways in city limits.

pedestrians or bicyclists when there are more people bicycling and walking. A community that doubles the amount of bicycling and walking can expect to reduce an individual's risk of being struck by a motorist by more than 60%, as motorists drive slower and more cautiously when they see many pedestrians and bicyclists on the street. Recent studies have shown that constructing dedicated bicycle facilities along a roadway can increase bicycling nearly 70%.

According to the Washington State Bicycle Facilities and Pedestrian Walkways Plan, other key features that can improve bicycle and pedestrian safety and mobility are better crossings, connections, and trail systems within cities and urbanizing areas. Additional recommendations and the full plan can be found at www.wsdot.wa.gov/bike/bike_plan.htm.

Higher vehicle speeds increase the likelihood of pedestrian fatalities

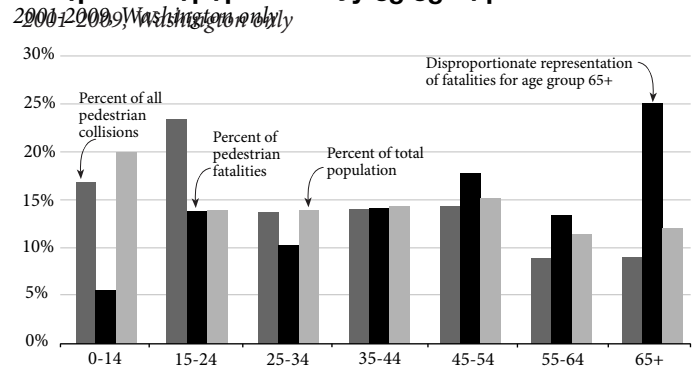
Speed is a major factor contributing to the severity of pedestrian-vehicle collisions. The faster the motorist is going before colliding with a pedestrian, the more likely the pedestrian is to die from their injuries. As per NCHRP Report 500, volume 10 – "A Guide for Reducing Collisions Involving Pedestrians" – states that 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 only 5%.

In order to achieve lower motor vehicle speeds, it will take a combination of engineering treatments to calm the traffic, as well as education and enforcement. WSDOT's research on Main Street Highways offers guidance to engineers as they design roadways that slow vehicles, particularly in areas with a history of bike or pedestrian collisions.

Older adults: A growing at-risk group

In Washington, adults age 65 and older represent 12 % of the population, yet they make up 25 % of the pedestrian deaths. Older adults often walk more, according to the National Institute of Aging, which also reports that more than one in five adults age 65 and older do not drive. Over the next 20 years, the number of older people in the United States will double; by 2030, 20% of Americans will be 65 or older. By 2020, one and a half million people in Washington will be 65 or older – almost twice the number of people in that age group today.

Number of pedestrian collisions and fatalities compared to population by age group



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

More visible crossings needed

Between 2001 and 2009, slightly more than 16% of pedestrian fatalities in Washington occurred within marked crosswalks, while 39% occurred at unmarked crossings. On state highways, about 10% of all legal crosswalk locations are marked and 4% have traffic signals. A sampling of city and county roads indicates a similar percentage of marked legal crossings and a higher percentage of crosswalk signals.

Pedestrian and Bicyclist Safety: System Safety Annual Report

Fatal Collision Locations and Actions

Results of multiple studies across the U.S. generally indicate that, in most cases, motorists do not yield to pedestrians trying to cross. On average, only about 19% of drivers stop for pedestrians attempting to cross the street at uncontrolled crossings: this suggests indicating a need for stronger and better driver education, as well as improved crossings.

Fatal pedestrian incident locations

2001-2009

Location	Number	Percent of fatalities
Crossing – marked crosswalk not available	231	39%
Crossing – not in crosswalk	208	35%
Crossing – in crosswalk	96	16%
Shoulder	44	7%
Other – off roadway	20	3%
Unknown	1	0%
Total	600	100%

Data source: National Highway Traffic Safety Administration.

Making crosswalks more visible may include providing treatments beyond typical pavement markings and signage, such as medians, roundabouts, flashing beacons, pedestrian-scale lighting, and curb extensions.

Improving bicycle safety and mobility: Space to ride

Between 2001 and 2009, 39% of traffic collisions involving bicyclists occurred while they were crossing streets and another 33% occurred while they were riding with traffic. Riding with traffic continues to be the most frequent contributor to bicyclist fatalities (more than 50%). Riding with traffic includes collisions where drivers were following too closely or exceeding safe speeds, and driveway turning movements are frequent. Serious injuries often result when bicyclists are hit by an opening car door while riding next to parked cars.

Currently, only 3% of shoulders on state highways provide five feet or more of space that can be used by cyclists. About one percent of these shoulders are marked as bicycle lanes on state routes (70 miles). In the Central Puget Sound Region, a recent study conducted by the Cascade Bicycle Club found that 27%, or more than 400 miles, of the regional bicycle network (including city streets, state highways, and county roads) had less-than-desirable shoulder width for bicycling.

About 12,000 people were involved in bicycle/motor vehicle crashes from 2001 to 2009; WSDOT estimates that 40-60%

Bicyclist incident locations and actions

2001-2009

Location/Action	All collisions		Fatal collisions	
	Number	Percent	Number	Percent
Cyclist turned into path of vehicle	772	6%	15	17%
Fell into traffic	61	0%	3	3%
Riding against traffic	1,523	12%	4	4%
Riding with Traffic	4,148	33%	47	52%
Crossing	4,878	39%	17	19%
All other actions	904	7%	3	3%
Unknown	147	1%	2	2%
Total	12,433	100%	91	100%

Data source: WSDOT Highways & Local Programs.

Note: As of 2009, WSDOT no longer includes self-reported collisions with their data.

more non-fatal, bicyclist-involved collisions went unreported during that time. Statistics for fatal bicycle crashes show that neither weather nor light conditions are associated with collision frequency or severity. Only 10% of collisions took place in poor weather, while about 19% took place at night or dusk on unlighted roads.

While bicycle fatalities are relatively infrequent, the data WSDOT has collected over the past 15 years indicates that many if not most such collisions can be reduced by providing dedicated space for bicyclists on or near the roadway.

Improving safe routes to schools

To date, Washington's Safe Routes to School (SRTS) program has reached 43,000 children at 123 schools since it was created by the legislature in 2005. About \$17 million has been awarded to 60 projects, selected from more than \$94 million in requests.

At these project locations, the number of children biking and walking has increased more than 25%. With a measured reduction in motorist speeds and traffic citations. No collisions involving bicyclists or pedestrians have been recorded at these locations after project completion.

Overall, the program has been successful; but, more remains to be done. Between 2006 and 2008, 70% of all fatal and serious injury pedestrian and bicycle collisions on the state highway system were within one mile of a school. Washington has 2,000 schools within one mile of a state route (70%), and about 250 within one block.

Pedestrian and Bicyclist Safety: System Safety Annual Report

Improving Safety for Pedestrians and Bicyclists

Traffic safety near schools

Traffic congestion continues to be a problem around schools. In one generation, the percent of children walking to school dropped significantly — from about 50% percent in 1969 to just 15% in 2001. Half of all students living within one-half mile of school are driven to school by a parent or care giver, and it's estimated that these trips account for 30% of all traffic around schools. These numbers are consistent with the results of the 2009 National Household Travel Survey, which indicate that half of all household trips are three miles or less and 28% are a mile or less. If Washington returned to the 1969 level of walking and bicycling to school, VMT in the state would be reduced by an estimated 60.5 million miles, which translates to an annual savings of 28,000 tons of carbon dioxide, the equivalent of taking more than 5,000 cars off the road a year.

More than half of the children in Washington currently using the state- and locally-funded school bus service live within two miles of school. School districts bus about 100,000 children that live within one mile of their school and about 130,000 children that live within two miles.

It is possible to reduce busing costs through better and safer walking and biking routes to schools. In the 2008-09 school year, the state funded \$230 million in school bus service covering about 64% of this service. The remaining 36% of the cost of school bus service came from the school and school districts.

The SRTS program results in savings for schools. At the Auburn School District for example the SRTS program improved safety for approximately 2,800 children who live within walking distance from the school and no longer need to be bused. The resulting reductions in "hazard" bus service are saving the Auburn School District a total of \$240,000 each year in personnel and fuel costs.

Walking and biking reduce congestion

The US Department of Transportation's policy statement on bicycle and pedestrian accommodation states "Increased commitment to and investment in bicycle facilities and walking networks can help meet goals for cleaner, healthier air; less congested roadways; and more livable, safe, cost-efficient communities."

Creating livable communities that increase the numbers of citizens who can safely walk and bike for transportation is becoming increasingly important. Walking and biking can improve personal and environmental health, reduce traffic congestion, and enhance ones quality of life, among other things. Transportation investments which reduce pedestrian and bicyclist deaths

and injuries, while making walking and biking comfortable and convenient, is a key strategy to achieve that goal.

Making improvements for walking and bicycling can help reduce traffic congestion in several ways. Poor walking and cycling conditions force people to drive for even short trips. According to the 2009 National Household Travel Survey, around 30-50% of trips in urban areas are less than three miles. This is a significant portion of automobile traffic that could shift to non-motorized travel.

As part of the data collection for the Washington State Bicycle Facilities and Pedestrian Walkways Plan, WSDOT conducted a statewide public opinion survey in 2007. The most common reason given for believing that it's somewhat or very difficult to walk was "no sidewalks." When asked how to improve conditions for walking in their communities, people said provide more pedestrian facilities such as sidewalks, paths, lighted areas, crosswalks, safe signals and safe intersections. The reasons people find it somewhat or very difficult to bicycle in their communities is because there is no bike lane, no shoulder, or the roadway is too narrow.

Bicycle and pedestrian safety improvements under way on SR 285 Senator George Sellar Bridge, linking Wenatchee and East Wenatchee.



Pedestrian and Bicyclist Safety: System Safety Annual Report

Context Sensitive Solutions to Improve Pedestrian and Bicyclist Safety

Comparison of cities by population: Congestion vs non-motorized mode share

City	Population	Non-motorized mode share	Per capita annual congestion delay
Seattle	3,100,000	4.3%	45 hrs
New York	17,800,000	6.8%	46 hrs
Los Angeles	11,800,000	3.4%	72 hrs
Philadelphia	5,100,000	4.3%	38 hrs
Miami	4,900,000	2.2%	50 hrs
Boston	4,000,000	5.7%	46 hrs
Dallas	4,100,000	1.3%	58 hrs

Data source: 2007 Texas Transportation Institute and 2007 American Community Survey.

Walking and bicycling improvements also support public transit travel, in turn reducing traffic congestion.

Comparing similar sized cities indicates that those with a higher non-motorized mode share tend to have less per capita congestion delay, shown in the following table. For example, Seattle and Boston have much less per capita congestion delay than Dallas, which has a lower non-motorized mode share. Other factors also come into play in each of these cities, such as land use, public transit quality and others, but since non-motorized and public transit travel complement one another, improving non-motorized conditions helps reduce congestion directly and by supporting transit use. Further study of this topic is necessary and under way at the national level.

Bicycle and pedestrian documentation project

WSDOT recently completed its third annual Statewide Bicycle and Pedestrian Documentation Project to collect data on walking and bicycling across the state. Counts were taken in 30 communities in 2010. Volunteers counted over 50,000 pedestrians and bicyclists at over 220 unique locations across the state.

When examining the count location data, the highest numbers of bicyclists were observed on trails and bridges and in downtown cores. Pedestrian counts were highest near universities, in downtown cores, near transit stations, and in mixed-use neighborhoods. These findings correlate with other research that indicates increasing connectivity also increases pedestrian and bicycle safety and mobility.

Future counts will continue to be used to assess the state's progress in its long term goals, and will also help WSDOT more accurately 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.

Main Street Highways

Focusing on main street highways makes for a smart investment in both safety and mobility for Washington; safety statistics indicate that most bicycle and pedestrian collisions occur in urban areas, statewide counts show that biking and walking increase in downtown cores and mixed-use neighborhoods, and targeted promotion in urban areas encourages more walking and biking. These combined efforts by WSDOT and state, regional and local partners make great strides towards reaching the statewide goal of decreasing bicycle and pedestrian collisions while increasing walking and biking.

A joint research project between WSDOT and the University of Washington looked at those state highways that currently operate as main streets. Based on criteria objectively applied to all state highways in Washington, about 500 miles operate as main street highways in 180+ cities.

Pedestrian and Bicycle Safety Grant Program

The Pedestrian and Bicycle Safety program followed a more strategic approach for fiscal years 2011-2013 funding cycle, switching from an 'open call' for projects to an invitation-only process that emulates the successful process used by WSDOT's Highway Safety Improvement Program. Only entities invited to apply for funding were eligible. By doing so, WSDOT ensured that grants targeted known risk locations with proven solutions addressing the circumstances.

Invitations to submit applications were sent to public agencies where WSDOT had identified known pedestrian and bicycle risk locations. The department received 35 pedestrian and bicycle safety projects from 26 targeted agencies and organizations, totaling about \$15 million.

Washington tops Bicycle Friendly State ranking for the third consecutive year

The League of American Bicyclists named Washington as the nation's number one "Bicycle Friendly State" for the third year in a row. The designation goes beyond looking at fatality and collision rates. States are rated on how they encourage bicycling via legislation, policies and programs, education, planning, and places to ride. Highlights of the state's bicycling commitments are its exemplary bike-related laws and dedicated state-level funding sources for bicycle safety projects and programs. Areas to improve include encouragement, education and enforcement programs.



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 Annual Report	12
Highway Maintenance Annual Report	18

See also

Special Report: Federal Recovery Act-funded Projects	46
Quarterly Report on Capital Projects (Beige Pages)	51

Earlier articles concerned with preservation

Intelligent Transportation Systems, GNB 39
Asset Management: Bridge Assessment, GNB 38
Capital Facilities Annual Report, GNB 38
Safety Rest Areas Annual Report, GNB 37
Annual Post-Winter Report, GNB 37

Asset Management: Pavement Conditions Annual Report

Pavement Conditions in 2009

Pavement Conditions Highlights

In 2009, 93% of WSDOT managed pavement was in fair or better condition.

The amount of pavement in poor condition has increased by 1.7%, from 1,068 lane miles in 2000 to 1,181 lane miles in 2009.

Although preservation budget reductions have totaled \$600 million (an average of 27%) over 10 years, WSDOT has used alternative preservation strategies to extend pavement life.

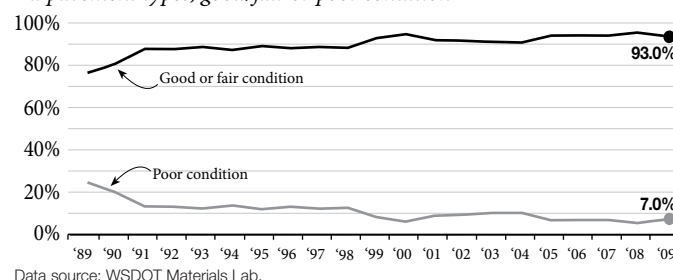
WSDOT expects the inventory of chip seal pavement in the state to increase by 50% over the next 15 years. This is one of WSDOT's lowest life-cycle cost preservation strategies.

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 and performance enhancing 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 succeeds in maintaining 93% of pavement in fair or better condition despite reduced paving budgets (about \$600 million below historic levels) and continuing deterioration of concrete pavements.

Pavement conditions see a small decline in 2009, down 1.7%

According to the 2009 pavement condition survey, road conditions continued to be good in Washington, with 93% of all pavements rated as good or fair. The percentage of all pavements in poor condition increased slightly to 7.0% in 2009, compared to 5.3% in 2008. In 2000, the year with best condition performance between 1989 and 2009, there were 1,068 lane miles (6.1%) in poor condition, while in 2009 the total was 1,181 lane miles.

State highway pavement trends, 1989-2009
All pavement types: good/fair or poor condition



In 2009, about 93% of all asphalt pavements were in fair or better condition, down 1% from 2008; about 95% of all chip seal pavements were in fair or better condition, down 2% from 2008; and about 90% of all concrete pavements were in fair or better condition, also down 2% from 2008.

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

Dollars in millions; Condition ratings take into account most Recovery Act pavement work completed prior to October 2009

Pavement type	Total lane miles ¹	Rating	2008	2009	2009-11 dollars programmed ² & lane miles paved ³	2011-13 dollars programmed ² & lane miles paved ³
Chip seal (BST) pavements This durable surface provides six to eight years of performance life.	4,582	Good/Fair	97%	95%	\$53.18 (16.5%) 1,437 lane miles	\$87.96 (28.3%) 2,367 lane miles
		Poor	3%	5%		
Asphalt pavements The life of this surface is typically 10 to 16 years, depending on climate and traffic factors.	11,566	Good/Fair	94%	93%	\$171.69 (53.2%) 913 lane miles	\$166.38 (53.5%) 774 lane miles
		Poor	6%	7%		
Concrete pavements New concrete pavements are designed for a life of 50 years; typically used on very heavily traveled roads.	2,407	Good/Fair	92%	90%	\$97.91 (30.3%) 193 lane miles	\$56.72 (18.2%) 102 lane miles
		Poor	8%	10%		
Total	18,571	Good/Fair	94.7%	93.0%	\$322.78 (100%) 2,543 lane miles	\$311.06 (100%) 3,246 lane miles
		Poor	5.3%	7.0%		

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 values from TEIS versions CURR-DM and 11GOV000, respectively, as of 1/6/2011. 3 Lane miles from CPMS as of 12/29/2011 and broken biennially by multiplying the total-lane miles paved by the ratio of biennial dollars to total dollars.

Asset Management: Pavement Conditions Annual Report

Pavement Conditions in 2009 (continued) / Recovery Act Funding

How WSDOT makes best use of current funding to maintain pavement quality

To continue maintaining state-managed pavement at the fair-or-better standard, WSDOT has taken the following steps, or will be implementing them as part of the 2011-2013 highway construction budget proposals:

1. Make the best possible use of increased funding received from the Recovery Act and other unobligated federal funds (see the gray box at right).
2. Aggressively address the backlog of concrete needs (see p. 12 in *Gray Notebook 36*).
3. Continue to implement new pavement innovations to extend pavement life.
4. Expand the state's chip seal (BST) network (see p. 16).
5. And incorporate strategic preservation activities to delay resurfacing projects (see the gray box on p. 14).

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.

The State Materials Lab determined in the 1980s that the state's road network should be managed by lowest life-cycle costs. This concept was then 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.

If a pavement is constructed and maintained at an extremely high level of quality (perfectly smooth; see page 17 for information on the FHWA International Roughness Index), the user will incur the lowest possible cost, but the agency cost will be high in order to maintain this quality level.

Recovery Act pavement preservation funding helps WSDOT pave 820 lane miles of roadway

In 2009, the American Recovery and Reinvestment Act (Recovery Act) provided infrastructure investment funding to Washington, with strict requirements that projects had to be selected and programmed in a short period of time. Because WSDOT's pavement management system keeps an up-to-date assessment of the entire road network, the agency was able to quickly and accurately develop a list of paving jobs that allowed the Legislature to direct funds to high priority projects.

If not for the additional \$164.7 million in Recovery Act funding to address the current backlog of road rehabilitation projects in 2009, concrete pavement rehabilitation would have been reduced by about 64%, asphalt pavement rehabilitation would have been reduced by 49%, and chip seal resurfacing would have been reduced by 17%. Recovery Act funding (and other obligated federal funds) helped WSDOT continue to reduce the backlog of pavement preservation needs throughout the state.

Recovery Act pavement preservation funding

December 2010; Dollars in millions

Type of construction	Dollars	% of Total	Lane miles
Chip seal resurfacing	\$9.0	5%	250
Asphalt resurfacing	\$76.9	47%	447
Concrete dowel-bar retrofit	\$29.8	18%	74
Concrete reconstruction	\$49.1	30%	49
Total	\$164.8	100%	820

Data source: WSDOT Materials Lab.



Workers lay asphalt as part of a Recovery Act funded pavement rehabilitation project on I-90 near Ellensburg, WA.

Asset Management: Pavement Conditions

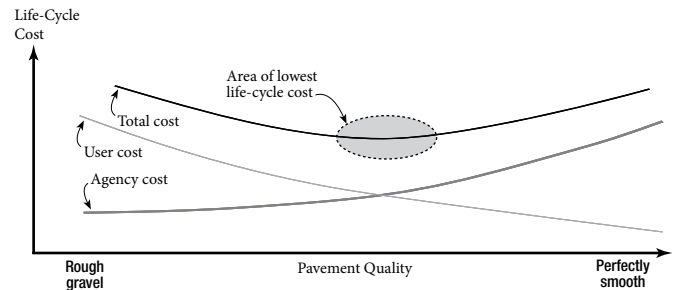
Annual Report

Lowest Life-Cycle Cost / Strategic Preservation

Constructing and maintaining a pavement at a very low quality level (a rough gravel road) is very low cost for the agency, but the effect on road users (and commerce) results in high costs to the public. The optimum time to rehabilitate a pavement is when it deteriorates to the condition where the lowest total life-cycle cost will result, which is the condition where WSDOT considers the pavement to be due for rehabilitation. If the pavement section deteriorates more and becomes “past due,” then the pavement is no longer operating at the optimum level, and total costs increase.

The lowest cost network preservation strategy suggests that a certain number of miles of pavement be rehabilitated each year on a continuing basis. The condition at which a pavement is rehabilitated is carefully analyzed by WSPMS. Long-term analysis has shown that repairing a pavement structure before it reaches a condition of severe structural failure greatly reduces the life-cycle cost. Therefore, monitoring pavement performance is an important aspect of pavement management. The WSPMS

Pavement Quality vs. Life Cycle Cost



Data source: WSDOT Materials Lab.

has evolved over more than 40 years, and WSDOT's experience over these decades has led to the pavement management process the agency uses today.

For more information on pavement types and pavement condition ratings, see the December 2009 *Gray Notebook* 36, p. 15.

Strategic preservation extends pavement life

In the 2009-11 biennium, funds were allocated for strategic preservation activities in the preservation program (known as P1). These repair activities refer to crack sealing, patching, chip seals, and other actions that can be used to fix or improve short sections in a longer capital project, so the longer project can be delayed into the future.

This delay in the capital project (which would commonly be a substantial paving project) provides benefits in two ways:

- It extends the life of the previous paving cycle, making it more economically efficient, and



Crews seal cracks in asphalt to prepare for chip sealing on SR 103.

- It reduces the immediate cash-flow needs of the preservation program so that funds can be released to other projects.

The principal statistic being evaluated is the cost to extend pavement life. A typical asphalt overlay is about \$250,000 per lane mile, and would add about 15 years of pavement life, the statewide average. This amounts to \$16,700 per lane mile per year of added life. A typical chip seal is about \$40,000 per lane mile, and adds about seven years of pavement life, amounting to \$5,700 per lane mile per year of added life. If strategic preservation can be performed at a cost of \$6,000 per lane mile, and extend the pavement life by three years, then the result is \$2,000 per lane mile per year of added life.

The circumstances facing each project will determine which of these approaches are best, but there is potential for considerable reductions to lowest life-cycle cost if strategic preservation can be used to extend pavement life and postpone the need for major paving projects.

Strategic preservation leads to substantial savings

WSDOT is evaluating the strategic preservation experience from 2009 and 2010. Each region is reporting the funds used, where the work was performed, and the resulting extension in pavement life. Preliminary results show that more life can be gained from lower investments using this process; the pavement management system continues to track results, so that WSDOT can evaluate the effectiveness of the strategic preservation.

Asset Management: Pavement Conditions Annual Report

Addressing the Pavement Rehabilitation Backlog

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.

WSDOT evaluated different asphalt backlog scenarios in 2010

In 2010, WSDOT analyzed different scenarios to evaluate the backlog of asphalt pavement rehabilitation. Results indicate that an additional \$834 million may be needed before the latest cost-effective strategies are implemented, to keep the asphalt pavement backlog from growing over the next 10 years. The scenarios examined included:

- **Funding to maintain the current backlog for 10 years**

The backlog of asphalt pavement rehabilitation (at the end of the 2011-13 biennium) is about 1,450 lane miles. About 600 of these miles have been addressed with strategic preservation (see the gray panel on p. 14), but the balance of the backlog remains in poor condition (see the Pavement Condition table on p. 12).

This scenario determined the funding needed to maintain the current backlog and not allow the backlog to grow over the next 10 years.

- **Maintain current projected budgets and allow backlog to grow for 10 years** The projected budgets will provide for a certain number of lane miles of asphalt resurfacing each year.

Two funding scenarios for pavement rehabilitation: 10-year cost vs. 10-year asphalt backlog

Scenarios	Ten year asphalt & BST cost	Asphalt backlog after ten years
No growth in backlog	\$1,759 million	1,330 lane miles
Current budget: backlog allowed to grow over 10 years	\$925 million	4,420 lane miles

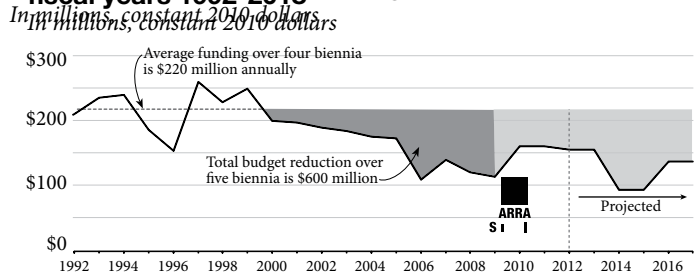
Data source: WSDOT Materials Lab.

The difference between the need and the available funding will continue to grow the backlog over the next decade.

Current roadway preservation funding

Roadway preservation funding has been decreasing since 2000. Over the past 10 years, preservation budget reductions have totaled \$600 million (see figure below) – the equivalent of a 27% average reduction. Much of this reduction resulted in less-than-adequate preservation of the state’s concrete pavements. Even with life-extending and money-saving strategies in place, it is not enough to bridge the gap between preservation funding needs and current preservation budgets, and a backlog of asphalt pavement rehabilitation is inevitable. If current pavement preservation budgets are maintained, in 10 years about 50% of the state’s asphalt roads may be due for rehabilitation or past due.

Pavement preservation funding 1992 – 2018



Data source: WSDOT Materials Lab.

Asset Management: Pavement Conditions

Annual Report

WSDOT's Flexible Pavement Plan

Increased use of chip seal (BST) in WSDOT's flexible pavement plan

Chip seals currently make up about 4,580 lane miles – or 25% – of the WSDOT-managed system. Historically, the life of a typical chip seal is six to seven years.

The construction cost of an asphalt resurfacing is roughly five to seven times the cost of a chip seal, so there is a strong economic incentive to maximize the use of chip seals when budgets are tight. Asphalt pavements will last 1.5 to 2.5 times longer than chip seal, so a rough ratio of relative cost to relative performance for chip seal over asphalt pavement is a factor of 3.

Because they have a rougher surface texture, are noisier, and could lead to chipped windshields during construction, chip seals are usually selected for roadways with lower traffic volume. WSDOT has studied this issue, and recommends chip seals for traffic levels less than 5,000 vehicles a day. For this reason, WSDOT prioritizes chip seals for programming and construction, and does not expect a backlog to develop. This approach minimizes the expense of the flexible pavement network, and provide the lowest possible life-cycle cost.

For locations inside city limits, and at intersections where there is a high volume of turning movements, asphalt is preferred over chip seals because of the smoother and longer lasting surface.

Because of the economic advantage of chip seal surfacing, an evaluation was performed of existing asphalt pavements to

determine which may be candidates to convert to a chip seal surface. To be a candidate for conversion, the conditions in the following table need to be met.

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.

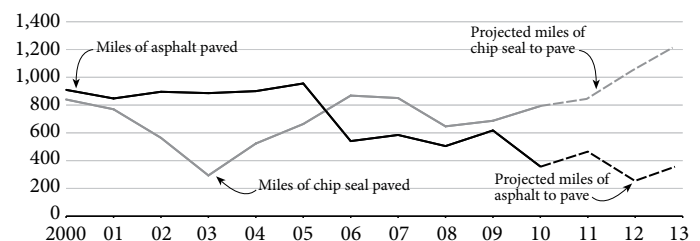
Data source: WSDOT Materials Lab.

Based upon these conditions, WSDOT expects that about 2,300 lane miles of asphalt pavement can eventually be converted to chip seal surfaces. This would occur over time, when each candidate asphalt pavement section reaches the optimum time for conversion.

After 15 years, 50% more lane miles in the state will be paved with chip seal, from 4,580 lane miles today to 6,880 lane miles in 2026. The average annual lane miles requiring chip seal resurfacing will grow proportionately, from 730 lane miles to 980 lane miles.

Asphalt vs. chip seal: number of miles paved annually

Miles of completed paving 2000–2010; miles of projected paving to be completed 2011–2013



Data source: WSDOT Materials Lab, CPMS.



Applying the "oil" (polymers) and "chips" (gravel) during a chip seal paving project in the North Central Region.

Asset Management: Pavement Conditions Annual Report

WSDOT Reporting on Preservation Strategies

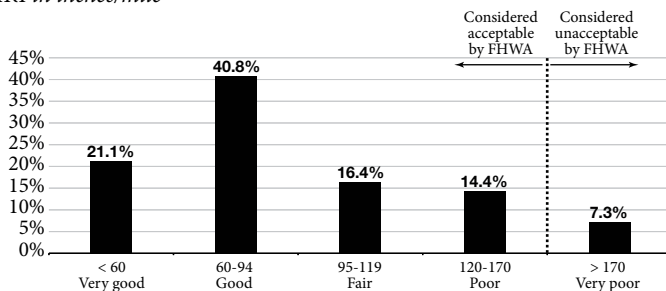
WSDOT roadways with good or fair smoothness carry more than 92% of total statewide VMT

Future reporting requirements from the Federal Highway Administration (FHWA) will 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 indexes that has a national standard, and FHWA often 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, less than 8% of the miles traveled are on roads in “unacceptable” condition, using FHWA criteria.

IRI roughness distribution by percentage of total vehicle miles traveled, 2009

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



Data source: WSDOT Materials Lab.

WSDOT Materials Lab reports to Legislature

In response to 2009 Senate Bill 6381, Section 304, the State Materials Lab prepared a report titled “WSDOT Strategies Regarding Preservation of the State Road Network,” dated September 1, 2010. In SB 6381, the legislature requested specific information on the following topics:

- Continued implementation of the lowest life-cycle cost planning approach
- Ten-year analysis of pavement needs for asphalt and concrete pavements

- Level of investment needed to address the backlog of preservation projects
- Strategies for addressing the escalation of asphalt prices
- Criteria for selection of pavement type for specific projects
- Use of recycled asphalt and concrete in state highway construction
- Potential use of permeable asphalt or concrete pavement.

The final report can be viewed on the State Materials Lab website at: www.wsdot.wa.gov/NR/rdonlyres/69E02461-0553-4EAE-9DA5-1F85EC93E74F/0/PavementPreservation.pdf.

WSDOT assists Washington cities in reporting on the conditions of city-owned pavements

In April 2003, the Legislature established planning and efficiency goals for the state and local transportation network. Among other provisions, the legislation requires cities to report pavement condition data for their arterial and collector streets each biennium.

WSDOT helps cities in the analysis and reporting of pavement condition. To assist small cities (population under 25,000), WSDOT uses its automated data collection van to survey federally classified arterials and collectors. For 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%.

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. City pavement condition scores for 2010 are reported in the following table.

Washington city pavement conditions

As reported November 2010

Survey year	Arterial		Collector	
	PCI	Fair or better	PCI	Fair or better
2010	69	81.3%	65	76.0%
2008	70	82.1%	64	74.8%
2006	72	82.7%	66	74.9%

Data source: Highways & Local Programs Office, Washington's City Arterial Condition Reports from 2006, 2008, and 2010.

Highway Maintenance Annual Report

Maintenance Accountability Process

Highway Maintenance Highlights

65% of highway maintenance targets were achieved in 2010, the same percentage achieved in 2009.

Maintenance targets achieved: 2010 vs. planned

Level of Service (LOS) by asset condition

	Funded level	2010 results
█ = Missed Targets		
Movable & Floating Bridge Operations	B+	A-
Traffic Signal System Operations	C	B
Snow & Ice Control Operations	A-	A
Keller Ferry Operations	B	C-
Urban Tunnel Systems Operations	B	B+
Structural Bridge Repair	C	C-
Regulatory/Warning Sign Maintenance	C+	C+
Slope Repairs	B	B
Intelligent Transportation Systems	B-	B+
Maintain Catch Basins & Inlets	D+	C+
Pavement Patching & Repair	C+	C*
Bridge Deck Repair	C	C+
Guardrail Maintenance	B+	B+
Pavement Striping Maintenance	C	D
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+	D
Pavement Marking Maintenance	C	C
Noxious Weed Control	B	C+
Shoulder Maintenance	B-	C+
Guide Sign Maintenance	B-	A-
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 65%

Data source: WSDOT Maintenance Office.

* Note: WSDOT is transitioning to an integrated pavement asset management approach using the Pavement Management System's condition rating rather than a LOS specific rating for pavement. The 31 maintenance activities are displayed in prioritized order.

The Maintenance Accountability Process (MAP) measures performance related to 31 maintenance activities, using two metrics – *asset condition* (Level of Service (LOS)) and *task completion*. *Asset condition* 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. *Task completion* quantifies the number of tasks needed for a specific activity each year, and how many of those tasks were completed.

Asset condition and task completion performance measures

In *Gray Notebook* 36, the concept of *task completion* metrics was introduced to supplement the traditional *asset condition* LOS measures. More information on both *task completion* and *asset condition* measures, as well as information on WSDOT's transition to reporting both types of measures, can be found in the following pages of this report.

Using these two performance measures together, overall program delivery can be more accurately explained. Completion of higher percentages of needed maintenance work contributes to good *asset condition*. *Task completion* will increasingly be the primary tool used to measure maintenance performance. *Asset condition* (MAP surveys) will serve as a quality assurance tool used to verify or support changes in the maintenance *task completion* measure.

65% of highway maintenance targets achieved in 2010

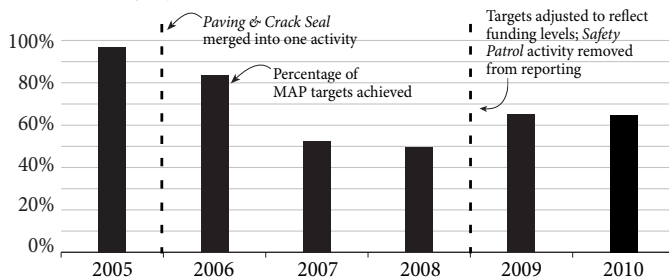
For the second year WSDOT achieved 65% – or 20 of 31 – MAP asset condition targets. After several years of a downward trend, this “leveling off” is a result of increased funding – to catch up with the backlog of some maintenance activities – balanced against the increased maintenance workload related to a growing number of highway assets from the Nickel and TPA gas tax-funded projects. Thirteen activities achieved a slightly higher score than last year, eight were slightly lower, while 10 remained the same. Most changes were relatively small (from a C to C+, etc.). MAP targets for *asset conditions* were adjusted in 2009, to align performance expectations with the changed buying power of the maintenance budget. (For more details on missed asset condition targets, see page 20.)

Explanation of missed LOS targets for 2010

- *Keller Ferry Operations*, which went from a consistent B over many years to a C- in 2010: the ferry was out of service for 43 days while the engine was overhauled and hull maintained.
- *Structural Bridge Repair* completed many higher cost repairs in 2010 allowing for fewer total tasks to be completed. The LOS score missed its target but improved from an F in 2009 to a C- in 2010.
- Data for *Pavement Patching & Repair* is collected over 12 to 18 months. Work performed in 2009-2010 will be reflected in 2011 scores.
- Data collection for *Pavement Striping Maintenance* on high volume roads was conducted using a retroreflectometer-equipped van for the first time. The van captures many more measurements than previous years, impacting LOS scores.
- Increased funding for *Raised/Recessed Pavement Markers* will not be reflected in LOS ratings until 2011 because the program's implementation on the east side of the state was delayed.
- Two of six regions missed the target for *Rest Area Operations*. 2010 scores are based on 46 surveys on 39 out of 44 rest areas; past scores were based on more surveys.
- The number of deficient *Culverts* decreased from 18 to 15 out of 100 in 2010. The LOS score missed its 2010 target but improved slightly compared to 2009.
- *Shoulder Maintenance* targets were missed by two of six regions; statewide the target (B-) was missed by a small number of points, attaining a C+ for 2010.
- *Noxious Weed Control*, *Nuisance Vegetation Control*, and *Landscape Maintenance*. These relatively low priority area missed targets for 2010, in part because WSDOT has stepped up workforce education and awareness in these areas resulting in more accurate measurement of LOS.

Task Completion and Asset Condition

Statewide maintenance targets achieved As a percentage of total 2005-2010



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 2009, WSDOT introduced *task completion* performance measures to supplement existing measures *Asset condition* performance measures

MAP has traditionally focused only on the condition of the highway system assets and related this to maintenance activities. While maintenance activities play a significant role in the condition of highway assets, WSDOT's preservation program also contributes to highway asset condition dependant on how effectively major assets are replaced when they have reached the end of their useful lives. WSDOT's improvement program contributes to overall highway asset condition dependant on the quality and sheer volume of new assets that are added to the highway system. As such, asset condition LOS is reflective of the combined work of the maintenance, preservation, and improvement programs.

Task completion performance measures

As discussed in *Gray Notebook* 36, and beginning in 2010, MAP reporting will now include an additional measurement called *task completion* for those activities that have had tasks fully quantified. These metrics will quantify the number of tasks needed for a specific activity each year, and how many of those tasks were completed. For instance, the tasks can be identified as preventive maintenance tasks, with a scheduled frequency, such as for *Signals*, where it has been determined that there are 13 preventive maintenance procedures to be performed throughout the year on each signal. Alternatively, the tasks can be a list of existing deficiencies, such as in pavement, which are then prioritized and planned for completion with the most efficient use of resources possible. LOS is expressed as the percentage of identified tasks that were completed. The difference between what should have been completed and what did get completed is termed a backlog for individual maintenance activities.

Analysis of task completion LOS ratings

Because WSDOT could quantify the backlog for eight maintenance activities, the legislature provided \$16.8 million for the 2009-2011 biennium to begin the process of catching up on the identified \$85 million backlog of maintenance work. The 2009-11 Transportation Budget Bill included language that stated, "addressing the maintenance backlog must result in increased levels of service." WSDOT expected to see improvements in asset condition during the 2010 MAP field condition assessments. WSDOT developed and implemented plans increase the percentage of tasks completed for these maintenance activities and initiated quarterly reporting to track progress and accomplishments.

It appears that the funding of backlog work has begun to arrest the downward trend of LOS scores, as the percentage of *asset condition* targets achieved remained stable from 2009 to 2010.

Of the activities selected to receive backlog funding in the 2009-2011 biennium, WSDOT is meeting or exceeding its plan in all eight: the box below shows the biennium-to-date delivery of these activities. It can also be noted that five of these eight maintenance activities show improvement in the *asset condition* LOS; three do not.

Total projected investment in maintenance backlog

Dollars in millions, 2009 - 2011 currently funded*

2009 - 2011	\$16.8
2011 - 2013	\$24.1
2013 - 2015	\$22.7
2015 - 2017	\$12.3
2017 - 2019	\$9.0
Total	\$85.0

Data source: WSDOT Maintenance Office.

*Note: Planned investments after the 2009 - 2011 biennium are not currently funded. Dollar figures are rounded.

Biennium-to-date progress: 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 estimated backlog funding and the percentage of the planned tasks that have been completed as of Q2 of FY 2011.

Activity (estimated cost, millions)	Percentage of plan achieved: biennium-to-date
Signals (\$4.0 million)	94%
ITS (\$3.0 million)	93%
Structural bridge repair (\$1.5 million)	97%
Pavement patching & repair (\$4.0 million)	190%
Culverts (\$1.5 million)	95%
Cable guardrail (\$0.7 million)	115%
Regulatory signs (\$0.9 million)	102%
Raised/recessed pavement markers (\$1.2 million)	99%
Total funded \$16.8 million	

Data source: WSDOT Maintenance Office.

Highway Maintenance Annual Report

Detailed results of 2010 *Task Completion* and *Asset Condition* surveys

The chart below shows both sets of performance data, by asset, for comparison (where available); also shown are three assets/activities with identified preventive maintenance activities tracked for completion. It is important to note that WSDOT is

still in the beginning stages of transitioning to this new style of performance reporting for the Highway Maintenance program and is continuing to refine the way this information is measured and reported.

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

Comparison of calendar years 2008 – 2010

Activity or asset	Task completion goals	Integrated measures	2008	2009	2010
Signals ¹	Catch up with half of current backlog - Increase planned maintenance completion rate to 69%	% of total planned maintenance complete	37%	44%	79%
		Asset condition rating	C-	C	B
ITS ²	Catch up with half of current backlog - Increase planned maintenance completion rate to 57%	% of total planned maintenance complete	14%	13%	49%
		Asset condition rating	B	A-	B+
Structural bridge maintenance	Achieve asset condition LOS target "C"	% of Priority 1 repairs completed	59%	42%	67%
		Asset condition rating	D	F	C-
Pavement ³	Hold current asset condition LOS "C+"	% of planned work completed	N/A	N/A	163%
		Asset condition rating	C+	C+	*
Culverts	Achieve asset condition LOS target "C"	% of planned work completed	N/A	N/A	92%
		Asset condition rating	D-	D-	D
Cable barrier ⁴	Complete 100% of planned maintenance and repairs	% of planned maintenance and repairs complete	N/A	N/A	100%
		Asset condition rating	N/A	N/A	A+
Regulatory signs ⁵	Achieve asset condition LOS target "C+"	% of planned work completed	N/A	N/A	113%
		Asset condition rating	C	D+	C+
Pavement markers	Achieve asset condition LOS target "B"	% of planned work completed	N/A	N/A	95%
		Asset condition rating	C	C-	C+
Movable or Floating bridges	Complete 100% of planned maintenance	% of total planned work complete	81%	92%	96%
		Asset condition rating	A+	A+	A-
Urban tunnels	Complete 100% of planned maintenance	% of total planned maintenance complete	94%	91%	94%
		Asset condition rating	B	B+	B+
Catch basins	Complete annual inspection and maintenance in NPDES permit area	% of inspection/maintenance complete	Measurement of performance begins in March 2011		
		Asset condition rating			
Stormwater BMPs	Complete annual inspection and maintenance in NPDES permit area	% of inspection/maintenance complete	Measurement of performance begins in March 2012		
		Asset condition rating			

Data source: WSDOT Maintenance Office.

Data notes: Progress against maintenance plan targets

1 **Signals** exceed its LOS score for 2010. One average, only one repair per signal was required in 2010 compared to 2 per signal in 2009.

2 The **ITS** LOS decreased from an A- to a B+, still above the target score of B-. It is anticipated that an increase in preventative maintenance activities will keep the score above the target.

3 Data for **Pavement Patching & Repair** is collected over 12 to 18 months. Work performed in 2009-2010 will be reflected in 2011 scores. The 2010 LOS score of C missed the target of C+. WSDOT is transitioning 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 can be greater than

100% due to the nature of planning for future pavement repairs. It is difficult to predetermine exactly the type of repair work that will be needed in the future, in 2010 WSDOT was able to complete more low cost repairs than anticipated driving up the task completion percentage.

4 **Cable guardrail** has not been reported individually in past years, but has always been included as part of total guardrail. Cable guardrail, measured alone, achieved an A+.

5 **Regulatory Signs** met the LOS for 2010, this increase compared to 2009 translates into a higher percentage of regulatory signs that are readable at night. 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.



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	26
Washington State Ferries Quarterly Report	31
Rail: Amtrak <i>Cascades</i> Quarterly Update	35

See also

Special Report: Federal Recovery Act-funded Projects	46
Quarterly Report on Capital Projects (Beige Pages)	51
New Ferry Construction	73

Earlier articles concerned with mobility

Measuring Delay and
Congestion Annual Report,
GNB 39 and special publication
Commute Options
Annual Report, GNB 38
Travel Times Six Month Update,
GNB 38
Trucks, Goods & Freight
Annual Report, GNB 37
CVISN, GNB 37

Travel Time Trends Semi-Annual Report

Travel Trends in the Seattle Area: July-December 2010 vs. 2007-2009

Travel Time Trends Highlights

July-December 2010:

- ♦ Compared to the same period in 2009, ten of the 18 surveyed key commutes saw longer travel times.
- ♦ Bellevue to Everett via I-405 showed more than 3 minute improvement in travel time during the morning commute due to the completion of auxiliary lane in Bothell.
- ♦ Federal Way to Seattle morning commute is three minutes longer in the second half of 2010 compared to the second half of 2009.
- ♦ The commute time across Lake Washington has seen stable travel times for the past four years.
- ♦ Daily volumes decreased on 11 of 18 routes during the second half of 2010 as compared to the same time period in 2009.

July-December 2009:

- ♦ Compared to the same time period in 2008, travel times improved on eight of the surveyed commutes.
- ♦ Tukwila to Bellevue morning commute improved by 13 minutes in part due to the completion of a new auxiliary lane on I-405.
- ♦ Changes to peak period volumes show increases on 12 of 18 commute routes since the 2008 economic downturn.
- ♦ Daily volumes increased on all 18 routes during the second half of 2009 compared to the same period in 2008.

This semi-annual travel time analysis provides up-to-date information about the central Puget Sound travel trends, ongoing congestion relief strategies and projects under the state's Moving Washington program to fight congestion. Specifically, this report focuses on a sample of 18 key commute routes in the central Puget Sound region, listed on page 23. These results supplement the annual Congestion Report, which takes a more comprehensive look at the state's congestion trends, as well as those of the central Puget Sound. The next annual Congestion Report will be published in August 2011, and will include information on the benefits of completed projects.

The trends described in this summary result from a comparison of traffic conditions in the second six months of 2010 to those from the same time periods in 2007, 2008, and 2009. The extended period allowed comparison of both recent changes in travel as well as longer trends. The table on page 23 summarizes the travel time and volume changes that occurred in the central Puget Sound in the second half of 2010 (July-December).

Travel time changes in second half of 2010 were mixed

Taken as a whole, travel times began to drop in 2008 and continued to fall through 2009. In 2010, morning commute travel times were slightly longer than the previous year while travel times in the afternoon commute were generally shorter. Still, 2010 travel times were almost all below 2007 levels – even in the morning. Travel times on I-405, where several WSDOT projects have been either under construction or recently completed, are examined in detail.

Travel time changes on I-405

I-405 NE 195th Street to SR 527 (Bothell vicinity) The northbound evening commute from Bellevue to Everett via I-405 showed an improvement of more than three minutes, in large part because WSDOT completed construction of an auxiliary lane in Bothell (see p. 59 of the 2010 Annual Congestion Report for more details on this project).

I-405 South Bellevue Widening WSDOT completed this widening project in 2009, which shaved 13 minutes from the morning Tukwila-to-Bellevue commute compared to the second half of 2008. In the second half of 2010, peak hour traffic volumes grew, adding two minutes to the morning trip time; 11 minutes of the benefit provided by the project still remain.

Analyzing traffic volumes for this route showed several slight but noticeable shifts in traffic patterns over the course of the morning. In 2010, traffic volume between 5am and 6am was lower than in 2009; volume after 6am increased compared to 2009, and remained high through the “peak of the peak” contributing to increased congestion before declining again around 6:30am. This resulted in low volumes past 6:30am in 2010, compared to 2009.

Travel times reflected these volume shifts. Traffic was effectively free flowing in both 2009 and 2010 until after 6am, when increasing volume caused congestion on some days. However, by 6:30am, 2010 congestion was noticeably higher than that observed in 2009, and that congestion decreased vehicle throughput to less than that of 2009.

These results suggest that routinely high levels of congestion on I-405 – considered one of the region's two heaviest routes – convinced many commuters to start their work day earlier to avoid congestion. The dramatic reduction in congestion following the I-90 approach improvements appears to have allowed a group of those commuters to leave for work later in the morning. The result was lower volume during the 5am hour, but an increase in volume after 6am, leading to more congestion during the “peak of the peak” period in 2010 than in 2009.

Travel Time Trends Semi-Annual Report

July-December, 2007-2010: Travel times are slightly higher on 10 of 18 sampled key commute routes

Congestion returning on I-5 Federal Way to Seattle morning commute

In 2010, a two-year trend of improving AM peak travel times along the Federal Way to Seattle route reversed. Between the second half of 2007 and 2009, the route had seen an 11-minute improvement in travel time, most likely due to the recession. In the second half of 2010, this route experienced a modest three-minute increase in morning travel times, despite having no

statistically significant change in traffic volumes. The observed 2010 travel times were similar to those found in 2008, but slightly higher than those found in 2009.

Impact of an extreme weather event on average travel times

Unlike the morning peak period, the afternoon commute on four north/south I-5 travel routes showed very modest improvements in travel time. However, on November 22, 2010 the Seattle

Travel time performance for July-December in 2007-2010 on a sample of 18 high demand commute routes

Morning (AM) peak is between 6 am and 9 am; Evening (PM) peak is between 3 pm and 7 pm; Length of route in miles; all travel times in minutes

Route name (route length)	Direction of travel	Average travel time in minutes during peak period				Peak average travel time change in minutes			Peak volume change		Daily volume change		
		2007	2008	2009	2010	2008 vs. 2007	2009 vs. 2008	2010 vs. 2009	2009 vs. 2008	2010 vs. 2009	2009 vs. 2008	2010 vs. 2009	
Morning commutes													
I-5 Federal Way to Seattle (22)	NB	42	35	31	34	-7	-4	+3	+5%	-1%	+5%	-1%	
I-5 Everett to Seattle (24)	SB	41	36	35	37	-5	-1	+2	+3%	-4%	+3%	-1%	
I-5/I-405 Everett to Bellevue (23)	SB	42	37	36	40	-5	-1	+4	0%	-2%	+3%	0%	
I-405 Tukwila to Bellevue (13)	NB	35	33	20	22	-2	-13	+2	+33%	-2%	+10%	+1%	
SR 167 Auburn to Renton (10)	NB	17	14	14	15	-2	0	+1	+9%	-2%	+5%	-1%	
I-405/I-90/I-5 Bellevue to Seattle (11)	SB/WB/NB	14	—*	12	12	—*	—*	0	-1%	+1%	0%	+3%	
I-405/SR 520/I-5 Bellevue to Seattle (10)	NB/WB/SB	14	13	14	14	-1	+1	0	0%	-3%	+2%	-2%	
I-5/I-90/I-405 Seattle to Bellevue (11)	SB/EB/NB	14	14	12	13	0	-2	+1	-5%	0%	+1%	-1%	
I-5/SR 520/I-405 Seattle to Bellevue (10)	NB/EB/SB	16	15	15	16	-1	0	+1	-2%	-2%	+2%	-2%	
Evening commutes													
I-5 Seattle to Federal Way (22)	SB	31	29	28	27	-2	-1	-1	+4%	-1%	+5%	-2%	
I-5 Seattle to Everett (24)	NB	38	34	37	36	-4	+3	-1	-3%	0%	+2%	0%	
I-405/I-5 Bellevue to Everett (23)	NB	41	35	36	33	-5	+1	-3	+4%	0%	+3%	0%	
I-405/I-5 Bellevue to Tukwila(13)	SB	31	31	26	25	0	-5	-1	+5%	-1%	+5%	0%	
SR 167 Renton to Auburn (10)	SB	16	14	13	15	-2	-1	+2	+2%	-2%	+5%	+2%	
I-405/I-90/I-5 Bellevue to Seattle (11)	SB/WB/NB	22	—*	17	18	—*	—*	+1	+1%	0%	0%	+3%	
I-405/SR 520/I-5 Bellevue to Seattle (10)	NB/WB/SB	23	21	23	22	-1	+2	-1	+2%	-1%	+2%	-2%	
I-5/I-90/I-405 Seattle to Bellevue (11)	SB/EB/NB	13	13	13	15	0	0	+2	+2%	-3%	+1%	-1%	
I-5/SR 520/I-405 Seattle to Bellevue (10)	NB/EB/SB	16	16	17	17	0	+1	0	+3%	-2%	+2%	-2%	

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. Daily volumes are duplicates in both the AM and PM routes. Asterisk (*) indicates data not available for westbound I-90 due to construction.

Travel Time Trends

Semi-Annual Report

Factors Influencing Travel Trends

region experienced a major snow storm just before the evening peak period. The result was an exceedingly heavy commute with extreme travel times. That “extreme” day was so congested that it alone increased the mean travel time for the six-month analysis period by 30 seconds or more on many of the study routes. It is important to note here that small variations and changes are to be expected in average travel times due to this sort of event, and a small change in average travel times due to a significant event might not mean a change in typical commute time. (See also the Incident Response program quarterly update on page 28.)

Commutes across Lake Washington

In contrast to the changes observed on the north/south routes, the smallest travel time changes occurred on the trips crossing Lake Washington’s two floating bridges. These trips, both east/west on I-90 and SR 520, have had very stable travel times for the past four years.

Of particular interest is that only modest changes were observed on I-90 westbound. This roadway has undergone a variety of changes in the past four years. WSDOT’s I-90 Two-Way Transit and HOV project has constructed half of a new HOV lane that will eventually allow transit and carpools to use HOV lanes on I-90 in both directions all day. (Currently, carpools and transit use the reversible lanes in the peak direction but must share the general purpose lanes in the other direction.) The new HOV lane construction allows transit and carpools to remain in an HOV lane halfway across Mercer Island before they must merge into the general purpose lanes, shifting where the merge congestion occurs on I-90. Construction of the corresponding eastbound lane is currently under way and a third stage of the project will extend the new HOV lanes into Seattle.



Stage 2 of the I-90 Two-Way Transit and HOV project was under construction in August 2010. In order to widen the roadway crews must demolish the existing barrier. This is the view looking west. The center roadway and westbound I-90 are on the right.

No major changes in spot traffic volume

Data on page 23 shows that vehicle volume counts performed at representative locations along each study corridor in the second half of 2010 revealed very little change in traffic volumes in comparison to the second half of 2009. This was true for both peak period travel and daily travel. Importantly, 13 of the 18 count locations showed slight decreases in peak period travel, and 11 showed decreases in daily travel. However, all of these changes were smaller than the margin of error of the traffic counting devices.

For volume changes, the only corridor that merits special mention is northbound I-405 from Tukwila to Bellevue in the morning commute period. This corridor showed a major increase in peak period volume throughput (33%) in 2009 as a result of the decrease in congestion caused by the addition of capacity approaching the I-90 interchange. In 2010, a small part (1.5%) of this increase in throughput was lost to increasing congestion as commuters shifted their time of departure from before the start of the peak to later in the morning to take advantage of the faster trip. However, volume and travel times both remained considerably better than in 2008, before the completion of the project.

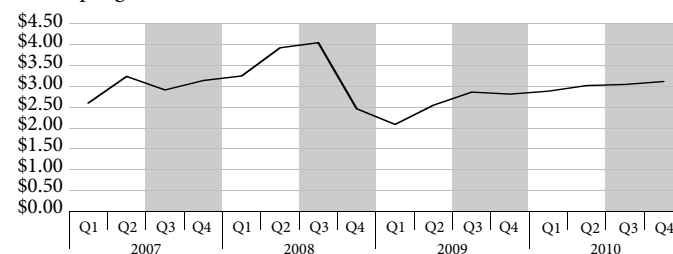
Other potential factors that influence travel trends during the second half of 2010

The modest changes in both volume and travel times are partially explained by the fact that the baseline economic conditions that affect travel in the region did not change significantly between the second half of 2009 and the second half of 2010.

Gas prices increased very slightly, from just under \$3.00 a gallon in the third and fourth quarter of 2009 to just over \$3.00 a gallon in the same quarters of 2010.

Washington statewide quarterly gasoline prices

Dollars per gallon; 2007-2010

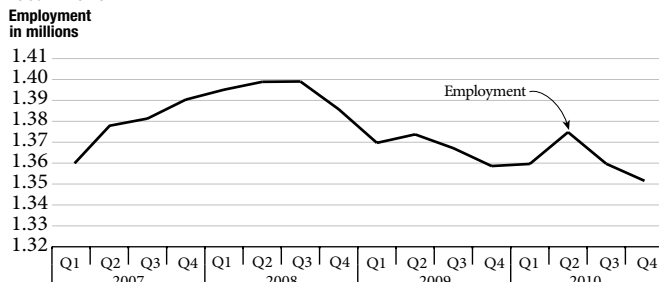


Data source: US Department of Energy: Energy Information Administration (EIA).

Travel Time Trends Semi-Annual Report

Influences on Travel Times: Transit ridership

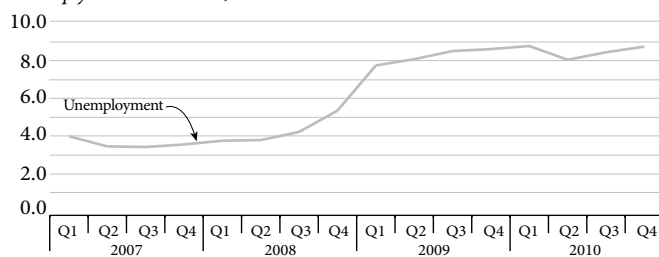
Seattle-Bellevue-Everett metropolitan statistical area quarterly employment trends
2007-2010



Data source: Washington State Employment Security Department, Labor Market and Economic Analysis (LEMA).

Note: Data is not seasonally adjusted. December 2010 data is preliminary.

Seattle-Bellevue-Everett metropolitan statistical area quarterly unemployment trends
2007-2010



Data source: Washington State Employment Security Department, Labor Market and Economic Analysis (LEMA).

Note: Data is not seasonally adjusted. December 2010 data is preliminary.

Employment levels at the end of 2010 were slightly below those observed at the end of 2009, while the unemployment rate remained stable near 9%.

These trends indicate that during the second half of 2010:

- there was no significant change in the demand for peak period commuter travel in the region;
- there was no significant change in the cost of travel;
- therefore, no significant change was expected in the level of discretionary travel occurring in the region between the end of 2009 and the end of 2010 that would have been caused by changes in the economy.

Ridership continues to grow on Central Link Light Rail in the second half of 2010

About 3.8 million passengers boarded the Central Link Light Rail trains between SeaTac International Airport and Seattle during the second six months of 2010. This is more than a 50% increase in ridership compared to 2009. However, the 2009 data does not capture the first 17 days since the Central Link Light Rail was inaugurated on July 18, 2009, providing service between Seattle and Tukwila. The extension to the SeaTac/Airport station began operating on December 19, 2009. Between inauguration and the end of year (2009) there were about 2.5 million boardings.

Sounder train ridership dropped from 1.26 million to 1.16 million boardings between the second halves of 2009 and 2010, a decrease of about 8%, and down from a peak of 1.41 million in 2008.

Bus ridership along the freeway network decreased 5.3% in second half of 2010 compared to the second half of 2009. Decline in ridership might be attributed to the effects of recession.

Puget Sound region transit ridership

July-December; 2007-2010

Year	ST Express Bus	Sounder Train	Central Link*
2007	5,509,559	1,183,070	n/a
2008	6,645,912	1,408,513	n/a
2009	6,681,530	1,259,755	2,501,211
2010	6,329,868	1,159,035	3,794,050

Data source: Sound Transit.

Note: *Central Link service started Saturday July 18, 2009

Incident Response Quarterly Update

Incident Response Highlights

In Q4 2010, IR program cleared 10,308 incidents. For 2010 the IR program cleared 43,670 incidents statewide.

The average incident clearance time in Q4 2010 is 13.8 minutes. The annual average statewide incident clearance time for 2010 is 12.6 minutes.

The 2010 annual average over-90-minute incident duration is 162 minutes.

The mission of WSDOT Incident Response (IR) Program is the safe, quick clearance of traffic incidents on state highways by clearing roads and helping drivers to restore traffic flow, minimize congestion and reduce the risk of secondary collisions. The IR teams are trained and equipped to provide emergency response and assistance to the Washington State Patrol (WSP) troopers at collisions and other traffic emergencies. In addition to providing emergency response to blocking and life safety incidents, the IR teams also offer a variety of motorist assistance services including changing flat tires, giving a jump start or providing a gallon of gas. These services keep roadways clear, traffic moving and reduce the risk of collisions caused by distracted driving. The IR program has scheduled roving units that operate during peak traffic and commute periods. The IR teams also are available 24/7 for call out as requested by the WSP.

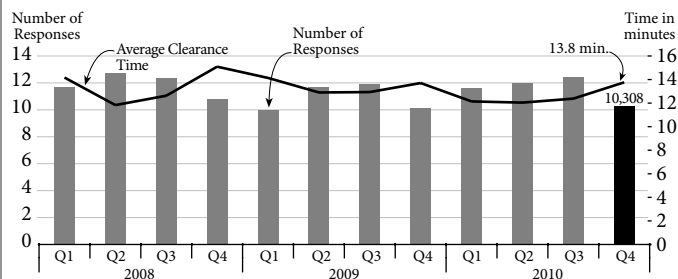
IR teams responded to 1.4% more incidents in Q4 2010 than Q4 2009

Between October 1 and December 31, 2010, WSDOT's IR teams responded to 10,308 incidents, 17.2% fewer responses than last quarter's 12,444 incidents, but 1.4% more than the 10,163 incidents in the fourth quarter of 2009. The statewide average clearance time for all incidents in the fourth quarter of 2010 was 13.8 minutes, 11.3% longer than last quarter's 12.4 minutes, but a negligible change from the 13.7 minutes average clearance time in the fourth quarter of 2009.

Number of responses and overall clearance time

January 1, 2008 - December 31, 2010

Number of responses in thousands, clearance time in minutes



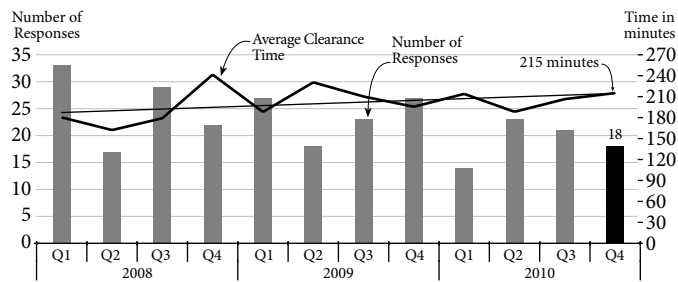
Data source: Washington Incident Tracking System, WSDOT Traffic Office.

Note: New data tracking and response time definitions established January 2008.

Number of responses and average clearance time of fatality collisions

January 1, 2008 - December 31, 2010

Number of responses in thousands, clearance time in minutes



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

Note: New data tracking and response time definitions established January 2008.

The quarterly number of incidents responded to in the past three years shows that the number of incidents is normally lower in the fourth quarter, while average clearance times are slightly higher compared to the other three quarters of the year. Seasonality appears to be a factor in both the lower number of incidents and increased average clearance times. Incidents in quarters with severe weather can take more time to clear, which may prevent responders – especially those on a roving schedule – from making their way to other incidents. Even if there are fewer vehicles on the roads when bad weather is forecast, reducing the number of incidents in the first place, those which do occur are more difficult to remove due to ice, snow, or mud.

More time taken to clear fatality incidents

In the fourth quarter of 2010, IR teams responded to 18 incidents for which fatality was one of the several contributing factors, with an average clearance time of 215 minutes. This is 4.2% longer than last quarter's clearance time of 207 minutes, and 10% longer from the average time of 196 minutes in the same quarter of 2009. Clearance times clearly depend on the nature of the incidents and the kind of emergency responders required at scenes needing detailed investigation.

Annual statewide fatalities, 2007-2010

Fatality Analysis and Reporting System (FARS) database show preliminary fatality numbers at December 31 of each year have dropped annually since 2007: 537 in 2007, 509 in 2008, 477 in 2009, and 420 in 2010. These numbers are not total annual fatalities since data can be updated up to 30 days later.

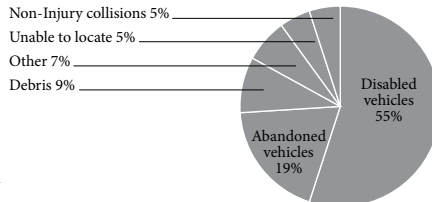
Over-90-Minute Incidents, Enhanced Incident Report Pilot Project

Number and percentage of responses by duration

Q4, October 1, 2010 - December 31, 2010; 10,308 incidents

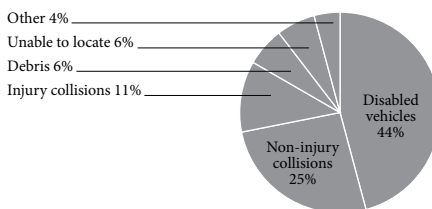
Incidents lasting less than 15 minutes (7,572)

Injury, and Police Activity were less than 1% (not shown). There were 25 Fires and 2 Hazardous Materials events involved incidents in addition to or as a result of above incidents. 24 incidents involved WSDOT property damage, and 140 were located in work zones.



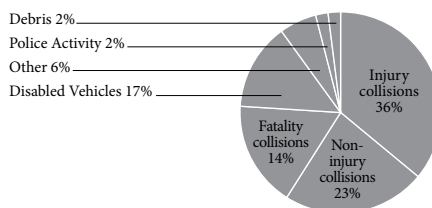
Incidents lasting 15 to 90 minutes (2,618)

Police Activity and Fatality collisions were less than 1% (not shown). There were 897 Fire, and 6 Hazardous Materials involved incidents in addition to or as a result of above incidents. 544 incidents involved WSDOT property damage, and 952 were located in work zones.



Incidents lasting 90 minutes and longer (118)

There were 1 Hazardous Materials and 165 Fire involved incidents in addition to or as a result of above incidents. 355 incidents involved WSDOT property damage, and 53 were located in work zones.



Data source: WITS, WSDOT Traffic Office.

WSP and WSDOT target reductions in duration of over-90-minute incidents

WSDOT and WSP have a formal agreement to clear 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 charged the two agencies with lowering the average duration of these over-90-minute incidents, on nine key highways in the state. The 2010 average annual duration for GMAP incidents was 162 minutes, missing the 155-minute goal. In 2009, the two agencies made the GMAP goal, with an average annual duration of 154 minutes. In 2007, and 2008, the clearance time was 156 minutes, missing the 155-minute goal by one minute.

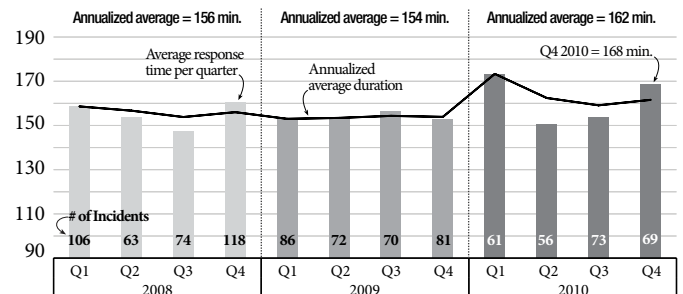
Average duration of over-90-minute incidents increased to 168 minutes in Q4 2010

During the fourth quarter of 2010, 69 over-90-minute incidents occurred on the nine key routes, with an average duration of 168 minutes. This is 14 minutes longer than the 154 minutes recorded in the third quarter 2010.

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

January 1, 2008 - December 31, 2010

Number of responses per quarter vs. annualized average duration in minutes



Data source: Washington State Patrol and WSDOT Traffic Office.

Enhanced Incident Report (EIR) pilot project

The Governor recently challenged WSP and WSDOT to consider what innovations could further speed up clearance of over-90-minute blocking incidents on the nine key highways. Together these agencies developed a pilot project that asks WSP officers to record detailed reports, called Enhanced Investigation Reports (EIR), about the over-90-minute incidents they attend over the course of one year. Analyzing the data captured will allow agencies to develop ways to speed up the management of 90-minute blocking incidents. King County was chosen as the pilot project site, because it saw more than half of all major incidents in 2009. The pilot project started July 2010 and will continue through June 2011.

Between July 1, 2010 and December 23, 2010, 47 reports were received. So far, the most frequently recorded elements in over-90-minute incidents by on-scene troopers are:

- Involvement of trucks or semi-trailers (21.3%)
- Weather conditions (12.8%)
- Need for EMS or fire department crews (6%)

Eight incidents (17%) involved at least one investigation; on average, the response time for investigation teams was 31 minutes, and those teams took 96 minutes to complete their work.

- Two (4.25%) were fatalities
- Two (4.25%) involved fire
- Four (8.5%) were hazmat events

WSP and WSDOT will continue to collect and analyze data from the EIR. A complete analysis will be available in the summer of 2011.

Incident Response

Quarterly Update

Extraordinary Incidents / IR Program helps accomplish agency goals

Extraordinary incidents in this quarter: SR 18 semi-rollover (9.5 hours) and November 22 snow storm (12 hours)

This quarter reported two extraordinary incidents (lasting 6+ hours), lasting 9.5 hours and 12 hours, which contributed to the higher average quarterly incident clearance time. If these two incidents are removed from the data-set, the average duration of over-90-minute incidents in this quarter drops to 154 minutes.

An incident on SR 18 involved a semi-trailer that caught on fire and lost its load of apples and pears. A WSDOT maintenance team responded with a front-end loader to clean up the mess. The incident and cleanup effort lasted 9.5 hours.

The other extraordinary event occurred on I-5 during the November 22 afternoon snowstorm. Many vehicles, including tractor trailers and articulated buses, were stuck in icy, snowy conditions on the freeway; drivers abandoned their cars, which prevented tow trucks and recovery equipment from accessing to the site. The extreme weather lasted nearly 12 hours, creating havoc during the evening commute.



The morning following the blizzard on November 23, a semi-truck slid off northbound SR 599 and blocked traffic. A WSDOT IR truck at the scene deployed warning cones to guide other drivers away from the blocked lane and coordinated efforts to remove the vehicle.

Blizzard also prompts new joint response efforts

The November snowstorm also spurred the development of a new Joint Response Team that pairs a WSDOT IR truck carrying a compact sanding unit with a WSP patrol car. The teams, based in King County during the pilot period, can be deployed to priority blocking incidents involving buses, semi-trucks, or other large vehicles. The mini-sander can reach problem sites more quickly and once there, maneuver more easily than large sanding rigs, while the WSP partner manages surrounding traffic. The new teams were put into action on December 29, helping buses and trucks on I-5 in Lynnwood gain traction in early morning snow.

Incident Response program helps WSDOT accomplish departmental goals

The Incident Response (IR) program is integral to WSDOT's efforts to reduce congestion – Moving Washington. It maximizes the agency's ability to efficiently operate the state's transportation systems by deploying specially trained roving Incident Response technicians in congested areas to manage traffic incidents and minimize their impact on traffic flow. The IR program helps achieve all six key state transportation policy goals identified by the state legislature. Even though the program's emphasis is primarily on mobility, it makes significant contributions to the success of the other five transportation policy goals as described below:

- IR program contributes to providing for and improving the safety and security of transportation customers and the transportation system by quickly and safely clearing the roadway of hazards and debris thereby reducing the risk of secondary collisions.
- The use of Traffic Incident Management (TIM) Best Practices helps to preserve, maintain, and extend the life of the prior investments in transportation systems and services.
- IR helps achieve environmental policy goals by improving travel times, reducing the hours of delay by preventing incidents and reducing incident clearance times thus contributing to reductions in green house gas emissions.
- IR helps achieve stewardship goals by helping to the transportation system to operate efficiently and effectively in order to achieve the greatest benefits from the resources entrusted to us by the public.
- IR helps accomplish economic vitality goals by providing reliable travel times for freight and goods movement on the state and interstate roadway systems.
- IR supports the mobility policy goal by improving the predictable movement of goods and people throughout the state by reducing congestion. IRT services help to achieve reliable travel times, predictable hours of delay, average clearance time for major incidents, thereby improving freight movement.

The service delivered by the Incident Response program also aligns with the goals of the Strategic Highway Safety Plan, Highway System Plan, and WSDOT Strategic Plan.

Improved IR Program Performance Evaluation

WSDOT takes new approach to classifying IR data and analyzing program performance

Current reporting on the IR program's performance in the *Gray Notebook* and the Governor's GMAP forum has focused on raw numbers of incidents and their duration (see the graphs *Number of responses and overall clearance time*, and *Progress toward the goal for reducing average clearance times for over-90 minute incidents on the nine key western Washington highway segments*), and contributing factors (see the graphs *Number of responses and average clearance time of fatality collisions*, and *Number and percentage of responses by duration*). Narrative describing major incidents also presents the nature of an incident and how badly traffic flow was affected, as well as the dispositions or actions taken.

The pie charts on page 27, for example, show that disabled vehicles represented 44% of the incidents lasting 15 to 90 minutes. But these charts have no way of indicating whether those vehicles had stalled on the highway, blocking traffic and endangering other motorists, or were off on the shoulder with a flat tire. The former disabled vehicle incident might take an hour to safely maneuver the car out of traffic and resolve, the latter less than 20 minutes.

With 2011, WSDOT will employ a new classification system that will sift every incident into clearly defined categories and the levels of response/actions taken. The goals: to provide IR managers with greater flexibility in data analysis and will allow them to investigate better program management strategies, and to offer more detailed reporting to program partners, legislators, and citizens.

How the proposed classification and categorization system will work

WSDOT's IR responders record data (via the Washington Incident Tracking System (WITS) database) on all aspects of the incidents they attend: the incident type, location, time of day, incident start and end times, contributing factors, disposition of the incident including the type of assistance provided, whether the roadway was blocked and traffic flow affected, and so on.

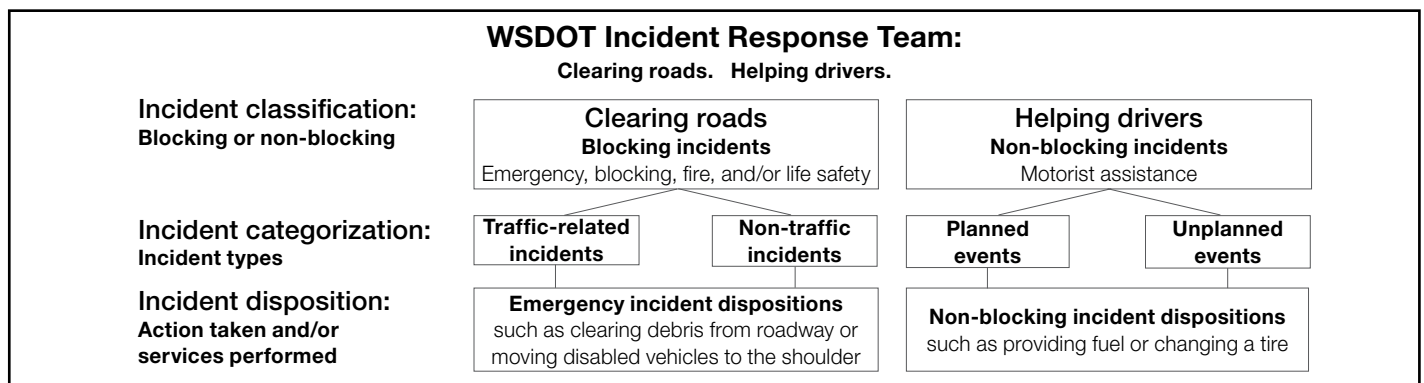
Data collection will remain the same: how it is parsed and analyzed will change. The incident data will initially be classified broadly as either *emergency/blocking* or *non-blocking*. The illustration at the bottom of this page shows how the classification of an incident might move through the categorization chart.

Emergency/Blocking incidents involve life safety, whether due to the nature of the incident or because a travel lane is blocked and creating the risk of a secondary collision.

Non-blocking incidents are any incidents that do not block a travel lane but may constitute a hazard or be a distraction to other motorists.

The next level of categorization details the type of incident responded to. For emergency/blocking incidents, the incident may be directly *related to traffic* (a collision, a stalled vehicle or debris in the travel portion of a roadway), or an emergency *unrelated to traffic* (a brush fire, natural disaster, severe weather conditions affecting traffic operations).

Non-blocking incidents can either be *planned events* (such as parades or funeral processions), or *unplanned events* (such as an abandoned vehicle, or a motorist who has run out of gas).



Incident Response

Quarterly Update

Improved IR Program Performance Evaluation

and coasted to the shoulder). While not an immediate danger, these distractions can create a degree of risk for the individuals involved and for passing motorists, and require attention.

Finally, the categorization process captures the complexity of actions taken to remedy the event. For example, providing a gallon of gas to a driver stranded on the shoulder is a disposition related to a non-blocking incident categorized as motorist assistance. Data analysis based on a metric such as “gallons of gas provided” would allow program managers to calculate fuel usage and likely future requirements.

It would also allow the agency and its partners to measure the number of contacts with the public made by IR responders, information which might affect how many teams are needed, how they are trained, and how their schedules are managed.

Program management benefits

The classification/categorization of incidents by type will give the IR program manager additional opportunities to look at other options to strategically deploy the resources where greatest benefit can be gained from minimal investment. Further, it will be possible to report on both statewide roll-up measures (as the current charts do), but also on drill-down measures, such as how many tires did IR personnel change this quarter. This capability will allow the program manager to effectively and efficiently manage operations towards greater productivity.

Future reporting and metrics under development

Future IR articles in the *GNB* will continue to report on current metrics, but will also discuss new performance metrics such as the number of traffic-related/non-traffic-related blocking incidents and the associated clearance times, and non-blocking, unplanned, motorist assistance services. Possible metrics to track unplanned events might include the number of motorists helped with mechanical problems or provided with fuel.

Washington State Ferries Quarterly Update

Ridership and Farebox Revenue

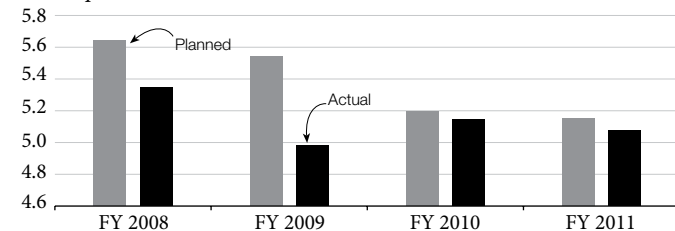
Washington State Ferries (WSF) serves as both an extension of the state's highway system and as a regional mass-transit provider. It provides a critical link to communities separated by water or longer driving distances, and is essential to the movement of goods and people in the Puget Sound region. It is the largest operating auto-ferry fleet in the world, carrying 10 million vehicles and nearly 23 million ferry passengers each year.

Ridership levels improve, but remain below projected levels

For the second quarter of fiscal year (FY) 2011 (October 1 – December 31), 5.1 million people traveled on the ferry system, about 79,000 (1.6%) below the FY 2011 quarterly levels projected in June 2010. Compared to the same quarter one year ago, WSF served 71,000 fewer riders, a drop of 1.4%. As noted in the previous edition of the *Gray Notebook*, ridership and farebox revenues are now presented on a quarterly basis, comparing the current quarter to the same quarter one year prior. It is now possible to provide a direct comparison that accounts for seasonality and provides a more accurate look at overall trends in seasonal ridership and farebox revenue.

WSF planned and actual ridership levels

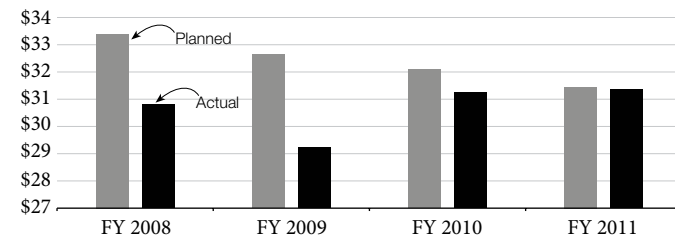
Second quarter (October 1 - December 31), fiscal years 2008-2011
Ridership in millions



Data source: WSDOT Ferries Division.

WSF planned and actual farebox revenue levels

Second quarter (October 1 - December 31), fiscal years 2008-2011
Dollars in millions



Data source: WSDOT Ferries Division.

Farebox revenues close to projections

For the second quarter of FY 2011, farebox revenue was \$31.3 million, only \$97,000 (less than 1%) below projected levels. Farebox revenues were about \$120,000 higher than the same quarter last year. Analysis across four years for the same fiscal quarter shows that WSF revenue projections are becoming more accurate over time: differences between planned and actual revenue have decreased dramatically in FY 2010 and FY 2011.

Washington State Ferries Highlights

Ridership was 5.1 million, 1.6% below the quarterly projection.

Farebox revenue was \$31.3 million, less than 1% below the quarterly projection.

The number of missed trips decreased 32% to 226 compared to the same sailing season one year ago.

99.4% of all scheduled trips were completed, compared with 99.1% one year ago.

91.6% of trips departed on time, an 8.7% improvement over the previous quarter.

The average sailing delay improved to an average of 2.5 minutes past the 'on-time window,' a 17% improvement over the same sailing season one year ago.

There were 296 fewer complaints compared with the previous quarter, for an average of 5.3 complaints per 100,000 customers.

Four of the five key complaint categories had fewer recorded complaints compared to the previous quarter.



The end of propeller number one on the M/V Chetzemoka, Todd Shipyards, Seattle.

Washington State Ferries Quarterly Update

Service Reliability

Fewer trips were missed compared to the same quarter one year ago

There were 226 missed trips in the second quarter of FY 2011, 32% fewer than the 334 missed trips recorded in the same quarter of FY 2010. In the second quarter of FY 2011, 40,600 regular service trips were scheduled. Of those trips, 252 were cancelled and 26 were replaced, resulting in 226 (net) missed trips and a total of 40,374 completed trips during the quarter (40,600 scheduled – 252 cancelled + 26 replacement trips = 40,374 net trips.) Nearly 44% of the missed trips (100 total) occurred on the Port Townsend – Coupeville route, which often has difficult sailing conditions during the winter season. For more information on operating conditions and challenges for this route, see p. 28 of the March 31, 2010 *Gray Notebook* 37.

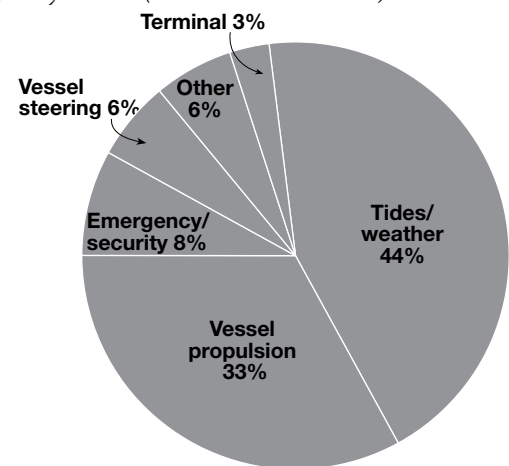
WSF trips are cancelled for several reasons, including tide and weather conditions, mechanical problems with vessels or terminals, and when a ferry is diverted for emergency transport. Trips are also missed when vessels fall too far behind the published schedule to complete all the trips for that day.

Compared to the second quarter of FY 2010, there were 49 fewer tide and/or weather-related cancellations, 27 fewer cancellations due to issues at terminals, 13 fewer emergency or security cancellations, and six fewer vessel mechanical cancellations.

As noted in the previous edition of the *Gray Notebook*, WSDOT no longer reports a “missed trip index” (MTI) rating for the system or its individual routes. Instead, trip reliability will focus on the numbers of missed trips and the service reliability percentages. As an example, a service reliability average of 99.7% on a route indicates that there have been three missed trips for every thousand planned trips.

Reasons for missed trips

Second quarter fiscal year 2011 (October 1 - December 31) FY 2011



Data source: WSDOT Ferries Division.

Washington State Ferries missed-trip reliability comparison

Route	Second quarter, fiscal year 2010			Second quarter, fiscal year 2011		
	Scheduled trips	Missed trips ¹	Reliability average ²	Scheduled trips	Missed trips ¹	Reliability average ²
San Juan (Domestic)	6,661	19	99.7%	6,838	28	99.6%
Anacortes-Sidney, B.C. (International)	184	0	100.0%	184	0	100.0%
Edmonds - Kingston	4,626	2	99.9%	4,290	23	99.5%
Fauntleroy - Vashon - Southworth	10,359	90	99.1%	10,360	21	99.8%
Port Townsend - Coupeville	1,840	188	89.8%	1,840	100	94.6%
Mukilteo - Clinton	6,678	20	99.7%	6,678	48	99.3%
Pt. Defiance - Tahlequah	3,640	2	99.8%	3,496	2	99.9%
Seattle - Bainbridge Island	4,167	3	99.9%	4,167	2	99.9%
Seattle - Bremerton	2,747	10	99.6%	2,747	2	99.9%
Total	40,902	334	99.1%	40,600	226	99.4%

Data source: WSDOT Ferries Division.

Data 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.

Washington State Ferries Quarterly Update

Service Reliability

On-time performance improves over previous quarter

The percentage of sailings system-wide that departed on time improved quarter-to-quarter by 8.7%: 91.6% on time in the second quarter FY 2011 compared to 82.9% in the previous quarter. On-time performance compared to the same quarter in 2009 was down by 1.8%. The duration of delay also improved, both quarter-to-quarter (2.5 minutes of delay compared to 4.6 minutes the previous quarter) and year-on-year (2.5 minutes compared to 3.0 minutes for the same quarter in 2009).

Calculating on-time performance and sailing delay

WSF calculates its on-time performance and average sailing delay measures using an automated tracking system aboard all

vessels that records when a vessel leaves the ferry terminal. A trip is considered “on-time” when a vessel leaves the terminal within 10 minutes of the scheduled departure time. The average sailing delay is the period that follows the 10 minute on-time period, and is calculated by taking the average of all recorded late departure times for each quarter.

Reporting the reasons for late departures

WSF has been recording the reasons for late departures in a manual log in preparation for the deployment of a new system that can automatically track, categorize, and report trip delay data. As soon as the automated system is ready, WSF will begin incorporating the resulting data in a future *Gray Notebook*.

Washington State Ferries on-time performance comparison

Route	Second quarter, fiscal year 2010			Second quarter, fiscal year 2011		
	Actual trips ¹	On-time percentage ²	Average sailing delay ³	Actual trips ¹	On-time percentage ²	Average sailing delay ³
San Juan Islands (Domestic)	6,113	92.3%	2.6 minutes	5,996	89.9%	2.6 minutes
Anacortes-Sidney, B.C. (International)	165	89.7%	3.5 minutes	141	77.9%	4.9 minutes
Edmonds-Kingston	4,201	91.2%	3.6 minutes	4,111	96.7%	2.0 minutes
Fauntleroy-Vashon-Southworth	9,361	92.1%	3.3 minutes	9,136	88.9%	2.8 minutes
Port Townsend - Coupeville	1,509	92.8%	2.7 minutes	1,515	91.2%	3.0 minutes
Mukilteo-Clinton	6,439	97.5%	1.9 minutes	6,143	94.0%	2.2 minutes
Pt. Defiance-Tahlequah	3,284	91.1%	4.3 minutes	3,114	90.5%	2.9 minutes
Seattle-Bainbridge Island	3,972	95.8%	1.7 minutes	3,807	92.1%	1.7 minutes
Seattle-Bremerton	2,565	95.0%	2.8 minutes	2,549	93.4%	2.5 minutes
TOTAL	37,609	93.4%	3.0 minutes	36,512	91.6%	2.5 minutes

Data source: WSDOT Ferries Division.

Data notes: 1 Number of actual trips represents trips detected by the automated tracking system. It does not count all completed trips during the quarter, nor all trips counted are “on-time”.

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 M/V Chetzemoka, WSF's newest vessel, conducting sea trials in 2010. The new vessel will help to improve on-time performance on the several routes, including the Port Townsend - Coupeville route.



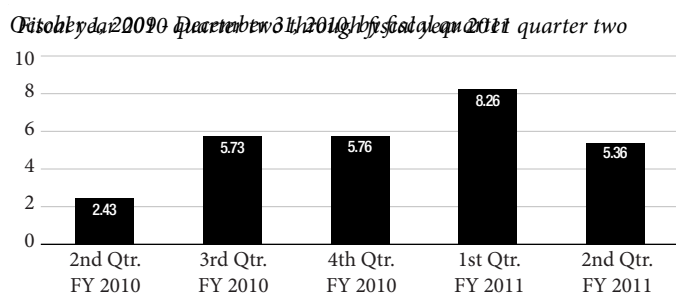
Three WSF vessels docked at the Colman Dock terminal along the waterfront in downtown Seattle.

Washington State Ferries Quarterly Update

Customer Feedback

Customer complaints decrease 35%

In the second quarter of FY 2011, WSF averaged 5.4 complaints per 100,000 customers, a 35% decrease from the average recorded in the previous quarter (8.26 complaints per 100,000 customers in FY 2011 quarter one). In the five key complaint categories, complaint numbers and averages were down for the second quarter in all but one category ('general service').



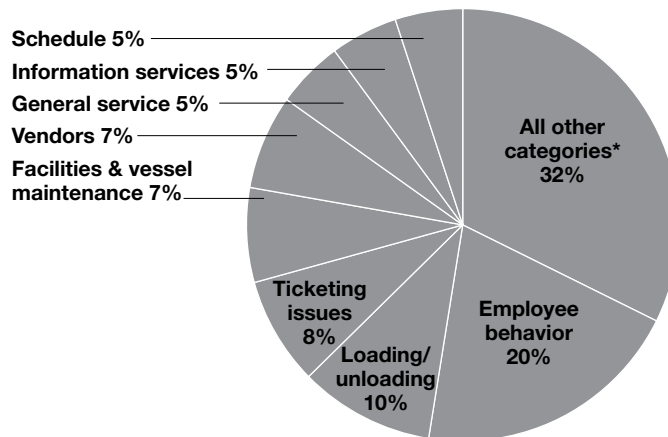
Complaints about employee behavior were down 46% from the previous quarter from 102 to 55, facilities and vessel maintenance dropped 50% from 40 to 20, loading and unloading complaints decreased 60% from 67 to 27, and ticketing issues were down 36% from 36 to 23. The fifth category, 'general service', saw a modest increase of three complaints to 14, for a 27% increase between the first and second fiscal quarters.

WSF's customer feedback methodology

WSF investigates all complaints about employee behavior and responds to each customer that files a complaint. Each complaint is investigated, and WSF takes appropriate action with the employee as warranted. If there was a reason for an employee action that could not have been known to the customer, WSF includes that explanation in the response to the customer.

Common WSF complaint categories

Quarter two fiscal year 2011 (October 1 - December 31, 2010)



Data source: WSDOT Ferries Division.

*Note: "All other categories" includes the following complaint categories, which received less than 5% of the total complaints in the second fiscal quarter of FY 2011: General service, Informational service, Schedule, Website, Miscellaneous issues, Safety issues, Damage to customer property, Downsizing, On-time performance, Terminal/vessel cleanliness, Americans with Disabilities Act, Signage, Injury to customer, Noise, Crewing, Customer behavior, Advertising, Bicycle issues, Customs, Medical related issues, Parking issues, Reservations, and Smoking issues.



The M/V Chetzemoka is seen through the viewing deck of the M/V Wenatchee at the WSF maintenance facility at Eagle Harbor.

Rail: Amtrak Cascades Quarterly Update

Passenger Rail: Amtrak Cascades

Washington is one of 13 states to provide operating funds to Amtrak for intercity passenger rail service. Amtrak *Cascades* train operations span 466 miles of rail between Eugene, Oregon and Vancouver, B.C. Amtrak uses five European-designed, Talgo trains for daily operations. Three are owned by Washington State, and the other two are owned by Amtrak. Amtrak *Cascades* service is jointly funded by Amtrak and the states of Washington and Oregon. The table below shows quarter four ridership proportional to each funding entity.

Amtrak Cascades ridership by funding partner

October-December (Quarter 4) ridership, 2008-2010

Funding partner	Round trips funded	Quarter 4 Oct – Dec 2008	Quarter 4 Oct – Dec 2009	Quarter 4 Oct – Dec 2010
Washington	4	117,956	136,389	135,170
Oregon	2	30,143	30,199	33,530
Amtrak	1	31,376	34,354	33,975
Total ridership		179,475	200,942	202,675

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 and extra trains for Thanksgiving.

Amtrak Cascades fourth quarter ridership down slightly compared to same quarter in 2009

State-supported Amtrak *Cascades* ridership was down 0.9% from the same period in 2009, serving 135,170 passengers in the fourth quarter of 2010, but ridership is up 14.6% compared to the same time period in 2008. In the fourth quarter of 2010, there were several days of interrupted service due to mudslides caused by poor weather.

Fourth quarter average on-time performance is 74%, down from the same quarter in 2009

On-time performance for state-supported Amtrak *Cascades* trains was 74.0% for the quarter, down 0.5% compared to the same quarter in 2009, but up 0.5% from the third quarter of 2010, continuing the trend of improvement toward the long-term goal of 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, station overtime, and slow running trains.

Rail Performance Highlights

Amtrak *Cascades* Q4 ridership is down 0.9% compared to the same quarter in 2009.

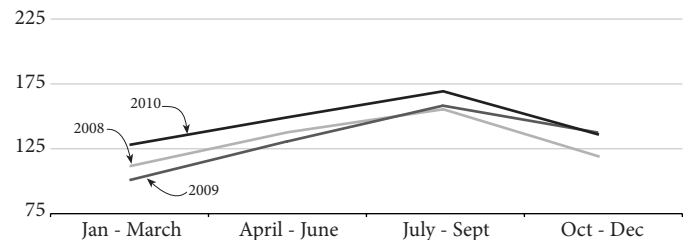
On-time performance is 74%, continuing the trend of improvement towards the long-term goal of 80%.

The farebox recovery ratio was 61.5% for Federal fiscal year 2010.

Amtrak Cascades quarterly ridership

Number of passengers per quarter, 2008 – 2010

Riders in thousands

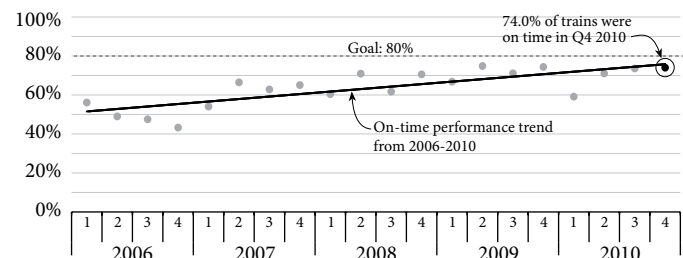


Data source: WSDOT State Rail and Marine Office.

Note: Ridership for Washington-funded trains only.

Amtrak Cascades on-time performance

Percent of trains in time, 2006 – 2010



Data source: WSDOT State Rail and Marine Office.

Note: On-time performance for Washington-funded trains only. "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 the period. Amtrak's monthly reports incorporate the former Interstate Commerce Commission's (ICC's) tolerance for lateness in the calculations. Depending on the route length, 10 to 30 minutes late is considered on time. The tolerance time is 10 minutes for Seattle – Portland trains and 15 minutes for Portland – Vancouver, BC, trains.

Rail: Amtrak Cascades

Quarterly Update

Passenger Rail: Amtrak Cascades

Amtrak Cascades ticket revenue up 14.4%

During the fourth quarter of 2010, ticket revenues for state-supported Amtrak Cascades trains were up 14.4% compared to the same period in 2009. Revenue growth was driven mainly by an effective ticket pricing strategy and a second train to Vancouver, B.C., that attracts long-distance riders.

Farebox recovery ratio: higher compared to 2009

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

Amtrak Cascades farebox recovery ratio for federal fiscal year (FFY) 2010 reached 61.5%, significantly higher than 54.1% in the previous year. Both revenue and costs in FFY 2010 were substantially higher than in FFY 2009.

The increase in revenue was mainly a result of two operational changes: expansion of the second train to Vancouver, B.C., and an improved pricing strategy. The 2010 Winter Olympics in Vancouver provided additional marketing opportunities and also contributed to the sharp increase in ticket revenue. However, changes to Amtrak's accounting system also had an impact, as it now uses a different method to distribute revenue. Operational costs increased substantially. WSDOT has yet to identify substantial cost drivers other than the \$1.2 million estimated cost to expand the second train to Canada.

Due to the change in Amtrak's accounting system, it is difficult to compare current costs with historical ones. WSDOT is working with Amtrak and Oregon to identify the drivers of this cost increase, and to understand how this might relate to Amtrak's accounting system change.

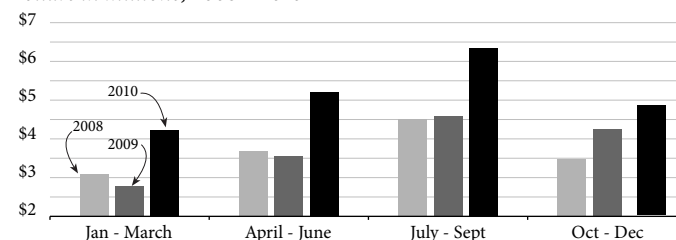
Recently completed project benefits passenger rail

Everett Rail Yard and Storage Tracks Improvements

This project, valued at \$15.2 million, was funded through the 2003 Nickel transportation funding package and was substantially completed in October 2010. Train switching activities at Delta Yard in Everett frequently caused delays to Amtrak Cascades service at Delta Junction. This project has improved the tracks to enable freight train switching activities to continue without affecting passenger trains, reducing congestion at the junction and improving on-time performance for Amtrak Cascades passenger service.

Amtrak Cascades ticket revenue by quarter

Dollars in millions, 2008 – 2010

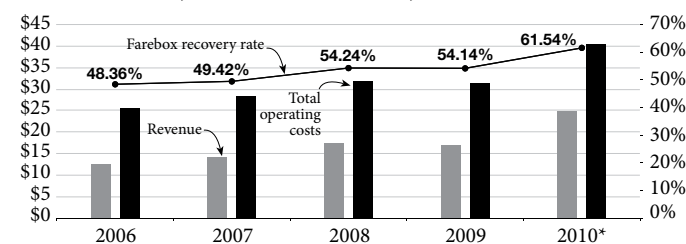


Data source: Amtrak and WSDOT State Rail and Marine Office.

Note: Ticket revenues for Washington-funded trains only.

Amtrak Cascades farebox recovery

Dollars in millions, Federal FY 2006 – 2010,



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

*Note: Farebox recovery for Washington-funded trains only. Analysis based on preliminary data provided by Amtrak West region policy and development. Due to the Amtrak accounting system change, WSDOT received billing data that may not reflect all costs incurred.

WSDOT awarded \$400,000 rail planning grant

WSDOT has been granted \$400,000 from the Federal Railroad Administration to develop an integrated state rail plan. The Passenger Rail Investment and Improvement Act (PRIIA) of 2008 required states to have a more active role in setting statewide rail policy by tasking states with establishing or designating a state rail transportation authority that will develop statewide rail plans to help set policy.

State rail plans are required to address a broad spectrum of issues including: an inventory of the existing rail transportation system, rail services, and facilities within the state. State rail plans also provide the state's passenger rail service objectives; an analysis of rail's transportation, economic, and environmental impacts in the state; and a long-range investment program for current and future freight and passenger infrastructure.

The state rail plan will be developed with coordinated stakeholder involvement and public participation as recommended by AASHTO "State Rail Planning Best Practices" in November 2009.



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 Annual Report	38
Environmental Compliance Annual Report	40
NEPA Documentation Annual Report	42

See also

Quarterly Report on Capital Projects (Beige Pages)	51
--	----

Earlier articles concerned with environment

Air Quality Annual Report, GNB 39	
Noise Quality Annual Report, GNB 39	
Endangered Species Act Documentation, GNB 38	
Programmatic Permitting Annual Report, GNB 38	
New Stormwater Permit GNB 37	
Stormwater Treatment Facilities, GNB 37	
Construction Site Water Quality, GNB 37	
Construction Site Erosion Control, GNB 37	
Wetlands Preservation Annual Report, GNB 37	
Special Report: Climate Change, GNB 34	

Fish Passage Barriers Annual Report

Fish Passage Barrier Highlights

Seven corrections were completed in 2010, for a total of 245 corrections along the state highway system.

Sixty-seven miles of potential upstream habitat were added through these six corrections, for a total of 822 miles statewide.

WSDOT anticipates eight corrections will be completed in 2011.

A planned correction on U.S. 97 north of Goldendale will be one of the first projects to incorporate a fish barrier correction with a deer/wildlife migratory corridor.

Since 1991, WSDOT and the Washington Department of Fish and Wildlife (WDFW) have continued to work cooperatively to correct fish passage barriers on streams that flow under the state highway system. WSDOT is committed to doing its part for the environment by removing barriers to fish habitat. WSDOT's strategy is to continue correcting barriers as part of highway construction projects where the department has in-stream work, and to spend money provided by the Legislature for high priority stand-alone projects.

Inventory of barriers

The statewide inventory of fish passage barriers on the state's 7,045 mile-long highway system began in 1991 and was completed by fall 2007. WSDOT and WDFW's prioritized list of corrections identifies 1,519 barriers that – if corrected – offer the potential for significant habitat gain if corrected. The inventory is constantly refined, which sometimes results in fish passage barriers being added to or removed from the prioritized list. For example, a listed barrier may be on a stream that is no longer fish-bearing. Further analysis by WSDOT and WDFW may determine that it should be removed from the inventory. As of December 31, 2010, WSDOT has completed 245 fish passage correction projects, improving access to approximately 822 miles of potential upstream habitat.

Five of the eight corrections identified for construction in 2010 in the 2009 Fish Passage Barriers report (*Gray Notebook* 36 p. 34) have been completed, as were two additional unlisted projects. These seven projects added 67 miles of potential up stream habitat to the total statewide habitat gains. One project from the 2009 report has been delayed until 2011, and the remaining two are delayed beyond the current fiscal biennium. WSDOT anticipates eight corrections will be completed in 2011.

Completed fish passage construction in 2010

Project location	Funding	Description
SR 27 south of Tekoa	PEF	Replaced two 4-foot culverts with a 12-foot wide culvert at an unnamed tributary to Pine Creek
SR 305 near Poulsbo	PEF, TPA, FHWA ¹	Replaced a 3-foot culvert with a 12-foot wide culvert at Bjorgen Creek that flows into Puget Sound
SR 305 near Poulsbo	PEF, TPA, FHWA ¹	Replaced two 3-foot culverts with a 10-foot wide culvert at an unnamed tributary to Liberty Bay
SR 542 east of Deming	PEF, FHWA ¹	Replaced a 4-foot culvert with a 15-foot culvert at an unnamed tributary to the Nooksack River
SR 542 east of Maple Falls	PEF, TPA	Replaced a 5-foot culvert with a 40-foot bridge at Chain-up Creek, a tributary of the Nooksack River
U.S. 2 north of Spokane	Nickel	Replaced a 8-foot wide box culvert with a 30-foot arched culvert on Deadman Creek
U.S. 101 near Chinook	SRFB ² , BPA ³	Replaced a 2-foot culvert with 12-foot wide culvert at an unnamed tributary to the Columbia River

Data source: WSDOT Environmental Services Office.

Data notes: 1 FHWA: U.S. Department of Transportation - Federal Highway Administration, 2 SRFB: Salmon Recovery Fund Board, 3 BPA: Bonneville Power Administration



Before: Chain-up Creek flowed under SR 542 through an undersized, 5-foot culvert, blocking upstream access to multiple species.

After: The culvert was removed and a new 40-foot bridge spans a restored riparian area at Chain-up Creek, removing the previous barrier and providing habitat for steelhead, coho and pink salmon, bull and sea-run cutthroat trout.

Future Corrections

Planned fish passage construction for 2011

Project location	Funding	Description
I-5 near Ground Mound	TPA	Replace a 3-foot culvert with a 12-foot box culvert at a tributary to Dry Creek
SR 105 west of Raymond	PEF, FHWA ¹	Replace a 5-foot culvert with a 87-foot bridge at Norris Slough
SR 522 near Monroe	TPA	Replace a 3-foot culvert with a 24-foot wide culvert for fish & wildlife passage at an unnamed tributary to the Skykomish River
SR 548 near Ferndale	PEF, TPA	Replace a 6-foot culvert with a 23-foot culvert at Terrell Creek which flows into Birch Bay
U.S. 2 north of Sultan	PEF, TPA	Remove dam structure under bridge and replace with new channel at Wagley's Creek
U.S. 101 north of Hoquiam	PEF	Replace a 2-foot culvert with a 10-foot culvert at MP 100.90 at the South Branch of Big Creek
U.S. 101 north of Hoquiam	PEF	Replace a 5-foot culvert with a 21-foot culvert at MP 102.14 at the South Branch of Big Creek
U.S. 101 north of Raymond	TPA	Replace two smaller culverts (2.5-foot & 6-foot) with a 18-foot culvert at Lower Salmon Creek

Data source: WSDOT Environmental Services Office.

Data notes: 1 FHWA: U.S. Department of Transportation - Federal Highway Administration

Fish passage and habitat connectivity

WSDOT is developing an innovative combination fish passage and wildlife habitat connectivity project on U.S. 97 in Klickitat County. A culvert located at Highland Canyon Creek (also known as Butler Creek) near Goldendale at milepost 21.35 has been identified as a fish passage barrier. The existing culvert is undersized relative to modern standards and is a velocity barrier: under high flows, juvenile fish encounter velocities that overpower their swimming capabilities. Removal of this barrier would open up approximately 10 miles of upstream habitat for threatened steelhead, bull trout, and resident rainbow trout.

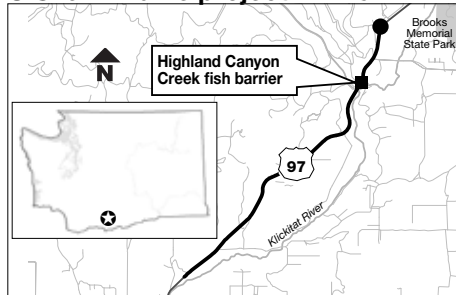
To both the north and south of the barrier is an eight-mile stretch of U.S. 97 between mileposts 15.0 to 23.0 that has seen an increasing number of deer-vehicle collisions: 300 deer carcasses were removed in a five-year period from 2004 to 2008, 54% more than the 195 carcasses removed between 1999 and 2003. In 2010 alone,

63 deer carcasses were removed – the second highest number on record for this corridor. This eight-mile long corridor is one of the 15 worst deer/vehicle collision areas in eastern Washington.

Correcting fish barrier may create alternate migratory route for deer across U.S. 97

WSDOT is designing a small bridge, incorporating a 30 foot channel width to meet fish passage design standards, that will also provide additional clearance height for wildlife, including deer. Wildlife fencing and escape ramps will be constructed between natural barriers to encourage the animals to cross under the new bridge. This creative and cost-effective project could potentially solve two wildlife connectivity problems with a single action. If funded for construction, WSDOT would evaluate the design's effectiveness upon completion, to further refine future fish passage and habitat connectivity projects..

U.S. 97 wildlife project MP 15 - 22



The seven-mile corridor on U.S. 97 has both a fish passage barrier and has a high frequency of vehicle-deer collisions.



The culvert under U.S. 97 at Highland Canyon Creek is a velocity barrier for threatened fish runs and has been identified for correction.



This infrared photo captured a deer crossing U.S. 97 along the 15-mile corridor in 2009.

Environmental Compliance Annual Report

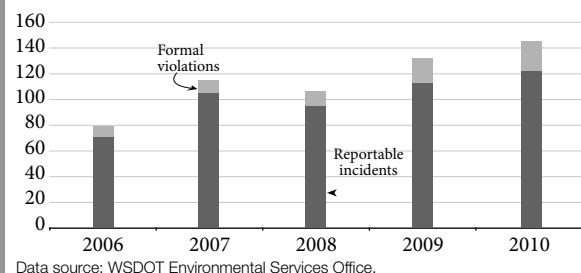
Environmental Compliance Highlights:

WSDOT received 23 formal violations from regulatory agencies for its 2010 activities, four more than in 2009.

Fourteen of the 23 violations involved water quality. This category accounts for nearly 78% of all formal violations from 2006-2010.

Water quality remains the largest source of reportable events in 2010: 92 of 124 events.

Annual number of reportable environmental incidents and formal violations received 2006-2010



Four fines were issued for 2010: two for hazardous materials violations, one for water quality, and one for not implementing corrective actions to address erosion control.

There were a total of 124 reportable incidents in 2010, 11 more than in 2009.

WSDOT is committed to complying with environmental regulations and protecting the environment, working closely with regulatory agencies to achieve full compliance with its environmental commitments on all projects and activities. Internally, WSDOT tracks its compliance with environmental regulations and permits for construction, maintenance, and ferry system activities to measure agency performance. This article examines WSDOT's compliance in 2010 compared to previous years.

WSDOT reports more events in 2010

To understand how well WSDOT complies with environmental regulations, the department not only examines occasions when a regulatory agency issued a formal violation or fine, but also tracks and reports on compliance issues that are categorized as 'reportable events'. Reportable events arise when WSDOT or its contractors failed to act as required by a permit or an environmental regulation; activities that result in violating a permit must also be reported to the regulatory authority. 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 civil penalty or fine.

In 2010, WSDOT recorded 124 reportable events, 11 more than in 2009. State, regional, and county agencies issued 23 formal violations to WSDOT in 2010, four more than in 2009.

Of the 23 formal violations, the Washington State Department of Ecology (Ecology) issued 14 formal violations for violating construction stormwater permit conditions. The remaining nine formal violations fell into four other categories involving wetlands, fish and stream habitat, hazardous materials, and cultural resources.

- **Wetlands:** conducting work in wetlands that wasn't permitted
- **Fish and stream habitat:** discharging concrete into a stream and failing to obtain permits for constructing a temporary stream crossing
- **Hazardous materials:** failure to perform asbestos sampling and abatement according to local standards
- **Cultural resources:** failure to coordinate with the state Department of Archeology and Historic Preservation for a project involving excavation work

Four civil penalties result from formal violations

In 2010, four civil penalties were issued by state and local regulators. WSDOT was fined \$18,249 for violations associated with asbestos sampling and abatement work in April 2010. A second fine for \$5,125 was issued to WSDOT and its subcontractor in December 2010 for similar violations. The third fine for \$4,000 was issued by Ecology in January 2011 for the discharge of 375,000 gallons of highly turbid water as part of a fish passage barrier correction project in November 2010. The fourth penalty was issued in July 2010 for not implementing erosion control corrective actions at a project site. WSDOT appealed this fine, and it was reduced from \$11,000 to \$3,000.

Breakdown of reportable events in 2010

Water quality remains WSDOT's most frequent compliance concern. In 2010, 92 reportable events involved erosion and water quality issues, specifically for high turbidity (water clarity affected by sediments) and pH (fluctuating hydrogen levels that cause water to become more acidic or more alkaline). In 15 incidents, WSDOT's contractors spilled oil, fuel, and other equipment fluids, potentially affecting natural resources. On 10 projects, WSDOT's contractors placed unauthorized

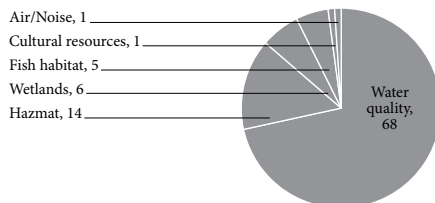
Environmental Compliance Annual Report

materials in wetlands or streams. WSDOT's contractors violated asbestos sampling and abatement requirements on three separate occasions. In addition, there were three incidents where fish and other habitats were impacted, and on one occasion, cultural procedures were not implemented in a timely manner. The chart below shows similar proportions of the types of reportable events that occurred in 2010, compared to 2009 and 2008.

WSDOT's reportable events by category, 2008-2010

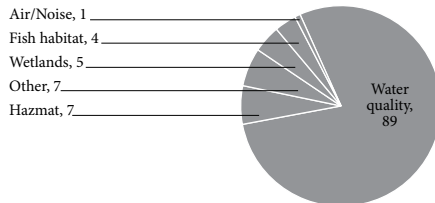
2008

95 reportable events



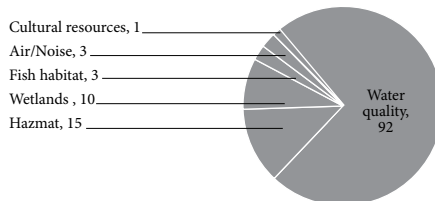
2009

113 reportable events



2010

124 reportable events



Data source: WSDOT Environmental Services Office.

Project delivery and ticketing affect compliance

Increased project delivery through the 2003 Nickel and 2005 Transportation Partnership Account packages raise the potential for more non-compliance events to occur when added to the approximately 287,700 maintenance activities or 164,600 ferry sailings that WSDOT conducts annually. In 2010, Ecology continued to expand the use of an on-site ticketing program that allows field inspectors to issue "corrections required" notices at construction sites. These formal warnings give WSDOT and its contractors 10 days to correct the problem to avoid a formal violation. If the problem is not corrected within 10 days, Ecology can issue fines or a stop-work order, which may affect project costs and schedules. In 2010, Ecology issued 11 notices to WSDOT citing a variety of violations; the most common violation cited was failing to implement or maintain erosion and sediment control devices. Another common violation was failing to provide cover and secondary containment for chemicals and

petroleum products stored on the job site. Every time WSDOT received a notice, the department implemented corrective actions within the allotted 10 days to reduce impacts to the affected resources and to avoid costly stop-work orders. Before the on-site ticketing, WSDOT may have been able to identify and correct problems before regulators could issue notices. Now, on-site ticketing and significant activity levels have heightened the potential for non-compliance events to occur.

The 2010 construction season was one of the busiest in WSDOT's history and with its maintenance activities and ferry sailings, the agency faced a considerable number of opportunities for non-compliance to occur. Two things also contributed to the increased number of reportable events recorded in 2010 than in previous years: the way in which Ecology now conducts compliance inspections, and WSDOT's own continued attention to identifying reportable events. However, the agency has taken deliberate steps to evaluate all major non-compliance events and implemented corrective steps. WSDOT remains focused on minimizing non-compliance events whenever possible, regardless of the size of its construction program and other activities.

WSDOT adapting its practices to meet current and future challenges and activity levels

WSDOT received more formal violations in 2010 for two main reasons: a high number of construction projects and Ecology's enhanced enforcement efforts. In response to this trend, WSDOT continues to reinforce its training efforts to help the department's inspectors recognize potential compliance problems, and to raise their awareness of environmental compliance. Despite funding and staffing constraints, WSDOT will provide more than 30 environmental training classes across the state between January and June 2011. Topics include construction compliance, environmental commitment tracking, working in wetlands, working with cultural resources, spill plan review, and temporary erosion and sediment control. Training will emphasize lessons learned and non-compliance issues that occurred during the 2010 construction season to help reduce the likelihood of similar events or violations occurring during the 2011 season.

WSDOT recently updated its standard contract language to clarify the way contractors must store chemicals and petroleum products. WSDOT will train staff on how to implement the new water storage requirements, since this is a common issue cited by Ecology inspectors. WSDOT also upgraded its internal database for tracking environmental compliance (see December 31, 2007 *Gray Notebook* 28 pp. 64). The department intends that these changes and heightened awareness will improve compliance efforts in 2011.

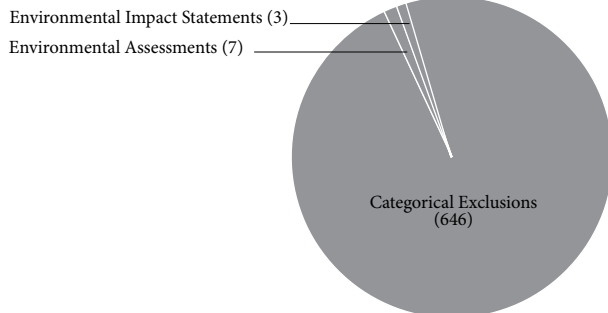
National Environmental Policy Act Documentation Annual Report

National Environmental Policy Act Highlights

So far this biennium, WSDOT has completed seven environmental assessments, three environmental impact statements, and 646 categorical exclusions; the latter accounted for 98% of all NEPA-related reviews.

Number of WSDOT projects by environmental documentation type

2009-11 biennium to date (July 1, 2009 - December 31, 2010)



Data source: WSDOT Environmental Services Office.

WSDOT continues to work to reduce the average duration of NEPA documentation review, as well as identify other performance measures that can evaluate success.

WSDOT expects fewer EAs and EISs to be needed in the next biennium as both the 2003 Nickel and 2005 Transportation Partnership Account (TPA) begin to wind down, and the outlook for funding through future federal re-authorization is expected to remain flat.

All proposed WSDOT projects that involve federal funds, federal permits, and/or action on federal lands must comply with the National Environmental Policy Act (NEPA). NEPA requires an analysis of a proposed project's effects on both the natural and built environment. An environmental impact statement (EIS) is prepared if a project is likely to cause significant environmental impacts. An environmental assessment (EA) is prepared when the significance of impacts is unknown. WSDOT prepares all NEPA documentation according to federal laws and regulations. These NEPA documents are submitted to the appropriate federal reviewing authority when completed, usually the Federal Highway Administration (FHWA).

NEPA requires the examination and avoidance of potential impacts to the social and natural environment when the federal government considers approval of proposed transportation projects. However, the NEPA process can take a considerable amount of time and resources to address this. FHWA asked DOTs to voluntarily track their NEPA documentation from 2003 to 2007 against its goals for EAs (12 months) and EISs (36 months). WSDOT adopted these goals as its own, and was able to reduce its average NEPA documentation timelines, but did not meet the national goals (see pp. 36 of the December 31, 2008 *Gray Notebook* 32 for more information).

WSDOT continues to evaluate NEPA documentation timelines

WSDOT's examination of current timelines reveals that its EAs and EISs continue to take longer to complete compared with the 2003-2007 FHWA goals. In the current 2009-11 biennium, WSDOT completed seven EAs and three EISs. The EAs averaged three years to complete and the EISs five years. It is important to note that compared to all WSDOT actions that require NEPA analysis, EAs and EISs remain an incredibly small percentage

of environmental documents (see chart, above) completed each biennium. While reduced average timelines are useful in expediting a project from concept to completion, they do not effectively measure the overall success of the NEPA documentation process. Success is determined by many factors, including how well the project and its impacts are explained and how well the NEPA documentation addresses stakeholder concerns.

Improvements for today and tomorrow

WSDOT continues to focus on document quality and reducing documentation timelines. In 2010, WSDOT created NEPA documentation review efficiencies by evaluating common issues with past documentation and sharing this guidance with project teams so they can avoid planning issues that could potentially slow down projects. Also, WSDOT's best documentation examples (rated by its own staff and FHWA) were assembled into a library for use by project teams when beginning new NEPA documents. In 2011, WSDOT will continue reviewing critical path timelines to determine if steps can be eliminated within the documentation process by using these new tools and further guidance.

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

Economic Vitality Special
Report on Projects 44

See also

Federal Recovery Act-
funded Projects 51

Earlier articles concerned with economic vitality

Rail Freight Semi-Annual
Report, GNB 39

Trucks, Goods & Freight,
GNB 37

CVISN, GNB 37

Economic Vitality Project Overview

New Projects that Benefit Local Economies

WSDOT is committed to the statewide policy goal of 'Economic Vitality,' promoting and developing transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy.



Partnership helps build a new roundabout on SR 548 in Whatcom County

In 2010, WSDOT partnered with BP to build a new roundabout at the intersection of Grandview and Blaine roads on SR 548 near Birch bay. BP paid for the roundabout while WSDOT oversaw design and construction. The construction phase began in mid-July and was completed in the fall of 2010.

Originally, the intersection had stop signs and was a bottleneck, especially during shift changes at the refinery. The roundabout is expected to make getting through the intersection easier and safer during shift changes (and other peak travel periods), as well as improve safety, reduce congestion, and make it easier for BP to move large trucks in and out of their refinery.

Between 2004 to 2009, eight collisions resulted in 10 injuries in the vicinity of this interchange. The proactive approach to reducing congestion at the intersection will help prevent future serious collisions for the 4,000 drivers that use the intersection daily.

The following are examples of recently completed projects that have significant impacts on economic vitality by improving freight mobility, enhancing economic growth, and strengthening WSDOT's partnerships with local communities.



Rebuilding the Valley Mall Boulevard interchange on I-82 near Union Gap enhances the local community

This interchange provides access to and from I-82 for Union Gap and Yakima. WSDOT is updating and improving the interchange in order to provide additional capacity, free up movement on and off the interstate, and connect smoothly with the expanding local road system. Funding from the Recovery Act, (see pages 46-50 for this quarter's Recovery Act Special Report) has allowed WSDOT to deliver this project on its original schedule. WSDOT worked corroboratively with city and county officials, area business owners, and the public on several conceptual design options for the interchange.

This project is projected to enhance economic growth by mitigating congestion and allowing easy access to existing retail and commercial businesses. Improved access throughout the area will also allow for new development. Freight mobility should also improve, as the new interchange provides better interstate access for five local classified freight routes, and improve safety by eliminating ramp traffic backups on I-82. The improved traffic flow will result in less congestion and fewer collisions in the interchange area, eliminating the chokepoint at this busy intersection.



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	46
Quarterly Update on Capital Projects (Beige Pages)	51
Completed Project Wrap Ups	65
Special reports:	
Project Spotlight: I-90 Snoqualmie Pass	72
New Ferry Construction Tacoma/Pierce County	73
HOV Lanes	74
Watch List	75
PEF Reporting	80
Cross-cutting Management Issues:	
Construction Cost Trends	84
Utilities	86
Right-of-Way	88
Workforce Level & Training	
Quarterly Update	90
Transportation Research	
Annual Report	93
Highlights	97
See also	
Worker Safety	2

Special Report on Federal Recovery Act-funded Projects

Recovery Act-funded Projects Overview

Recovery Act Highlights

More than 85% of Recovery Act highway projects were completed as of December 31, 2010.

Employees have earned more than \$149 million in payroll on local and state Recovery Act highway projects to date.

Completed highway safety projects have replaced or installed features on 878 miles of urban and rural highways.

Recovery Act-funded rehabilitation projects are helping preserve the pavement on 820 miles of state highways across Washington.

For additional information on Recovery Act-funded projects, please visit www.wsdot.wa.gov/funding/stimulus

The 2009 American Recovery and Reinvestment Act (Recovery Act) provided Washington with more than \$1 billion in transportation funds to preserve and expand the transportation system while helping create and retain jobs during the national recession. Washington and its local governments received \$492 million for highway projects, \$179 million for rail projects and won competitive grants for \$590 million for high speed rail projects and \$65 million in TIGER grants for road projects in Seattle and Spokane.

Through December 31, 2010, WSDOT and local governments have completed 185 highway projects, and certified more to use the remaining funds. In the quarter, WSDOT and local governments completed 23 projects.

WSDOT and local governments have taken advantage of low bids on stimulus projects to add 40 projects to the original list of 179 individual projects and two statewide programs. Twenty-one of these additional Recovery Act projects are now complete.

As work has now been completed on more than 85% of the Recovery Act highway projects, construction crews continue working to deliver a smaller number of high priority projects across the state, including interchange improvements to I-82 in Yakima County and the I-405/NE 8th to SR 520 – Bellevue Braids project in King County.

Between October 1 and December 31, 2010, workers on FHWA Recovery Act projects earned \$15.5 million working more than 380,000 hours on the job. To date, projects receiving FHWA stimulus funds have provided more than \$149 million in payroll on state and local projects. Employees have worked more than 3.8 million hours on the projects since the Recovery Act's passage in February 2009. With most of the projects completed and others closed for the winter, hours and payroll related to highway stimulus projects are expected to continue to decline. See more employment data on page 48.

Additional High-Speed Rail funds awarded in November

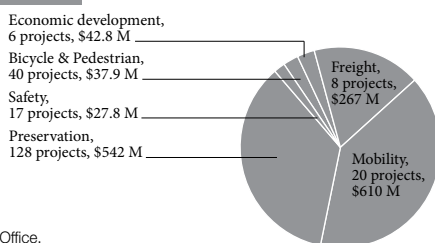
In November, U.S. Transportation Secretary Ray LaHood announced that up to \$161.5 million of high-speed rail funds originally awarded to other states would be redirected to Washington. In October, the state also received \$31 million of other non-Recovery Act funds for high-speed rail projects and plans. WSDOT is coordinating with the Federal Railroad Administration to identify projects, complete environmental permits and planning, and begin work.

Recovery Act highway projects by type

The Recovery Act funded many different types of highway construction projects. As of November 30, 2010, most of the 219 state and local Recovery Act highway projects were classified as preservation or mobility projects, including 128 preservation projects valued at \$542 million (\$229 million in Recovery Act funding) and 40 mobility projects valued at \$610 million (\$176 million in Recovery Act funding).

Recovery Act highway projects by type

219 state and local Recovery Act projects by type



Data source: WSDOT CPDM & H&LP Office.

The tables on page 47 show the number and types of projects funded through December 31, 2010. Note that the 219 projects in the chart to the right include the two safety 'bucket' projects that installed and upgraded cable median barriers and installed centerline rumble strips on urban and rural state highways across Washington.

Special Report on Federal Recovery Act-funded Projects

Recovery Act Progress Summary

Recovery Act-funded highway projects through December 31, 2010

Number of projects by jurisdiction; dollars in millions

Project information	State	Local	Total
Highway projects certified by the Governor ¹	51	168	219
Contracts awarded/Under construction	51	168	219
Projects completed	41	144	185
Financial information	State	Local	Total
Recovery Act dollars provided	\$340	\$152	\$492
Total cost of obligated projects	\$736	\$792	\$1,528
Total Recovery Act dollars spent ²	\$267	\$137	\$404

Data source: WSDOT Capital Program Development & Management Office, Highways and Local Programs Office. Data as of December 31, 2010.

Note: Project totals are cumulative, for example "projects awarded/under construction" include projects already completed. This includes two project state buckets described in more detail at right.

1 17 state and 23 local projects were added to the list and received federal approval, 6 local projects are no longer receiving funds.

2 Includes non-Recovery Act leveraged fund sources.

Recovery Act-funded state highway 'bucket' projects through December 31, 2010

Number of bucket projects by type; dollars in millions

	Rumble strips	Cable median barrier	Total
Project status			
Certified by Governor	28	13	41
Contracts awarded /Under construction	28	13	41
Projects completed	28	13	41
Financial information			
Recovery Act Funds available for bucket-funded projects ¹	\$2.5	\$7.1	\$9.6
Total cost of obligated projects	\$3.0	\$11.5	\$14.5
Total Recovery Act dollars spent	\$2.5	\$7.1	\$9.6

Data source: WSDOT Capital Program Development & Management Office.

Note: 'Bucket projects' are defined as state projects using Recovery Act funds to address programmatic safety priorities statewide.

1 Bucket projects were originally allocated \$12 million in Recovery Act funding, \$3 million for rumble strips and \$9 million for cable median barrier, approximately \$2.4 million was later obligated to other state projects.



WSDOT is using Recovery Act funds to build new HOV lanes on I-5 in Pierce County. This project is one of the 10 state projects that was still under construction as of December 31, 2010.

23 highway projects completed in the quarter

Five state projects completed

I-5/North Kelso to Castle Rock – Overlay
 I-5/Todd Road to Kelso Weigh Station – Paving
 I-5/Martin Way to 48th Street – Concrete Pavement
 I-5/Marysville to Stillaguamish River – ITS Improvements
 I-82/Granger to W Grandview Eastbound – Dowel Bar Retrofit/Concrete Rehabilitation

18 local projects completed

Bothell – Annual Asphalt Overlay
 Poulsbo – Viking Avenue Phase 3
 Port Angeles – Peabody Street
 Mountlake Terrace – 230th Street Reconstruction
 Pend Oreille County – Deer Valley Road
 Olympia – Union Avenue
 Benton County – Webber Canyon Road
 Everett – Annual Asphalt Overlay
 Port of Bremerton - Industrial Connector Phase 1
 Spokane - Wellesley Avenue
 Lakewood - Traffic Signal Upgrade
 Cheney - BNSF/UPRR Pedestrian Improvements
 Ellensburg - Canyon Road Overlay
 Lummi Nation - Haxton Way
 Wahkiakum County - Ferry Terminal
 Bothell - North Creek Trail Section 1 Phase 2
 Bothell - North Creek Trail Section 2 Phase 2
 Sammamish - East Lake Sammamish Parkway

Special Report on Federal Recovery Act-funded Projects

Recovery Act Project Delivery and Performance Review

In Washington, the Recovery Act helped boost industry sectors that were hardest hit by the recession. WSDOT's 219 highway construction projects, along with investments in other modes, have supported both state and private sector jobs in a variety of industries, especially the construction and manufacturing sectors. The Recovery Act provided Washington with \$492 million for highway projects; historically, WSDOT has contracted out approximately 74% of the delivery of the highway program to the private sector.

Highway transportation projects have provided \$149.1 million to workers in Washington

Provisions in the Recovery Act require WSDOT to collect employment information as part of its quarterly 1512 reporting responsibilities. Further, every month WSDOT is required to report to the Federal Highway Administration on employment associated with Recovery Act-funded highway projects.

Between February 17, 2009, and December 31, 2010, state and

private sector employees employed on Recovery Act-funded highway projects have

- Worked more than 3.8 million hours
- Earned \$149 million dollars in payroll

Due to the nature of highway construction, many of these jobs were limited in duration, but overall are **equal to 1,844 full time equivalents (FTE)** where one FTE is defined as 2,080 hours, the number of hours in a standard work year.

Recovery Act highway project employment data

February 17, 2009 – December 31, 2010; Dollars in millions

	Hours	Payroll	FTE
Highest month to date: Oct 2009	298,728	\$11.4	143
First year: March 2009 – Feb 2010	1,762,402	\$67.6	847
Total: Feb 2009 – Dec 2010	3,835,234	\$149.1	1,844

Data source: Monthly Recovery Act employment data is collected from contractors, subcontractors, and WSDOT, then uploaded to FHWA's Recovery Act Database (RADS).

Note: One FTE is defined as 2,080 hours, the number of hours in a standard work year.

Competitive bid climate helps fund additional Recovery Act highway projects

The average WSDOT Recovery Act highway project was awarded 25% under the engineer's estimate, reducing the anticipated contract costs of stimulus projects by \$134 million.

These low bids allowed WSDOT to stretch the federal stimulus funds to advance 17 additional projects from the state's Tier 2 and Tier 3 lists, which included rehabilitation projects on three interstates – I-5, I-90, I-82 – and other highways.

The total for the successful low bids was just over \$393 million, below the total estimate of more than \$527 million. All but three of the 47 WSDOT Recovery Act highway contracts were awarded below the engineer's estimate.



Guy F. Atkinson crews work on the new "Bellevue Braids" project in Bellevue. The project was awarded 38% below the engineer's estimate.

Washington's largest Recovery Act highway project awarded 38% below engineer's estimate

The state's largest Recovery Act project – building braided ramps on I-405 at SR 520 and NE 8th St. in Bellevue – was awarded to Guy F. Atkinson Construction for \$107.5 million, 38% below the engineer's estimate of \$175.1 million. The project, expected to be completed in 2012, received \$79.5 million in stimulus funds.

Seven I-90 preservation projects were all awarded under the engineer's estimate. Together, the low bids cost almost \$46.8 million, or 15% below the estimates of \$54.9 million.

Local governments also took advantage of low bids on Recovery Act projects. Two counties and three cities that received Recovery Act funding to help complete partially funded projects experienced bids so far below the engineer's estimate that the stimulus funding was not needed and could be used on other projects.

Recovery Act funds advanced additional projects

Five projects received bids so far below estimates that the projects did not need Recovery Act funds	Recovery Act funds
Sedro Woolley – SR 9 Pedestrian/Bicycle Safety	\$79,019
Cowlitz County – West Side Highway/Whittle Creek Bridge Reconstruction	\$225,000
Snohomish County – Granite Falls Alternate Route	\$3,500,000
Spokane – Havana Street Bridge	\$1,400,000
Bothell – SR 522 Wayne Curve	\$1,047,401

Data source: WSDOT Highways and Local Programs.

Special Report on Federal Recovery Act-funded Projects

Recovery Act Project Delivery and Performance Review

The Recovery Act has provided funding for the installation of new safety features and upgrades along Washington's highways. WSDOT devoted \$27.8 million to safety projects including two project 'buckets' of \$9 million for improving cable median barrier and \$3 million for centerline rumble strips. WSDOT studies collision and other data in 'before' and 'after' installation periods to evaluate the improvements made; a meaningful evaluation of performance requires a year or more of after-installation data.

Cable median barrier

Washington spent \$9 million in Recovery Act funding statewide to:

- Install 42 miles of new 4-cable high-tension median barrier
- Replace 29 miles of 3-cable low-tension barrier with 4-cable high-tension barrier

In total, WSDOT installed 71 miles of 4-cable high-tension barrier with Recovery Act funding.

Data showed that while 3-cable low-tension barrier contained 94% of vehicles, 3-cable high-tension barrier contained 96.3% of vehicles that struck the barrier, preventing them from entering the oncoming lane of traffic. WSDOT modified its policies on cable median barrier in 2009 to specify 4-cable high-tension for new installations.



Before and After analysis: 48% annual reduction in fatal and serious injury collisions

An October 2009 statewide review of Before and After data on 3-cable median barrier projects showed a 48% annual reduction in fatal and serious injury collisions.

Centerline rumble strips

Centerline rumble strips are ground into the existing pavement to alert drivers when they are crossing over into the oncoming lane of traffic. As of October 2010, 808 miles of Recovery Act-funded centerline rumble strips were installed. Most of this work was completed as part of three separate contracts. Five Recovery Act-funded pavement preservation projects also installed rumble strips as part of the work. While the projects are operationally complete, some work may still be under way.

Before and After analysis: 44.5% reduction in cross-centerline collisions on undivided highways

In June 2010, WSDOT reviewed collision data for 493 miles of undivided highways where centerline rumble strips had been installed. The results of analysis showed:

- 44.5% fewer cross-centerline collisions
- 48.6% fewer serious and fatal injury collisions

Recovery Act-funded projects are expected to return similar reductions in the frequency and severity of cross-centerline collisions. (For more information on safety projects, see the Highway Safety Annual Report, pp. 5-10, in *Gray Notebook* 38.)

Recovery Act-funded bridge preservation work

The Recovery Act provided \$12.6 million to preserve one of the state's most important bridges, the Lewis and Clark Bridge carrying SR 433 over the Columbia River. Phase 3 of the project was on hold, unable to proceed without the additional funding provided by the Recovery Act. The project addresses the condition of the main steel truss over the Columbia River: work includes removing the existing paint by abrasive blasting, cleaning and preparing the steel, then applying a new three coat, urethane paint system that will prevent future corrosion, preserve the bridge's structural integrity, and prolong the life of the bridge.

\$164.7 million for pavement preservation work

The Recovery Act provided \$164.7 million to address the current backlog of road rehabilitation projects in Washington. Due to the age and condition of concrete pavement, **30% of Recovery Act** pavement preservation funds were spent on concrete pavements.

If not for the additional Recovery Act funding in 2009, concrete pavement rehabilitation would have been reduced by 64%, asphalt pavement rehabilitation would have been reduced by 49%, and chip seal resurfacing would have been reduced by 17%. Recovery Act funding helped WSDOT continue to reduce a growing backlog of pavement preservation needs throughout the state. (See pp. 12-17 in this *Gray Notebook* for the full Pavement Condition Annual Report.)

Recovery Act pavement preservation funding

As of December 2010; Dollars in millions

Type of construction	Dollars	% of Total	Lane miles
Chip seal resurfacing	\$9.0	5%	250
Asphalt resurfacing	\$76.9	47%	447
Concrete dowel-bar retrofit	\$29.8	18%	74
Concrete reconstruction	\$49.0	30%	49
Total	\$164.7	100%	820

Data source: WSDOT Materials Lab.

Special Report on Federal Recovery Act-funded Projects

High-Speed Rail and TIGER projects

The Recovery Act included \$1.5 billion in stimulus funding for a new national grant program, called Transportation Investments Generating Economic Recovery (TIGER), that required states and local governments to compete for stimulus funds. In 2009, U.S. Transportation Secretary Ray LaHood announced two Washington projects – in Spokane and Seattle – were selected from among 51 projects nationwide to receive a total of \$65 million.

WSDOT's North Spokane Corridor

The \$35 million TIGER grant will fully fund a project to construct 3.7 miles of southbound lanes on the North Spokane Corridor between Francis Avenue and Farwell Road, part of a larger project



designed to improve north-south traffic flow through Spokane. Construction began in September 2010 and is set to be completed in late 2011 or early 2012. This funding will add to an existing project that completed the northbound lanes of the North Spokane Corridor in August 2009.

Seattle's Mercer Street Corridor Improvements

The city of Seattle received a \$30 million grant to help fund improvements to the flow of traffic on and off I-5 near Mercer Street. In June 2010, the city awarded the contract to Gary Merlino Construction on a bid 23% below the engineer's estimate.

The project is part of a plan valued at \$160.7 million to improve the Mercer Street Corridor. The groundbreaking was held in September 2010 and construction is expected to be completed in late 2011 or early 2012.



Senator Patty Murray announces that the City of Seattle has been awarded a stimulus funding grant to revamp Mercer Street.

\$782 million allocated to High Speed Rail projects in Washington

In 2010, Washington was awarded up to \$782 million in Federal High Speed Intercity Passenger Rail grant funding to accomplish a series of Amtrak *Cascades* passenger rail service improvements between Portland, Oregon, and Vancouver, British Columbia. The grant was part of \$8 billion awarded nationwide to lay the groundwork for America's first nationwide system of modern high-speed passenger rail service.

In November 2010, U.S. Transportation Secretary Ray LaHood announced that Washington will receive up to \$161.5 million in Recovery Act funds that was originally awarded to Wisconsin and Ohio. WSDOT is working with the Federal Railroad Administration to identify projects for the additional funding. The grants are targeted to projects that will help add two daily trips and improve on-time performance in the corridor.

The high speed rail program is just beginning to upgrade the corridor's infrastructure and stimulate the economy. WSDOT is preparing preliminary engineering and environmental documentation for several projects, while preparing other projects for construction.



WSDOT's Capital Project Delivery Programs

Highway Construction: Nickel and TPA Project Delivery Performance Overview

As reported in last quarter's *Gray Notebook* 39, WSDOT has been refining the reporting format and information provided to communicate performance results in delivering the 2003 Nickel and 2005 TPA transportation packages in the Beige Pages.

Dashboard shows progress against 2010 Transportation Budget and includes individual programmatic and bucket projects

The 2010 Supplemental 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. The greater part of these line-item projects were itemized in the original 2003 and 2005 Nickel and TPA programs. When the 2011 Transportation Budget is approved, the list and number of projects for the 2011-2013 biennium will very likely change the total project number and value of the program.

The Beige Pages' tables show 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 is 421, as shown in the table below.

Capital projects 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	70	\$239,794
Projects completed that <i>are</i> included in the current Budget	226	\$3,795,328
Subtotal of completed projects	296	\$4,035,122
Projects included in the current Budget that are not yet completed	125	\$11,502,368
Total	421	\$15,537,181

Data source: WSDOT Capital Program Development & Management.

On time and on budget delivery performance on individual projects improves 1% on last quarter

WSDOT's cumulative capital program delivery performance improved slightly: 90% of all 226 projects in the current transportation budget have been delivered early or on time, and 94% under or on budget through the second quarter of fiscal year 2011 (FY 2011). Fourteen projects were completed in the quarter ending December 31, 2010; all were early or on time, and 13 were completed within the current approved budget. One bridge rail project saw an overall cost increase of about 16.5% when the budget was revised to better reflected the type of retrofit the project would require.

Forty-two Nickel and TPA projects are currently under construction, with 26 of those projects advertised for construction in the biennium to date. Six new projects were awarded in this quarter, with an estimated value of over \$6 million. Seventeen projects are scheduled for advertisement for construction bids between January 1, 2011, and June 30, 2011; 76% of these are advertising on or better than anticipated schedule.

Project Delivery Highlights

WSDOT has completed 82 projects so far in the 2009-2011 biennium, and a total of 296 projects that were shown in previous or current Transportation Budgets.

90% of all Nickel and TPA projects were completed early or on time, an improvement of 1% on last quarter.

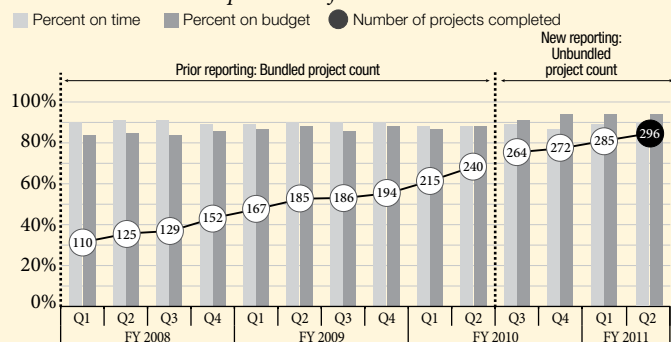
94% of Nickel and TPA completed projects combined were on or under budget, unchanged from last quarter.

85% of Nickel and TPA completed projects were both on time and on budget, an improvement of 1% on last quarter.

For details of WSDOT's Federal Recovery Act-funded projects, please see pages 46-50.

Cumulative on time and on budget performance of Nickel and TPA projects

296 of 421 projects completed as of December 31, 2010



Data source: WSDOT Capital Program Development & Management.

WSDOT's Capital Project Delivery Programs

Current 2011 Legislative Transportation Budget Performance Dashboard: Highways

Highway construction performance dashboard

As of December 31, 2010; 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	70	\$239,794
Projects completed that <i>are</i> included in the current Transportation Budget	226	\$3,795,328
<i>Subtotal of completed projects</i>	296	<i>\$4,035,122</i>
Projects included in the current Transportation Budget but not yet completed	125	\$11,502,368
Total number of projects¹ in Improvement & Preservation budget²	421	\$15,537,181

Schedule and Budget Summary: Results of completed projects in the current Transportation Budget detailed on page 55.		Combined Nickel & TPA
Number of projects in current Transportation Budget completed to date: 2003 – December 31, 2010		226
Percent completed early or on time		90%
Percent completed under or on budget		94%
Percent completed on time and on budget		85%
Baseline estimated cost at completion		\$3,795,328
Current estimated cost at completion		\$3,752,419
Percent of total program over or under budget		-1% Under
Total number of projects completed in 2009-11 biennium to date	82	
Percent completed early or on time	94%	
Percent completed under or on budget	96%	
Percent completed on time and on budget	90%	
Baseline estimated cost at completion this biennium	\$1,572,157	
Current estimated cost at completion this biennium	\$1,536,945	

Advertisement Record: Results of projects entering into the construction phase or under construction detailed on pages 56-59.		Combined Nickel & TPA
Total cumulative number of projects in construction phase to date, 2003 – December 31, 2010		42
Percent advertised early or on time		81%
Total number of projects advertised for construction in 2009-11 biennium to date	26	
Percent advertised early or on time	81%	

Projects To Be Advertised: Results of projects now being advertised for construction or planned to be advertised, detailed on page 60.		Combined Nickel & TPA
Total projects being advertised for construction bids January 1, 2011 - June 30, 2011		17
Percent on or better than anticipated advertisement schedule		76%

Budget status: 2009-2011 biennium Dollars in thousands		WSDOT biennial budget
Budget amount for 2009-2011 biennium		\$3,234,650
Actual expenditures to date 2009-2011 biennium		\$1,756,271
Total 2003 Transportation Funding Package (Nickel) expenditure		\$449,259
Total 2005 Transportation Partnership Account (TPA) expenditure		\$947,934
Total Pre-Existing Funds (PEF) expenditure ³		\$359,079

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. Per the 2005-2007 Transportation Budget, Section 603.

3. For full details of the PEF program, see pages 80-83.

WSDOT's Capital Project Delivery Programs

Current 2011 Legislative Transportation Budget Performance Dashboard: Rail and Ferries

Nine Nickel and six Transportation Partnership Account (TPA) rail construction projects have been delivered on time and on budget as of December 31, 2010, for \$71.8 million. Seven projects (four Nickel-funded, three TPA-funded) in construction have award amounts of \$32.2 million. No rail projects are planned to advertise before June 30, 2011.

To date, Ferries has completed five Nickel and one TPA construction projects, and two TPA-funded contracts (see note* below) have been awarded for \$181 million. Additional Ferries construction projects are not planned for advertisement in this biennium. The award of a fourth ferry is pending, depending on future availability of funds.

Rail construction performance dashboard

As of December 31, 2010; 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, 2010	9	6	15
% 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	\$45,907	\$25,965	\$71,872
Current estimated cost at completion	\$45,907	\$25,965	\$71,872
% of total program on or under budget	0.0%Over	0.0%Over	0.0%Over
Advertisement record: projects under construction or entering construction phase			
Biennium to date, 2009-11			
Total advertised	4	3	7
% Advertised early or on time	100%	100%	100%
Total award amounts to date	\$23,496	\$8,728	\$32,224
Advertisement schedule: projects now being advertised or planned to advertise			
January 1, 2011 through June 30, 2011			
Total being advertised for construction	0	0	0
% On schedule or earlier	100%	N/A	100%

Ferries construction performance dashboard

As of December 31, 2010; dollars in thousands

Schedule, scope and budget summary: completed projects			
Cumulative to date, 2003 – December 31, 2010	5	1	6
% Completed early or on time	100%	0%	100%
% Completed within scope	100%	0%	100%
% Completed under or on budget	100%	0%	100%
% Completed on time and on budget	100%	0%	100%
Baseline estimated cost at completion	\$18,382	\$77,000	\$95,382
Current estimated cost at completion	\$18,382	\$77,000	\$95,382
% of total program on or under budget	0.0% Over	N/A	0.0% Over
Advertisement record: projects under construction or entering construction phase			
Cumulative to date, 2003 – December 31, 2010	0	2	2
% Advertised early or on time	N/A	100%	100%
Total award amounts to date	N/A	\$181,397	\$181,397 *

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

* Note: The advertisement record includes the contract for the "144 Auto class ferry" furnished equipment. This already-purchased equipment has been accepted and currently is in storage: it will be installed during future, at-present unfunded, ship construction. The overall contract remains open to negotiate the training and installation of the equipment. The advertisement record also includes two contracts in the "64 Auto class ferry" vessel program: the first contract covers building the first ship, the second contract covers building the second and third vessels.

WSDOT's Capital Project Delivery Programs

Schedule and Budget Summary

Biennial summary of all projects completed 2003-2010

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

	Fund type	On time advertised	On time completed	Within scope	Baseline estimated cost	Current estimated cost	On budget	Completed on time, on budget
Cumulative to date								
2003-2005 Biennium summary See <i>Gray Notebook</i> for quarter ending September 30, 2005, for project listing	19 Nickel	4 early 15 on time	6 early 13 on time	19	\$118,575	\$118,450	9 under 8 on budget 2 over	17 on time and on budget
May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .								
2005-2007 Biennium summary See <i>Gray Notebook</i> for quarter ending June 30, 2007, for project listing	50 Nickel 23 TPA	20 early 48 on time 5 late	49 early 16 on time 8 late	73	\$650,986	\$652,896	27 under 33 on budget 13 over	53 on time and on budget
May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .								
2007-2009 Biennium summary See <i>Gray Notebook</i> for quarter ending June 30, 2009, for project listing	42 Nickel 60 TPA	18 early 62 on time 22 late	45 early 43 on time 14 late	102	\$1,764,364	\$1,769,732	52 under 38 on budget 12 over	80 on time and on budget
May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm .								

To view projects completed in the 2009-2011 biennium, please see Gray Notebook 35 for the quarter ending September 30, 2009, Gray Notebook 36 for the quarter ending December 31, 2009, Gray Notebook 37 for the quarter ending March 31, 2010, Gray Notebook 38 for the quarter ending June 30, 2010, and Gray Notebook 39 for the quarter ending September 30, 2010.

May be accessed at www.wsdot.wa.gov/Accountability/GrayNotebook/gnb_archives.htm.

WSDOT's Capital Project Delivery Programs

Schedule and Budget Summary

14 Projects completed as of December 31, 2010

Nickel and Transportation Partnership Account (TPA) projects, costs estimated at the time of 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
SR 503/Gabriel Rd Intersection (Clark)	TPA	√	√	\$501	\$456	√	√
SR 503/Lewisville Park vicinity – Add climbing lane (Clark)	TPA	√	√	\$7,806	\$6,373	√	√
I-5/Ship Canal Bridge – Noise mitigation study (King)	TPA	√	√	\$7,000	\$5,866	√	√
SR 203/Corridor safety improvements – King County (King)	TPA	√	√	\$4,055	\$3,676	√	√
SR 203 – Roadside safety improvements (King, Snohomish)	TPA	√	√	\$612	\$100	√	√
SR 520/W Lake Sammamish Parkway to SR 202, Stage 3 – Widening (King)	Nickel		√	\$85,320	\$79,392	√	√
Advertisement date was delayed due to stormwater and wetland design changes.							
SR 303/Port Washington Narrows Bridge – Upgrade bridge rail (Kitsap)	Nickel		√	\$1,422	\$1,703		
Advertisement was delayed to address ADA compliance issues. Full development of the project cost estimate resulted in an overall cost increase.							
SR 11/I-5 Interchange – Josh Wilson Rd - Rebuild interchange (Skagit)	TPA	√	√	\$12,967	\$10,241	√	√
SR 203/Corridor safety improvements – Snohomish County (Snohomish)	TPA	√	√	\$3,102	\$1,900	√	√
SR 532/General Mark W. Clark Memorial Bridge – Replace bridge (Snohomish)	TPA	√	√	\$19,449	\$19,450	√	√
SR 532/Camano Island to I-5 – Corridor improvements (Snohomish)	TPA		√	\$66,067	\$66,067	√	√
Advertisement delayed to secure environmental permits and right of way parcels.							
SR 510/Yelm Loop – New alignment (Thurston)	TPA	√	√	\$36,003	\$35,999	√	√
SR 27/Pine Creek Bridge – Replace bridge (Whitman)	TPA	√	√	\$4,000	\$3,880	√	√
SR 542/Nooksack River – Redirect river and realign roadway (Whatcom)	TPA		√	\$16,577	\$16,516	√	√
Advertisement delayed due to right-of-way settlement issues.							

Data source: WSDOT Capital Program and Delivery Management

WSDOT's Capital Project Delivery Programs

Advertisement Record

42 projects in construction phase as of December 31, 2010

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 2009-2011 biennium.						
SR 285/George Sellar Bridge — Additional eastbound lane (Chelan, Douglas)	TPA	Late	Jan-09	Max J. Kuney Company	Mar-11	\$12,885
Advertisement date was delayed one month to address additional bridge analysis, design, and detailing requirements and to purchase railroad easements.						
I-5/SR 501 Ridgefield Interchange — Rebuild interchange (Clark)	TPA	Early	Jun-09	Tapani Underground, Inc.	Nov-11	\$15,795
This project received federal Recovery Act stimulus funds.						
I-405/South Renton Vicinity Stage 2 — Widening	Nickel/TPA					
• 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	√	Combined with project above for construction efficiencies.			
• I-405/SR 515 — New Interchange (King) -	TPA	√	Combined with project above for construction efficiencies.			
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.						
I-90/Eastside Bridges — Seismic (King)	TPA	√	Oct-08	Imco General Construction, Inc.	Sep-11	\$5,999
This is a project within the Bridge Seismic Retrofit Program.						
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/SR 518 Interchange Bridge Crossing Seismic Retrofit (King)	TPA	Late	Mar-10	Mid-Mountain Contractors, Inc.	Aug-11	\$762
This WSDOT project is tied to the Sea-Tac Airport Rental Parking Facility project, which is administered by the Port of Seattle; POS makes decisions on the overall project schedule. The project schedule has been changed several times, including a delay in advertisement date stemming from funding problems; after funding was secured, it was scheduled to advertise December 2009 but was delayed an extra quarter to March 2010. The operationally complete date has now been delayed to August 2011, based on the contractor's schedule for the car rental facility work. This is a project within the Bridge Seismic Retrofit Program.						
SR 99/Aurora Ave N Corridor — Add HOV lanes (King)	TPA	√	Jun-05		Jun-11	
This project represents WSDOT's contribution to a City of Shoreline project.						
SR 520/I-405 vicinity seismic retrofit (King)	TPA	√	Mar-10	Guy F. Atkinson Construction, LLC	Sep-11	\$4,083
This is a project within the Bridge Seismic Retrofit Program.						
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

WSDOT's Capital Project Delivery Programs

Advertisement Record

42 projects in construction phase as of December 31, 2010

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-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.	Nov-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	Dec-11	\$119,925
I-5/Ardena Road Bridge — Upgrade bridge rail (Pierce)	Nickel	Late	Jun-09		Nov-11	
This project was combined for construction with I-5/Port of Tacoma Rd to King Co Line — HOV. This is a project within the Bridge Rail Retrofit Program.						
I-5/236th St SW Bridge — Seismic retrofit (Snohomish)	TPA	√	Dec-08	Midmountain Contractors, Inc.	Mar-11	\$448
This is a project within the Bridge Seismic Retrofit Program.						
I-405/Kirkland Vicinity Stage 2 — Widening (Snohomish, King)	Nickel/TPA					
• I-405/NE 195th St to SR 527 — Northbound widening (Snohomish, King)	TPA	Early	May-09	Kiewit Pacific Co.	Jun-10	\$19,263
US 395/North Spokane Corridor — US 2 to Wandermere and US 2 Lowering — New alignment (Spokane)	Nickel	√	Aug-08		May-11	
• NSC — US 2 to Wandermere vicinity (Spokane) -	Nickel		May-09	Graham Construction & Management, Inc.	May-11	\$37,541
• US395/NSC — US 2 lowering (Spokane) -	Nickel		Aug-08	Graham Construction and Management, Inc.	May-11	\$42,849
US 395/North Spokane Corridor — Francis Ave to Farwell Rd — New alignment (Spokane)	Nickel	Late	Jan-04		Dec-11	
The advertisement delay on this project was due to delays in the right-of-way acquisition.						
• 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-10	\$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 Stage One — Add lanes (Thurston)	Nickel	√	Dec-07	Scarsella Bros., Inc.	Jun-10	\$61,495

WSDOT's Capital Project Delivery Programs

Advertisement Record

42 projects in construction phase as of December 31, 2010

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
Biennium to date (2009-11)						
SR 26/W of Othello — Add passing lane (Adams)	TPA	Early	Dec-09	Selland Construction, Inc.	Oct-10	\$609
I-5/SR 432 Talley Way Interchanges — Rebuild interchanges (Cowlitz)	TPA	√	Sep-09	Northwest Construction, Inc.	Dec-11	\$20,529
SR 28/Jct US 2 and US 97 to 9th St, Stage 1 — New alignment (Douglas)	TPA	Late	Sep-09	Selland Construction, Inc.	Oct-12	\$735
The advertisement date was advanced so that construction on the irrigation canal could occur during the 2009/10 winter while the irrigation water is shut off.						
Lake Washington Congestion Management (King)	TPA	√	May-09	Elcon Corporation	Mar-11	\$ 34,450
Portions of this project are now in construction, but were not previously captured in <i>Gray Notebook</i> 'Projects to be Advertised' tables. If necessary, new subprojects will be recorded in the advertisement pipeline tables in future editions.						
SR 520/ Bridge Replacement and HOV (King)	TPA					
• SR 520 Pontoon Construction (King)	TPA		Aug-09	Kiewit-General, A Joint Venture	Apr-14	\$367,330
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</i> 38.						
SR 305/Unnamed Tributary to Liberty Bay — Fish barrier (Kitsap)	TPA	√	Apr-10	Frank Coluccio Construction	Dec-10	\$3,848
This is a project within the Fish Passage Barriers Program. The award amount for this project was incorrectly reported as \$1,623 in <i>Gray Notebook</i> 38.						
US 97/Blewett Pass — Add passing lane (Kittitas)	TPA	√	May-10		Oct-10	
SR 410/214th Ave E to 234th — Add lanes (Pierce)	TPA	Late	Dec-09	J. R. Hayes & Sons	Sep-10	\$6,784
The advertisement and operationally complete dates have been delayed to allow time for continued environmental compliance issues. Right-of-way plans were revised for new pond sites, which required restarting the cultural resources process.						
SR 9/Lundeen Parkway to SR 92 — Add lanes and improve intersections (Snohomish)	TPA	√	Mar-10	Granite Construction Co.	Dec-11	\$10,921
SR 522/Snohomish River Bridge to US 2 — Add lanes (Snohomish)	Nickel	√	Apr-10	Scarsella Bros., Inc.	Nov-14	\$15,514
I-5/196th St (SR 524) Interchange — Build ramps (Snohomish)	TPA		Apr-10	Northwest Construction Inc.	Oct-11	\$18,727
The completion date has been delayed one quarter to reflect the contractor's schedule.						
SR 529/Ebey Slough Bridge — Replace bridge (Snohomish)	TPA		Apr-10	Granite Construction Co.	May-13	\$21,541
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		Dec-14	
• I-5/Mellen St Interchange — Interchange improvements (Thurston, Lewis)	TPA		Combined with project above for construction efficiencies.			

WSDOT's Capital Project Delivery Programs

Advertisement Record

42 projects in construction phase as of December 31, 2010

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-5/36th St Vicinity to SR 542 Vicinity — Ramp reconstruction (Whatcom)	TPA	√	May-10	Vetch Construction	Oct-11	\$4,440
I-82/Valley Mall Blvd Interchange — Rebuild interchange (Yakima)	TPA	√	Nov-09	Apollo, Inc.	Oct-11	\$19,080
This project received federal Recovery Act stimulus funds.						
SR 22/I-82 to Toppenish — Safety improvements (Yakima)	Nickel	√	Oct-09	Steele Trucking, Inc.	Nov-11	\$143
The completion date for the second stage of this project has been delayed one year due to work that could not be performed inside the irrigation window.						
SR 823/Selah vicinity — Reroute highway (Yakima)	TPA	√	Dec-09		Jul-12	
The project was delayed until fall 2010 due to right of way issues. Its completion date has been delayed one year to 2012.						
Quarter ending December 31, 2010						
SR 243/S of Mattawa — Install lighting (Grant)	TPA	√	Dec-10	Valley Electric Co. of Mt Vernon, Inc.	Nov-11	\$96
SR 530/Sauk River Bank Erosion — Realign roadway (Skagit)	TPA	√	Dec-10	Trimaxx Construction Inc	Jul-12	\$2,481
I-5/Capitol Blvd Bridge - Upgrade bridge rail (Thurston)	Nickel		Oct-10	Cascade Bridge LLC	May-11	\$519
Advertisement delayed due to additional review of design elements.						
I-5/14th Ave Thompson Pl — Add noise wall (Thurston)	TPA	√	Nov-10	Mowat Construction Company	Jul-11	\$1,654
I-5/Queets Dr E Tanglewild — Add noise wall (Thurston)	TPA	√	Nov-10	Mowat Construction Company	Jul-11	\$1,213
US 12/SR 124 Intersection — Build interchange (Walla Walla)	TPA		Oct-10	Award pending	Oct-12	
Advertisement was delayed until land exchange with US Fish and Wildlife was completed						
Data source: WSDOT Capital Program Development and Management.						

WSDOT's Capital Project Delivery Programs

Projects To Be Advertised

17 Projects in the delivery pipeline for January 1, 2011 through June 30, 2011

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
US 2/Wenatchee River Bridge – Replace bridge (Chelan)	TPA	Mar-11	Mar-11	√	\$11,739	\$12,250
US 2/Chiwaukum Creek – Replace bridge (Chelan)	TPA	Mar-11	Mar-11	√	\$8,367	\$8,574
SR 503/4th Plain/SR 500 Intersection – Add turn lane (Clark)	TPA	Apr-11	Apr-11	√	\$780	\$807
I-5/NE 134th St Interchange (I-5/I-205) – Rebuild interchange (Clark)	Nickel	Apr-11	Apr-11	√	\$84,341	\$99,341
SR 500/St Johns Blvd – Build Interchange (Clark)	TPA	Apr-10	Jan-11		\$57,241	\$57,375
Advertisement date was delayed due to design revisions which required revisiting environmental documentation and negotiation with FHWA and applying for new permits.						
SR 14/Camas Washougal – Add lanes and build interchange (Clark)	TPA	Apr-10	Mar-11		\$57,000	\$57,000
Advertisement date was delayed to allow time to obtain local agency permits and right-of-way certification.						
US 101/Unnamed Tributary to Lower Salmon Creek – Fish barrier (Grays Harbor)	TPA	May-11	May-11	√	\$1,259	\$1,337
A project within the Fish Passage Barriers Program.						
SR 518/Bridges – Seismic (King)	TPA	Mar-11	Mar-11	√	\$7,831	\$8,786
A project within the Bridge Seismic Retrofit Program.						
SR 99/Aurora Ave – George Washington Memorial Bridge – Seismic (King)	TPA	Jan-11	Jan-11	√	\$7,746	\$13,346
A project within the Bridge Seismic Retrofit Program.						
SR 161/24th St E to Jovita – Add lanes (Pierce)	Nickel	Apr-10	Feb-11		\$37,600	\$40,464
Advertisement date was delayed to allow time to locate a wetland mitigation site, and to complete utilities and right-of-way transactions.						
SR 161/Clear Lake N Rd to Tanwax Creek – Realign roadway (Pierce)	TPA	May-11	May-11	√	\$4,572	\$4,735
SR 11/Chuckanut Park and Ride – Build park and ride (Skagit)	TPA	May-11	Jan-11		\$12,991	\$11,958
SR 9/SR 531 – 172nd St NE – Improve intersection (Snohomish)	TPA	Jan-11	Mar-11	√	\$14,731	\$15,999
US 2/Wagley's Creek Tributary (Sultan Mill Pond) – Fish passage (Snohomish)	TPA	Feb-11	Mar-11	√	\$779	\$985
A project within the Fish Passage Barriers Program.						
SR 9/212th St SE to 176th St SE, Stage 3 – Add lanes (Snohomish)	Nickel	Mar-11	Mar-11	√	\$87,289	\$87,288
SR 542/Everson Goshen Rd vicinity to SR 9 vicinity – Intersection improvements (Whatcom)	TPA	Jan-11	Jan-11	√	\$7,670	\$7,720
SR 548/Terrell Creek – Fish passage (Whatcom)	TPA	Feb-11	Feb-11	√	\$576	\$2,783
A project within the Fish Passage Barriers Program.						

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.

The dashboards below and on page 50 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, 2010

Project number and phase	Total program		Highways		Ferries		Rail	
	Number of projects	Percent of program	Number of projects	Percent of program	Number of projects	Percent of program	Number of projects	Percent of program
Total number of projects	156		127		5		24	
Completed projects	107	69%	96	76%	1	20%	10	42%
Total projects under way	39	25%	31	24%	3	60%	5	21%
<i>In preconstruction phase</i>	20		18		2		0	
<i>In construction phase</i>	20		14		1		5	
Projects starting in the future	3	2%	0	0%	0	9%	3	13%
Projects deferred, or deleted from program	7	4%	0	0%	1	20%	6	25%
<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>	3		3		0		0	

Data source: WSDOT Capital Program Development & Management.

Note: Totals do not include Local Programs projects.

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

Status as of December 31, 2010; Dollars in thousands

	Total program		Highways		Ferries		Rail	
	Budget	Percent of total	Budget	Percent of program	Budget	Percent of program	Budget	Percent of program
Total original Legislative planned budget	\$3,887,483		\$3,380,124		\$297,851		\$209,508	
Original plan, 2003 through 2007-09 biennium	\$2,450,750	63%	\$2,102,667	62%	\$219,285	74%	\$128,798	61%
Actual expenditures, 2003 through 2007-09 biennium	\$2,641,045	68%	\$2,469,953	73%	\$80,904	27%	\$90,188	43%
Original plan through 2009-11 biennium	\$3,278,038	84%	\$2,813,701	83%	\$293,919	99%	\$170,418	81%
Current plan through 2009-11 biennium			\$3,077,846	91%				
Actual expenditures, 2003 through December 31, 2010	\$3,170,460	82%	\$2,919,326	86%	\$132,448	44%	\$118,686	57%

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, 2010

Project number and phase	Total program		Highways		Ferries		Rail	
	Number of projects	Percent of program	Number of projects	Percent of program	Number of projects	Percent of program	Number of projects	Percent of program
Total number of projects	248		229		4		15	
Completed projects	149	60%	143	62%	0		6	40%
Total projects under way	80	32%	74	32%	1		5	33%
<i>In preconstruction phase</i>	44		42		1		1	
<i>In construction phase</i>	36		32		0		4	
Projects starting in the future	8	3%	4	2%	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.

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

Status as of December 31, 2010; Dollars in thousands

	Total program		Highways		Ferries		Rail	
	Budget	Percent of total	Budget	Percent of program	Budget	Percent of program	Budget	Percent of program
Total original Legislative planned budget	\$6,982,128		\$6,678,468		\$185,410		\$118,250	
Original plan, 2005 through 2007-09 biennium	\$2,274,805	33%	\$2,224,451	33%	\$1,940	1%	\$48,414	41%
Actual expenditures, 2005 through 2007-09 biennium	\$1,336,628	19%	\$1,296,476	19%	-	0%	\$40,152	34%
Original plan through 2009-11 biennium	\$4,042,962	58%	\$3,886,331	58%	\$81,701	44%	\$74,930	63%
Current plan through 2009-11 biennium			\$2,787,619	42%				
Actual expenditures, 2005 through December 31, 2010	\$2,358,985	34%	\$2,244,401	34%	\$63,744	34%	\$50,840	43%

Data source: WSDOT Capital Program Development & Management.

Note: Expenditures are TPA 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.

Paying for the Projects: 2003 Transportation Funding Package (Nickel) financial information

Revenue forecast update

The following information incorporates the September 2010 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.

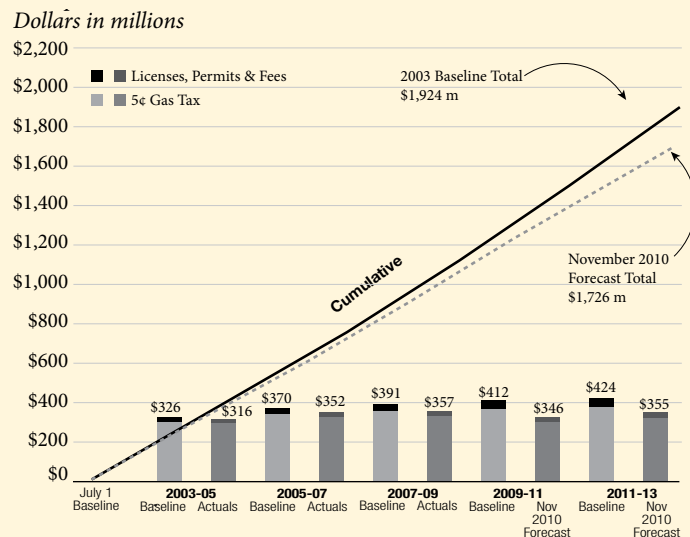
Current forecasted revenues include the most recent actual revenue collection data available as well as updated projections based on new and revised economic variables.

The November 2010 forecast for gas tax receipts and licenses, permits, and fees for the Transportation 2003 (Nickel) Account is lower than the baseline forecast for the ten-year outlook by 11.5%. This reduction is due to continued lower gasoline consumption. Because Washington's gas tax is based on gallonage rather than price, reduced consumption results in reduced revenues.

Multimodal Account projections for the vehicle sales tax are lower than the baseline forecast resulting in a decrease of 19.4% 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 2010 Transportation Revenue Forecast Council



2003 Transportation Funding Package Highlights

Deposited into the Transportation 2003 (Nickel) Account

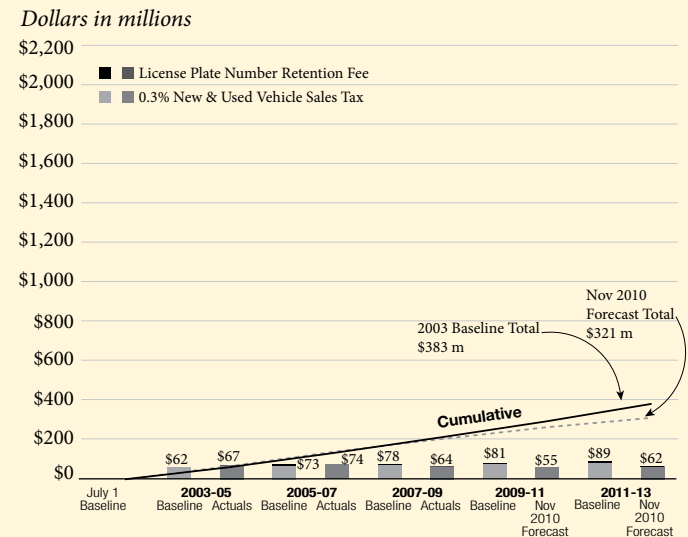
- 5¢ increase to the gas tax
- 15% increase in the gross weight fees on trucks

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 Account (2003 Package) revenue forecast

March 2003 Legislative baseline compared to the November 2010 Transportation Revenue Forecast Council



WSDOT's Capital Project Delivery Programs

Paying for the Projects: 2005 Transportation Partnership Account (TPA) financial information

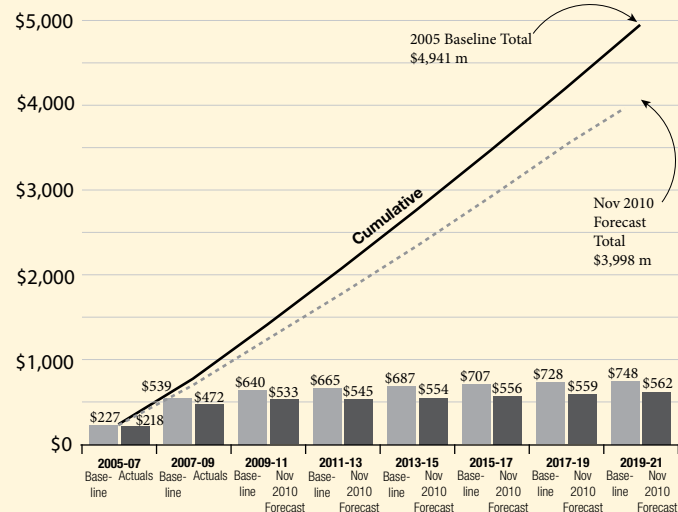
Revenue forecast update

The accompanying chart compares the current September 2010 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 2010 forecast for gas tax receipts over the 16-year period decreased by 23.6% from the baseline forecast. This reduction is due to continued lower gasoline consumption. Because Washington's gas tax is based on gallonage rather than price, reduced consumption results in reduced revenues.

Transportation Partnership Account (TPA) gas tax revenue forecast

March 2005 Legislative baseline compared to the November 2010 Transportation Revenue Forecast Council
Dollars in millions



Data source: WSDOT Financial Planning.

Numbers may not add due to rounding.

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)
 - Identicards, 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)

Completed Projects: Delivering performance and system benefits

Between October 1 and December 31, 2010, WSDOT completed 14 projects that preserved the roadway, increased capacity, replaced bridges, and enhanced safety features. Each project improved travel by making roads safer, trips faster and more reliable, and helping the environment and the economy. Each project also faced unique challenges to be delivered on time and on budget.

Building upon the principles of Performance Journalism and accountability, WSDOT publishes a brief report on each project completed in a quarter, organized by county. The summaries are intended to provide a better sense of the project delivery process, WSDOT's efforts to use tax dollars as efficiently as possible, and the benefits citizens can expect to see from completed projects.

Project delivery performance reporting regarding budget and schedule is measured against last approved budgets in accordance with criteria established by the Legislature; for this quarter, it is the 2010 supplemental budget. This report includes the original project appropriation from the 2003 and 2005 budgets to explain changes in project budgets over time. The graphs offer a visualization of the fluctuations in a project's cost from year to year and is scaled to show the dollar range in greater detail.

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

SR 503/Lewisville Park vicinity – Add climbing lane (Clark)

This project built a .5 mile climbing lane near Lewisville Park.

Project benefits: The climbing lane better accommodates growing freight and commuting traffic on SR 503 near Battle Ground, which averages 16,000 vehicles a day.

Budget performance: The project cost \$5.87 million at completion, \$1.13 million below the last approved budget, and \$.87 million more than the original budget expectation.

Schedule performance: The project was completed in October 2010, on time with the last approved schedule.

SR 503/Gabriel Road Intersection (Clark)

This project improved signage and sight distance at the intersection of SR 503 and Gabriel Road in Clark County.

Project benefits: The changes to the intersection improve signage and visibility to reduce the risk of collisions.

Project highlights or challenges: The project was originally planned to realign the roadway, however a hazardous waste site in the planned realignment would have substantially increased the cost. As a result, the project was modified to provide low-cost safety enhancements. While the intersection improvements were completed in 2008, the project was only considered complete in October 2010 when that portion of SR 503 was repaved.

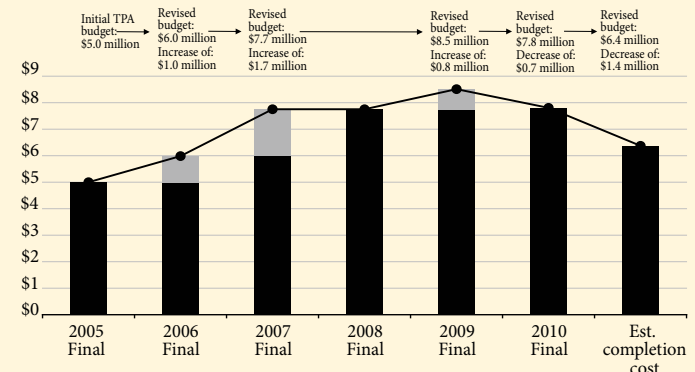
Budget performance: The project cost \$456,000 at completion, below the last approved budget of \$501,000 and the original expectation of \$773,000, due to the changes noted above.

Schedule performance: The project was completed on schedule in October 2010, although most of the work was finished earlier.



This project installed a .5 mile climbing lane on SR 503 in Clark County, accommodating the highway's growing freight traffic.

SR 503/Lewisville Park vicinity - Add climbing lane (Clark)
Annual project budget from conception to estimated cost at completion
Dollars in millions



Data Source: Capital Program Development & Management Office.

WSDOT's Capital Project Delivery Programs

Completed Projects: Delivering performance and system benefits

I-5/Ship Canal Bridge – Noise mitigation study (King)

This project deployed noise mitigation features on the I-5 Ship Canal Bridge, testing and analyzing the designs for possible application in other locations.

Project benefits: This project helped WSDOT learn more about strategies for mitigating noise from bridge structures, where traditional noise walls cannot be used. The project installed 700 panels of special noise-absorbent material on the double-decker structure.

Project highlights and challenges: The testing began in October 2010 and will continue to monitor the results for years.

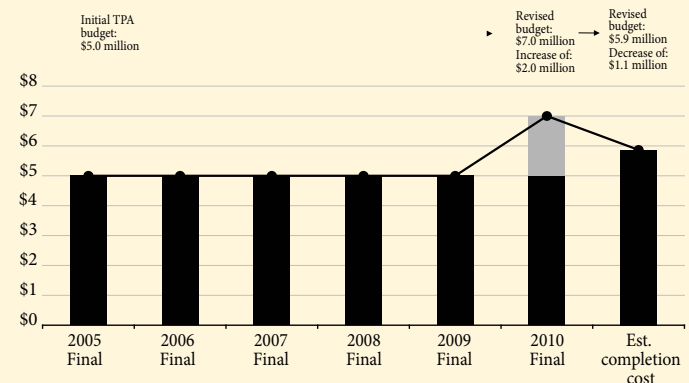
Budget performance: This project cost \$5.87 million at completion, \$1.13 million below the last approved budget and \$0.87 million above the FY 2005 original budget. Rising prices for materials and additional engineering work increased the cost of the project. The low bid of \$1.56 million was below the engineer's estimate of \$2.66 million.

Schedule performance: The project was completed in October 2010, on time with the last approved schedule. Because of a delay in finalizing a design concept, the initial project start date of April 2009 was delayed.

The project installed 700 noise-absorbent panels on the I-5/Ship Canal Bridge to study the noise mitigation impact.

I-5/Ship Canal Bridge – Noise mitigation study

Annual project budget from conception to estimated cost at completion
Dollars in millions



Data Source: Capital Program Development & Management Office.



SR 203/Corridor Safety Improvements (King)

SR 203/Roadside Safety Improvements (King, Snohomish)

SR 203/Corridor Safety Improvements (Snohomish)

These three projects installed multiple safety features on SR 203, including guardrail, and removed fixed objects. The improvements also included adding a two-way left turn lane.

Project Benefits: The project's improvements are designed to reduce the severity of collisions on through low-cost safety enhancements

Highlights/Challenges: The projects' construction and advertisement was delayed due to scheduling concerns associated with the review of environmental permits by Snohomish County.

Budget Performance: The projects were completed for a total cost of \$5.7 million, in line with the last approved budget.

Schedule Performance: The project was completed in November 2010, on time with the last approved schedule.



These projects installed new safety features, including guardrail, on SR 203 in King and Snohomish counties.

Completed Projects: Delivering performance and system benefits

SR 520/West Lake Sammamish Parkway to SR 202, Stage 3 – Widening (King)

This project widened SR 520 in Redmond. It added two lanes westbound and eastbound between SR 202 and West Lake Sammamish Parkway, rebuilt on and off ramps at West Lake Sammamish Parkway, extended the westbound HOV lane to West Lake Sammamish Parkway, and linked the eastbound carpool lane in Bellevue to a new carpool lane that extends to Redmond Way.

Project benefits: The project relieves a chronic bottleneck by expanding the capacity on SR 520, improving traffic flow for a stretch of highway that carries more than 75,000 vehicles each day; it greatly improves connections with other key roadways in the area.

Project highlights or challenges: This project is part of a series of projects designed to improve traffic flow and safety in the SR 520 corridor, starting in the 1990s. A new flyover ramp at West Lake Sammamish Parkway, completed in 2008, has helped accommodate the additional capacity on SR 520.

Budget performance: The project cost \$81 million at completion, below the last approved budget and \$5 million above the initial FY 2005 approved budget.

Schedule performance: This project was completed in December 2010, five months ahead of the last approved schedule.



This project added new lanes on SR 520 between SR 202 and West Lake Sammamish Parkway. The photo above shows the opening of a westbound lane in June 2010. The project also installed 16,000 feet of new guardrail, shown below.



SR 303/Port Washington Narrows Bridge - Upgrade bridge rail (Kitsap)

The project replaced and upgraded the existing bridge rail on the Port Washington Narrows Bridge to meet current standards.

Project benefits: The project replaced the original bridge barrier, which did not have sufficient structural strength to prevent cross-over collisions on the bridge. The new stronger barrier is designed to prevent vehicles from crossing over onto the sidewalks. The project also added bike and pedestrian rails on the inside and outside of the bridge.

Project highlights or challenges: In 2006, WSDOT revised its estimated construction costs based on three similar projects; the sharp increase in the per-foot construction cost better reflected the type of retrofit this project would require. The project benefited from a bid of \$1.17 million that was 30% below the engineer's estimate of \$1.67 million.

Budget performance: The project cost \$1.7 million at completion,



This project upgraded the existing bridge rail on the Port Washington Narrows Bridge on SR 303 in Kitsap County.

\$281,000 above the last approved budget, and \$1.5 million above the initial FY 2005 budget, before the revised estimate.

Schedule performance: The project was completed in December 2010, on time with the last approved schedule.

WSDOT's Capital Project Delivery Programs

Completed Projects: Delivering performance and system benefits

SR 11/I-5 Interchange to Josh Wilson Road - Rebuild interchange (Skagit)

This project upgraded the interchange and realigns SR 11 and Josh Wilson Road. It realigned the northbound ramps, increasing the acceleration distance for northbound traffic merging onto I-5 and reconstructed both the northbound and southbound ramp termini as roundabout intersections. The project was combined with the local SR 11/Chuckanut Park & Ride project.

Project benefits: This project will reduce congestion and accidents within the interchange and connecting streets.

Project highlights or challenges: The project required additional funds to acquire right-of-way and larger-than-anticipated wetland mitigation. Mitigation acreage was increased, but could not be satisfied with existing wetland mitigation banking credits. When the project was combined with SR 11 Chuckanut Park and Ride, the two right-of-way parcels were combined into one for modest cost savings. The estimated completion cost is also lower due to reduced risks, and benefited from a bid 33% below the engineer's estimate.

Budget performance: The project cost \$10.2 million at completion, \$2.7 million below the last approved budget, due to lower than anticipated risks. The project cost \$200,000 more than its initial FY 2005 budget of \$10 million.

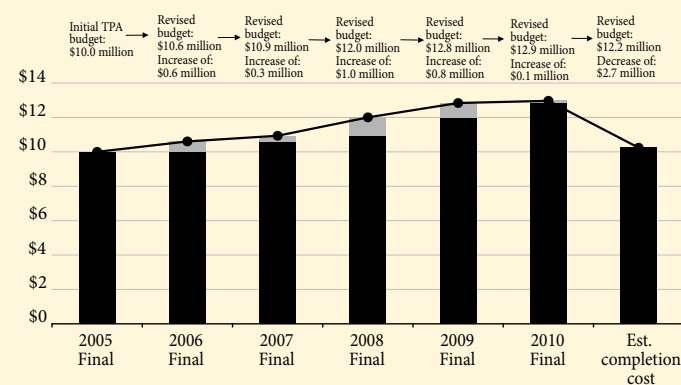
Schedule performance: Project was completed in October 2010, two months earlier than the last approved schedule



This aerial photo shows the rebuilt interchange at SR 11 and I-5. The project was designed to improve safety and congestion at the interchange in Burlington.

SR 11/I-5 Josh Wilson Road - Rebuild interchange

Annual project budget from conception to estimated cost at completion
Dollars in millions



Data Source: Capital Program Development & Management Office.

Completed Projects: Delivering performance and system benefits

SR 532/General Mark W. Clark Memorial Bridge – Replace Bridge (Snohomish)

SR 532/Camano Island to I-5 Corridor improvements (Snohomish)

These projects are designed to improve the SR 532 corridor from I-5 to Camano Island in Snohomish County. Project elements replaced the General Mark W. Clark Memorial Bridge with a new, wider bridge. The projects also constructed new sidewalks, new bike lanes, new highway surfaces, truck climbing lanes and turn lanes, and enhanced safety features.

Project benefits: The SR 532 Corridor Program features mobility, safety, preservation, and environmental improvements for this critical corridor that Camano Island, Stanwood, and rural Snohomish county residents with larger urban centers such as Everett and Seattle.

Project highlights or challenges: WSDOT combined six projects on the SR 532 corridor into one design-build project contract for construction efficiencies. The projects were advanced by one year due to legislative action.

Budget performance: The bridge replacement was completed for \$19.45 million, just below the last approved budget and on budget with the original FY 2005 budget.

The corridor improvements, which combined four projects into one project for efficiency, cost about \$66.1 million at completion, on target with the original FY 2005 budget.

Schedule performance: The project was completed in November 2010, one month earlier than the last approved schedule. The project's advertisement date had been delayed in order to secure environmental permits and right-of-way parcels.



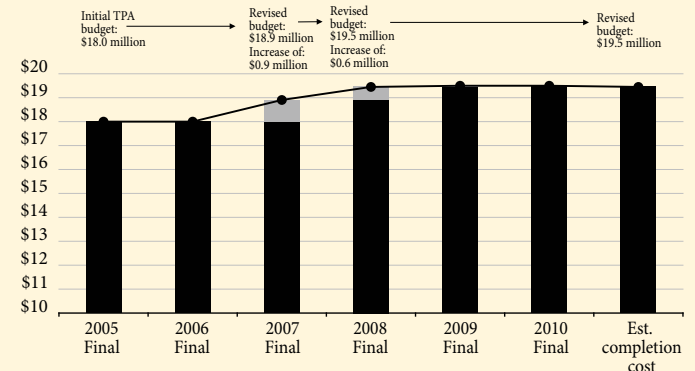
The bridge project replaced the General Mark W. Clark Memorial Bridge with a new, wider bridge that serves 20,000 vehicles a day. The two-lane bridge has 14-foot shoulders that will provide better incident response following collisions and will also accommodate future widening. The corridor projects repaved and reconfigured to SR 532 in Stanwood, including new sidewalks and highway access to meet federal standards.



The corridor improvement project built a new climbing lane between Pioneer and 72nd as part of several improvements along the corridor.

SR 532/General Mark W. Clark Memorial Bridge – Replace Bridge (Snohomish)

Annual project budget from conception to estimated cost at completion
Dollars in millions



Data Source: Capital Program Development & Management Office.

WSDOT's Capital Project Delivery Programs

Completed Projects: Delivering performance and system benefits

SR 510/Yelm Loop – New alignment (Thurston)

This project constructed the first phase of a two-part project creating a new realignment of SR 510 around downtown Yelm. It will accommodate growing traffic through the central business core (estimated to be 18,000 vehicles daily); this phase opens a new alternative road between Mud Run Road to Cullens Road.

Project benefits: This project will reduce congestion in downtown Yelm and improve safety by removing vehicles from schools and businesses during business hours. Separated pathways for bicycles and pedestrians improve access and mobility for alternate modes.

Project highlights or challenges: The city of Yelm has grown by more than 50% since 2000. The realignment was planned prior to the 2003 Nickel and 2005 TPA programs, but the entire project remained unfunded. The City of Yelm asked WSDOT to construct as much of the new alignment as possible, to complement local improvements being built by the city. The components of the WSDOT project were selected as the most cost-effective portion of the realignment, with the least environmental impact, that could be deployed quickly and offering the greatest benefits.

Budget performance: The project cost \$36 million at completion, on target with the last approved expectation of \$36 million. The project cost \$1.8 million above the original FY 2005 budget.

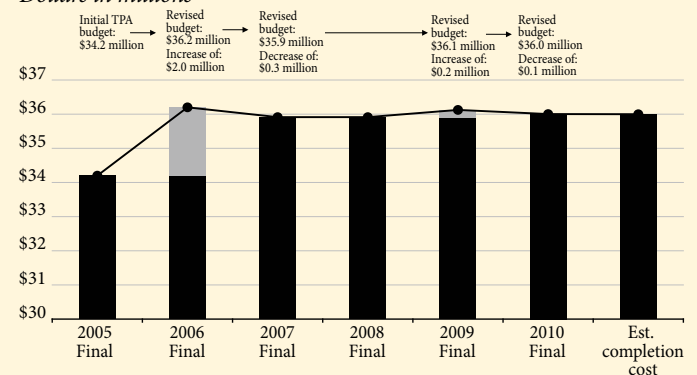
Schedule performance: The project was completed in October 2010, on time with the last approved schedule.



This project provides a new loop on SR 510 in Thurston County, improving traffic flow through Yelm.

SR 510/Yelm Loop – New Alignment

Annual project budget from conception to estimated cost at completion
Dollars in millions



Data Source: Capital Program Development & Management Office.

Completed Projects: Delivering performance and system benefits

SR 542/Nooksack River – Redirect river and realign roadway (Whatcom)

This project addresses environmental deficiencies from rising levels of the Nooksack River by building a new bridge, realigning the roadway, and redirecting the river. The new taller bridge improves stream quality and reduces flood risk.

Project benefits: The Nooksack River and its tributary, Gallup Creek, continue to have their riverbeds rise with glacial and other deposits, exacerbating the damage caused by seasonal floods to the roadway, and hampering mobility near Glacier. By building the taller bridge, the project was able to reduce flooding risk without having to dredge the creek bed.

Project highlights or challenges: This project was split into four contracts to address some of the scheduling concerns related to acquiring right of way and scheduling construction within the local fish window, and relocating utilities. The two fish passage barrier projects were completed in Fall 2009, and the realignment and bridge replacement on SR 542 were completed in October and December 2010, respectively.

Budget performance: The project cost \$16.5 million at completion. Additional soil and right-of-way purchases initially raised the cost of the project. The bridge replacement contract was awarded for \$2.7 million, 35.5% below the engineer's original estimate.



This project built a new bridge over Gallup Creek and realigned SR 542 and redirected the Nooksack River to address rising flood risk that endangered washing away the road.

Schedule performance: The project was completed in December 2010, ahead of the last approved schedule. The project was initially delayed due to right-of-way negotiations and schedule constraints imposed by the fish passage window.



SR 27/Pine Creek Bridge – Replace bridge (Whitman)

This project replaced a structurally deficient bridge on SR 27 with a new bridge that will also minimize closures caused by flooding over the highway.

Project benefits: The new bridge has a higher clearance, which improves mobility by reducing seasonal flood closures. The new bridge also improves safety by removing a structurally deficient bridge from the state inventory.

Project highlights or challenges: The original bridge was constructed of oiled timbers originally constructed in 1927. Its low clearance over Pine Creek meant that the road was often closed due to high water during seasonal snow melts.

Budget performance: The project was completed for \$3.88 million, below the last approved budget of \$4 million, which was also the original FY 2005 budget.

Schedule performance: This project was originally scheduled for construction in 2007, but was postponed until 2010 for funding. The project was completed in October 2010, on time with the last approved schedule.



This project built a new bridge over Pine Creek on SR 27.



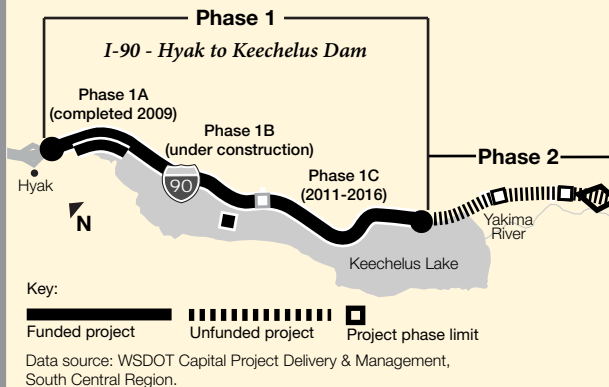
WSDOT's Capital Project Delivery Programs

I-90 - Snoqualmie Pass East Project

I-90 - Snoqualmie Pass East Project Highlights

The I-90 - Snoqualmie Pass East Project includes improvements that address mobility, safety, environmental, and economic vitality goals.

I-90 - Snoqualmie Pass East Phase 1 location



The 15-mile corridor is divided into three distinct project phases: 1A, 1B, & 1C.

Currently the first phase, I-90 - Hyak to Keechelus Dam, is the only funded project phase of the planned three.

WSDOT completed Phase 1A in 2009, is currently constructing Phase 1B, and Phase 1C begins in 2011.

For more information on the I-90 Snoqualmie Pass East Program, visit www.wsdot.wa.gov/Projects/I90/SnoqualmiePassEast/

I-90 over Snoqualmie Pass is a critical link connecting Puget Sound's large population and business centers with the agricultural industries and recreational areas of eastern Washington. Travelers on I-90 experience congestion and delays due to avalanche-related closures, high demand during the holidays and peak recreational seasons, rough pavement conditions, rock slides, and collisions between vehicles and wildlife. To ensure the continued availability and reliability of this important statewide corridor, WSDOT is expanding I-90 to meet both current and future needs of travelers and the freight community. The I-90 Snoqualmie Pass East Project is a 15-mile corridor improvement project that begins at Hyak and ends in Easton. Currently, WSDOT has funding to improve the first five miles (Phase 1) beginning at Hyak and ending at Resort Creek.

WSDOT's progress on I-90 – a busy two years

Due to the complexity of this first phase, WSDOT divided the \$551 million project into three major construction contracts. WSDOT constructed a long-term detour bridge in 2009, and excavated material from Keechelus Lake to use on the project and to mitigate for the project's future impacts on reservoir storage. In summer 2010, WSDOT and its contractor, Max J. Kuney Co., started work on Phase 1B; when finished in fall 2013, drivers will enjoy a smooth ride on six new lanes from Hyak to the Lake Keechelus Snowshed. The project also installs new bridges and culverts, extended chain-up/off areas, additional illumination, traffic cameras, and variable message signs. WSDOT and contractor crews will embark on another ambitious construction season in the summer 2011. Crews will continue making improvements on Phase 1B and start work on Phase 1C.

This portion of the project improves the final two miles from the Lake Keechelus Snowshed to Resort Creek near Keechelus Dam. When crews finish Phase 1C in 2016, drivers will be able to use six freeway lanes, new bridges, and a new, longer, and wider snowshed that will protect all six lanes from heavy snowfall during winter driving.

More work needed to complete corridor

WSDOT still has more work to do to complete the corridor after the Hyak to Keechelus Dam project (Phase 1) is completed in 2016. There are a number of safety issues and important improvements that WSDOT will need to address in the remaining 10 project miles from Resort Creek near Keechelus Dam to Easton. These issues and improvements include:

- Replacing low-clearance interchange bridges to provide clearance for oversized loads
- Stabilizing rock slopes to prevent rock and other debris from reaching the roadway
- Extending vehicle chain-on/off areas to improve safety during the winter driving season
- Replacing and extending truck-climbing lanes to keep vehicles moving in heavy traffic
- Adding a new lane in each direction and replacing existing deteriorating concrete lanes
- Rebuilding bridges and culverts to accommodate the additional travel lanes and to improve the movement of water, fish, and wildlife
- Building wildlife highway-crossing structures to reduce vehicle-wildlife collisions

When funding becomes available, WSDOT stands ready to deliver these improvements that will ensure the continued mobility on I-90 - Snoqualmie Pass, for years to come.

Special Report: New Ferry Construction

WSDOT has budgeted \$213.2 million to build the three new, 64-vehicle, Kwa-di Tabil class ferries that will begin the replacement of its aging fleet. The first new ferry of the 21st century, the *Chetzemoka*, was placed into service on November 15, 2010. The *Salish* is scheduled to begin service in summer 2011, and the *Kennewick* in winter 2012.

A look at the cost breakdown

The final cost to construct the *Chetzemoka* was \$80.5 million, about 4.7% over the original budget of \$76.93 million. This cost included a \$65.5 million construction bid, contingency and risk costs, and construction management. The final cost also included a reduction of \$300,000 because the shipyard delivered the vessel late.



Governor Gregoire christens the *Chetzemoka* before the ferry's inaugural sailing. From left: David Moseley, Assistant Secretary for Ferries; Mr Gregoire; Congressman Jay Inslee; Transportation Secretary Paula Hammond, and Senator Mary Margaret Haugen.

An additional \$598,000 was spent on the *Chetzemoka* for outfitting work and safety and operational enhancements. When the Legislature funded the second and third vessels with a \$136.3 million budget, WSDOT combined that with the \$76.93 million *Chetzemoka* budget, resulting in one budget for all three vessels totaling \$213.2 million.

WSDOT celebrated the inaugural sailing of the *Chetzemoka* on November 14, 2010, and the vessel began service the next day, on the Port Townsend/Coupeville route.

The second and third Kwa-di Tabil ferries, *Salish* and *Kennewick*, have a budget of \$136.3 million,

including a \$114.1 million construction contract awarded to Todd Pacific Shipyard in October 2009. Both vessels are on schedule and under budget at this point.

Salish and *Kennewick* construction progress and next steps

Construction is progressing on the *Salish* and *Kennewick* at Todd, Jesse Engineering, and Nichols Brothers Boat Builders. At the beginning of December, the *Salish* was 68% complete and the *Kennewick* was 26% complete.

The *Salish* was moved from the construction hall to drydock in October. On December 23, the vessel was placed in the water for the first time, and shifted to Pier 3 at Todd for engine alignment and continued controllable pitch propeller and piping system testing. *Salish* was christened by Senator Haugen on January 3, 2011.

The *Salish* is scheduled to be towed to Everett Shipyard in February 2011 for final outfitting including furniture, deck coverings, and interior trim. Dock and sea trials will begin in spring 2011. Delivery is scheduled for late spring 2011, followed by several weeks of crew training and sea trials.

Construction on the *Kennewick* continues at Todd. Three of the five keel sections are in place; the vessel ends have been delivered by Jesse Engineering and are ready to be installed. Nichols Brothers began construction on the passenger deck and pilothouses. The *Kennewick* is scheduled to move from the construction shed to the drydock in late March 2011.

Project Highlights

Chetzemoka began service on Port Townsend/Coupeville route November 15.

Construction continues on the second and third Kwa-di Tabil Class ferries (*Salish* and *Kennewick*).

Construction highlights this quarter:

- October: *Salish* moved out of the construction hall on October 2, 2010.
- December: *Salish* placed in the water for the first time December 23, 2010.
- December: *Kennewick* construction began on the passenger deck and pilot houses.

For more information:
www.wsdot.wa.gov/Projects/Ferries/64CarFerries



The *Salish* is moved from the Todd Pacific Shipyards construction hall to a dry dock via the level launch trestle.

WSDOT's Capital Project Delivery Program

Special Report: Tacoma Pierce County HOV Program Quarterly Update

Program Highlights

Westbound Nalley Valley

100% of the shafts are drilled, columns completed, bridge caps completed, bridge segments built, precast concrete girders placed.

49% of the bridge deck spans have been poured.

HOV Stage 1

Vertical clearance work completed on Portland Avenue.

9% stone columns installed.

Construction progress

I-5/SR 16 Rebuild Interchange: Westbound Nalley Valley

Construction on the new westbound Nalley Valley viaduct continues at an aggressive pace. During this quarter, crews finished placing all remaining girders for the bridge that will connect northbound I-5 to westbound SR 16. They also finished rebuilding the eastbound SR 16 exit to Sprague Avenue.

Crews have now completed all 107 segments of the new bridge that will connect northbound I-5 to westbound SR 16, and placed all 265 precast concrete girders. They have finished setting bridge girders across the Nalley Valley, and poured concrete for 23 of 47 bridge deck spans. In the first quarter of 2011, crews expect to complete all remaining bridge deck and closure concrete pours, as well as all post-tensioning between concrete segments. The project is on schedule to open to traffic this summer.

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

The \$22 million Stage 1 project is the first of several to reconstruct I-5 between Portland Avenue and Port of Tacoma Road. The project completes some preliminary work needed for the larger northbound I-5 Puyallup River Bridge project, scheduled for construction in early 2012. Work on this project has been under way since July. This quarter, crews successfully lowered the profile of Portland Avenue under I-5 and realigned northbound SR 167.



What appears to be a mirror image of the same roadway is actually a "before" (above) and "after" (below) view of SR 167 in Tacoma. Crews demolished the existing road and paved a new road. This work is part of the Stage 1 project.

More recently, they have focused on installing 77 of 857 stone columns into the ground. These columns fortify the surrounding soil so it will support bridge piers for the future northbound I-5 Puyallup River Bridge. On I-5 itself, crews are demolishing and rebuilding median barrier along the I-5 bridges over Portland Avenue. Once the barriers are completed, work to widen the bridges to the outside will begin.

Design progress

I-5/SR 16 – Eastbound Nalley Valley

The I-5/SR 16 Eastbound Nalley Valley project is the next construction contract being prepared in the Tacoma/Pierce County HOV Program. Design staff are working hard to finalize the contract plans and are on schedule to meet the April 2011 advertisement date. This project complements the current Westbound Nalley Valley project by building a new eastbound SR 16 structure through the Nalley Valley, and completing associated ramp work at the SR 16/Sprague Avenue interchange. The \$124 million project will take about two years to complete.

Westbound Nalley Valley Watch List issues: Removed from Watch List

As reported in the September 2010 *Gray Notebook* 39, correcting a design error on the SR 16 Westbound Nalley Valley project required the reconstruction of the eastbound off-ramp to Sprague Avenue. The removal and lowering of the off-ramp is now complete. Remaining work on the contract is progressing on schedule and the new structure is scheduled to be open to traffic in the summer of 2011.

Costs for the ramp reconstruction (\$890,000) were also reported in the September 2010 *Gray Notebook* 39. Part of the ramp reconstruction required a retaining wall flanking the new ramp. The tops of the walls for about 75 feet on each side of the retaining wall were up to six inches too high and were lowered. (See also page 76 in the Watch List.)

Watch List: Projects with schedule or budget concerns

WSDOT is committed to frequent and accurate “no surprises” reporting of project performance, emphasizing rigorous analysis while communicating in plain language, unencumbered by jargon or insider terminology. As part of that commitment, WSDOT regularly addresses issues that do, or potentially could, affect a project’s schedule and budget: they are outlined here in the Watch List. 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 Update to Watch List section.

The gray box below describes some of the common problems that may affect the successful progress of a project from design through completion; they are listed in the order in which WSDOT might face them, starting in the earliest planning stages and concluding with actual construction.

The summary on page 76 lists projects currently facing schedule or budget concerns with a reference to these over-arching descriptions; a more detailed description of the precise problem or its resolution appears on the following pages. Still 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 80-83.

It is important to note that while the number of projects appearing on the Watch List has occasionally grown over time, so have the number of projects under way (we report 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 all its stakeholders informed while evaluating possible solutions.

Coordination

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

Federal requirements: Funding and project development issues with Federal Highways Administration (FHWA), Federal Transit Administration (FTA), USDOT; workload prioritization and coordination for reviews by US Fish & Wildlife Service, NOAA Fisheries, US Forest Service, etc.

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

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

Environmental

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

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

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

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

Design

Geological: Studies may reveal unsuitable soil conditions for construction on the proposed route.

Alternatives: Design alternatives may require unanticipated revision as the result of environmental analyses and/or public input.

Design disputes: Communities or other entities may challenge design concepts, requiring additional time spent in design.

Design element changes: Project parameters may change, requiring changes to designs in progress or under construction.

Utilities

Agreements with other jurisdictions: Agreements may take longer to obtain than anticipated.

Utility relocations: Moving power, water, gas, or other utility lines may be more complex than originally expected.

Right-of-Way

Design changes: Project revisions that may require additional land.

Land acquisition: Negotiations with landowners regarding purchase of property may take longer than anticipated.

Land appreciation: Property value increases that exceed projections.

Land use designation changes: Land previously zoned as farmland may have been converted to industrial or commercial use, raising the purchase price.

Construction

Contractor issues: Disputes with contractors or disagreements over contract parameters may delay construction at any point in the job.

Cost increase of materials: Unit costs may increase beyond the set budget due to fluctuations in the marketplace or a failure to estimate costs properly at the design phase.

Materials procurement: Unexpected demand or lack of availability of raw materials required for construction.

Site problems: Discovery of contaminated (hazardous) soils, unsuitable geological conditions, or similar unforeseen issues after construction has begun.

Timing problems: Delays at design or right of way may mean work schedules conflict with events such as fish spawning season.

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

Litigation

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

WSDOT's Capital Project Delivery Programs

Watch List: Projects with schedule or budget concerns

Added to Watch List	Project type	Watch List issue
SR 9/SR 531 - 172nd St NE - Intersection Improvements (Snohomish)	Highway	Right-of-way: Land acquisition; Utilities: utility relocations
US 97/Blewett Pass - Passing Lane (Kittitas County)	Highway	Construction: site problems, weather
US 395/NSC-US 2 to Wandermere and US 2 Lowering – New Alignment (Spokane)	Highway	Construction: site problems; timing problems
I-405/Thunder Hills Creek Culvert - Emergency Repair (King)	Highway	Environmental: fish passage barrier
Updates to Watch List		
SR 9/212th St SE to 176th St SE, Stage 3 - Add lanes (Snohomish)	Highway	Environmental: permitting; Utilities: utility relocations
SR 522/Snohomish River Bridge to US 2 - Add lanes (Snohomish)	Highway	Environmental: permitting; Design: alternatives
SR 28/E End of the George Sellar Bridge - Construct bypass (Douglas)	Highway	Right-of-way: land acquisition
I-5/SR 16 Interchange - Rebuild interchange (Pierce)	Highway	Design: design element changes; Construction: site problems
SR 161/24th St E to Jovita - Add lanes (Pierce)	Highway	Design: design element changes; Utilities: utility relocations
SR 305 Unnamed Tributary to Liberty Bay (Kitsap)	Highway	Construction: site problems
Removed from Watch List		
I-5/SR 16 Interchange – Rebuild interchange (Pierce)	Highway	Design: design element changes; construction: site problems
SR 823/Selah vicinity – Reroute highway (Yakima)	Highway	Right-of-way: land acquisition
Projects awaiting 2011 Legislative review*		
SR 518/Bridges - Seismic retrofit (King)	Highway	Construction: cost increase of materials
SR 99/Aurora Ave - George Washington Memorial Bridge - Seismic retrofit (King)	Highway	Design: alternatives
US 12/SR 124 Intersection – Build interchange (Walla Walla) (aka Burbank)	Highway	Right-of-way: land acquisition

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

* Note: These projects were on the Watch List as reported in the September 2010 *Gray Notebook* 39. They are currently awaiting Legislative review during the 2011 session. A *Gray Notebook* update will be provided as information becomes available; more information may be available on the relevant project pages on the WSDOT website at www.wsdot.wa.gov/projects/.

Watch List: Projects with schedule or budget concerns

Added to Watch List

I-405/Thunder Hills Creek Culvert - Emergency repair (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 the culvert at Thunder Creek was not feasible for fish passage requirements. A replacement location was selected at Prather Creek on SR 167 as a mitigation site more favorable to fish passage.

The project is in the construction phase; the schedule of the culvert replacement on SR 167 is at risk. WSDOT has worked for the past two years to find a location and design acceptable to the Multi-Agency Permitting Team (MAPT) and the Muckleshoot Indian Tribe Fisheries Division (MITFD). A location was agreed upon in September of 2009; however, the design proposed by WSDOT is not acceptable to the MITFD. The design meets the requirements of the Washington Administrative Code (WAC), and downstream flooding requirements of the Federal Emergency Management Agency (FEMA), and the City of Renton.

WSDOT is currently scheduled to meet with the U.S. Army Corps of Engineers in early February 2011 to address the impasse between MITFD concerns and downstream flooding constraints. Construction for this stage may be delayed one year, delaying operational completion by one year. An update will be provided next quarter.

US 97/Blewett Pass - Passing lane (Kittitas)

This project, budgeted for \$2.3 million, will provide for a new northbound passing lane nine miles south of the summit of Blewett Pass. When completed, the project will allow drivers to pass slower vehicles without using the oncoming traffic lane, reducing the chances of head-on collisions.

The project is in the construction phase; the schedule is at risk. When excavating for the new lane, contractor discovered unsuitable soils that had to be removed and replaced before construction could continue. The early onset of winter weather then delayed the start of paving. The return of warmer weather in spring will allow paving to resume; the operationally complete date has been delayed from October 2010 to May 2011.

This project may be held on the Pending table until updates become available with the resumption of construction work.

SR 9/SR 531-172nd St NE - Intersection improvements (Snohomish)

This project, budgeted for \$14.7 million, will construct a roundabout at the intersection of SR 9 with SR 531 and 172nd St NE. When complete, it will relieve congestion that arose following rapid local development, and improve safety on a high accident corridor.

This project is in the design phase; the schedule is at risk. The advertisement date, originally planned for January 2011, is now planned for March 2011, and may need to be delayed to fall 2011. It took WSDOT much longer than anticipated to find a suitable location to collect the project's stormwater run-off; in turn, this delay has jeopardized the project schedule to acquire five parcels and relocate utilities in time for construction. If the land cannot be acquired in time to relocate the utilities by mid-May, construction and operational completion dates may be delayed from 2011 to 2012. An update will be provided next quarter.

US 395/NSC-US 2 to Wandermere and US 2 Lowering - New alignment (Spokane)

This project, budgeted for \$150 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. The contractor encountered underground water while preparing the site for the bridge footings and shafts at Wandermere; work was delayed while trenches were dug to drain it away. Time was also needed to test and evaluate concrete mixes for the bridge columns. WSDOT has approved the test results, allowing the contractor to proceed with the column construction. The project site is currently shut down for the winter, and work will resume as soon as weather permits in the spring.

The operationally complete date has been delayed from May 2011 to November 2011. Risks remain for meeting the November 2011 completion date if bad weather or early winter conditions prevent the contractor from completing paving work late in the project. Delays in paving could delay completion to the spring of 2012.

WSDOT's Capital Project Delivery Programs

Watch List: Projects with schedule or budget concerns

Updates to Watch List

SR 28/E End of the George Sellar Bridge – Construct bypass (Douglas)

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

The project is in the design phase; the schedule is at risk. As reported in the September 2010 *Gray Notebook* 39, the advertisement date was delayed to December 2010 to allow time to acquire one last parcel of land needed for right-of-way. Negotiations were unsuccessful, and condemnation procedures were started. The court granted the processing of "Possession and Use" documents, which are likely to be finalized with the landowners in February, allowing the project to proceed. The advertisement date has now been revised to May 2011.

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

This project, budgeted at \$37.6 million, will improve mobility on a busy section of SR 161 in the City of Edgewood. When completed, it will reduce congestion and allow safer, more efficient movement of people and vehicles.

The project is in the design phase; the schedule is at risk. As reported in the September 2010 *Gray Notebook* 39, the advertisement for construction was delayed to November 2010 to allow time to complete right-of-way purchases, utility coordination, and changes to the design that would address temporary erosion control and other construction concerns. Addressing the utility coordination, as well as right-of-way purchases related to city project enhancements, requires additional time to resolve. The advertisement date has been delayed to February 2011.

Schedule delays and design work are being managed within the last Legislatively approved budget. Costs for the design phase cost have exceeded funding due to the ongoing resolution of utility coordination. WSDOT right-of-way costs are expected to be within budget. Estimated costs on the construction phase are likely to rise due to added utility work, which is funded by Comcast (Xfinity). The possible increase in design costs will be offset by excess right-of-way funds.

SR 9/212th St SE to 176th St SE, Stage 3 – Add lanes (Snohomish)

This project, budgeted for \$87.3 million, will widen SR 9 between 212th St SE and 176th St SE from two to four lanes, construct a raised median, and upgrade traffic signals at 180th St SE and 176th St SE. When complete, it will relieve congestion that arose following rapid local development, and improve safety on a high accident corridor.

This project is in the design phase; the schedule is at risk. As reported in the September 2010 *Gray Notebook* 39, the project schedule was delayed to apply for an individual permit from the United States Army Corp of Engineers (USACE). WSDOT submitted this application, and one for a Washington Department of Fish and Wildlife (WDFW) hydraulic permit, in October. WSDOT is currently responding to comments and working with both agencies to address outstanding issues involving a culvert design; however, resolution may not occur before the March 2011 advertisement date.

Utility relocation work is also behind schedule this quarter, but WSDOT expects to complete this work before the start of construction without affecting operational completion scheduled for 2013. An update will be provided next quarter.

SR 522/Snohomish River Bridge to US 2 - Add lanes (Snohomish)

This project, currently budgeted for \$182.4 million, will widen SR 522 to a four-lane highway by constructing two new lanes and five new bridges. When completed, it will improve motorist safety and reduce congestion by doubling the traffic capacity of the old two-lane roadway.

This project is being constructed in two stages. Stage 1 is constructing a new interchange flyover ramp and was awarded in June 2010. Stage 2 will build improvements from the Snohomish River Bridge to the new interchange and includes construction of a new bridge with lighter-weight steel girders due to soil conditions.

This project's Stage 2 is in the design phase; the schedule is at risk. The Snohomish County shoreline permit, one of two outstanding environmental permits reported in the September 2010 *Gray Notebook* 39, has been received. WSDOT anticipates receiving the U.S. Army Corps of Engineers (USACE) permit in time to advertise Stage 2 and proceed with spring 2011 construction, with no impact to operational completion in 2014.

Watch List: Projects with schedule or budget concerns

Removed from Watch List

SR 305 Unnamed Tributary to Liberty Bay (Kitsap)

This project, budgeted for \$3 million, replaces the existing double culvert between Liberty Bay and an unnamed tributary, locally called Lemolo Creek, which prevents migratory fish from reaching freshwater habitat. The new culverts will improve access to upstream freshwater habitat and spawning grounds.

The project is in the construction phase; the schedule and budget were at risk. As reported in the September 2010 *Gray Notebook* 39, all work at both sites was halted after the boring process encountered obstacles and the culvert pipes were crushed. WSDOT and the contractor successfully repaired the crushed pipe by removing the damaged section. The new culvert installation used steel bracing inside the culverts, and reinforcing at the end of the pipes. The project was completed on budget.

WSDOT expected to complete the project on time despite the project challenges. However, work took longer than expected and was completed in January, a delay of one calendar quarter.

I-5/SR 16 Interchange - Rebuild interchange (Pierce)

Please see page 74 for the full story.

SR 823/Selah Vicinity - Reroute highway (Yakima)

This project, budgeted for \$11 million, will improve SR 823 to relieve congestion during peak commuting times and provide an alternate route around Selah's business district.

This project is in the design phase; the budget and schedule were at risk. WSDOT awarded the construction contract in October 2010 at 27% below the engineer's estimate. The favorable bid lowers the project budget to \$1.7 million below the amount requested in the Governor's 2011 proposed budget.

As reported in the September 2010 *Gray Notebook* 39, WSDOT has acquired all but one parcel of land and will delay curb and sidewalk work in the area of the remaining parcel until condemnation proceedings are complete.

Construction is scheduled to begin in spring 2011. WSDOT anticipates the project will be operationally complete in July 2012, thirteen months later than originally planned. The later completion date is reflected in the Governor's 2011 proposed budget.

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds (PEF) Programmatic Reporting

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.

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.

Continued refinements to PEF project reporting: Budgets for projects under construction

Budget reporting continues to be refined, to reflect the revised project counts. In previous reporting, WSDOT presented the actual-to-estimated value of awarded contracts for the current quarter. Now, the table *PEF project advertisements schedule performance* will show the original value of all projects planned for advertisement in the biennium; the original value of projects planned to advertise through the current quarter; the original value of projects currently under construction; and the current estimated cost at completion for projects under construction.

This method of reporting progress against budget more closely aligns PEF reporting with Nickel and TPA reporting (see pages 52-64).

PEF project performance is reported at two levels

Six individually tracked projects

Six projects are reported individually due to their size or significance (see page 83 for schedule and budget information on these projects).

All other projects

WSDOT reports on:

- Actual versus planned cash flow for the overall PEF program, see below; actual versus planned project advertisements, see page 81; advertisement record, see page 82.
- Before & After results for selected types of projects such as highway safety and congestion relief. (For examples, please see the Highway Safety Annual Report, pp. 5-10, in *Gray Notebook* 38, and the 2010 Congestion Report, pp. 8-15).

193 PEF projects advertised as of December 31, 2010

The 2009-11 Highway Construction Program includes a commitment to advertise 252 Pre-Existing Funds (PEF) projects in the current biennium, valued at \$843.7 million. From July 1, 2009, through the quarter ending December 31, 2010, WSDOT planned to advertise 185 PEF projects, valued at \$727.0 million.

Of the 185 projects planned for advertisement through this quarter, 17 were delayed to future quarters of this biennium, four were deferred out of the biennium, and two projects were deleted. (See the table *'PEF project advertisements schedule performance,'* on page 81 .)

Of the 28 planned PEF advertisements scheduled for this quarter, 25 were advertised as scheduled. One was delayed to later in this biennium, and no projects were deferred to a future biennium. Six projects were advanced from a future quarter, and one project delayed from a previous quarter was advertised; three emergent projects were advertised.

The original value for the projects advertised in the quarter is \$779.5 million; the current estimated cost at completion for all projects under construction is \$660.6 million. (See the table *Value of planned PEF advertisements: 2009-11 biennium.*)

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds (PEF) Projects: Advertisement and financial overviews

Value of planned PEF advertisements: 2009-11 biennium

July 1, 2009 through December 31, 2010; Dollars in millions

	Number	Original value	Current cost to complete
Total PEF advertisements planned 2009-2011	252	\$843.7	–
Planned advertisements through December 31, 2010	185	\$727.0	–
Actual advertisements through December 31, 2010	193	\$779.5	\$660.6*

Data source: WSDOT Capital Program Development & Management.

* In cases where WSDOT's estimates contain multiple sources, the PEF reported amount is a calculated percentage based on the contract total value. PEF projects may have Nickel and TPA funding not reported in this section.

PEF project advertisements schedule performance

July 1, 2009 through December 31, 2010

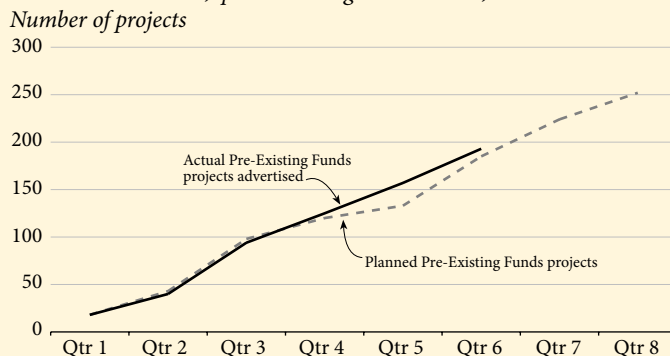
	Number
Projects advertised as scheduled	133
Projects advertised Early	15
Projects advertised Late	12
Emergent projects advertised	33
Total projects advertised	193
Projects delayed (delayed within the biennium)	17
Projects deferred (delayed out of the biennium)	4
Projects deleted	2

Data source: WSDOT Capital Program Development & Management.

See page 83 for PEF advertisement definitions.

Pre-Existing Funds projects construction program

Planned vs. actual number of projects advertised
2009-2011 biennium, quarter ending December 31, 2010



Data Source: WSDOT Capital Program Development and Management.

Note: As of Quarter 6 (Oct. 1 - December 31, 2010), Original planned project counts have been updated based on the 2010 Supplemental Budget.

Paying for the Projects: Financial information

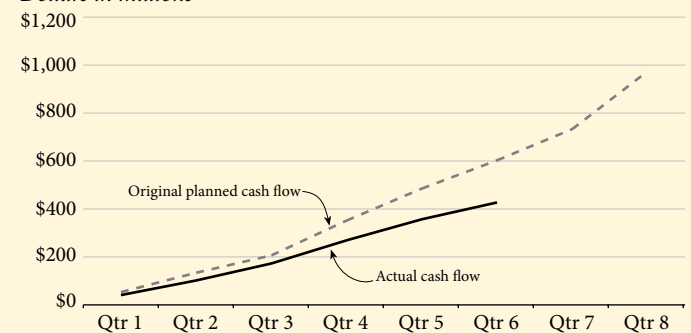
The 2010 Supplemental Budget provides for approximately \$1,131 million in PEF expenditures through the sixth quarter of the biennium. As of December 31, 2010, actual expenditures totaled \$866 million, a variance of \$265 million, or about 23%, from the biennial plan. The variance for the Highway Construction Program was divided between the Improvement and Preservation programs.

The Preservation Program planned cash flow was \$528 million, and actual expenditures were \$439 million. This was \$89 million, or 17%, under plan.

The Improvement Program planned cash flow was \$603 million, and actual expenditures were \$427 million. This was approximately \$176 million, or 29%, under plan.

Pre-Existing Funds improvement program cash flow

Planned vs. actual expenditures
2009-2011 biennium, quarter ending December 31, 2010
Dollars in millions

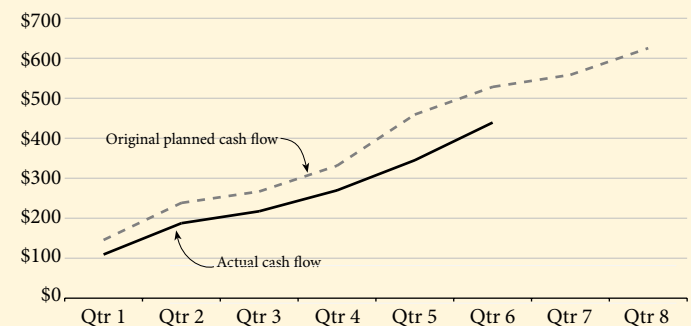


Data Source: WSDOT Capital Program Development and Management.

Note: As of Quarter 6 (Oct. 1 - Dec. 31, 2010), Original Planned Cash Flow values have been updated based on the 2010 Supplemental Budget.

Pre-Existing Funds preservation program cash flow

Planned vs. actual expenditures
2009-2011 biennium, quarter ending December 31, 2010
Dollars in millions



Data Source: WSDOT Capital Program Development and Management.

Note: As of Quarter 6 (Oct. 1 - Dec. 31, 2010), Original Planned Cash Flow values have been updated based on the 2010 Supplemental Budget.

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds (PEF) Projects: Advertisement record

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

October 1 – December 31, 2010

Project description	Advertised as scheduled
I-5/Clover Creek Bridge - Bridge Deck	Advanced
I-5/SR 530 to Samish Hwy - MMA Striping	√
I-90/Altamont St Br - Deck Repair	√
I-90/East Fork Issaquah Creek - Fish Passage	√
I-90/Havana St Br - Deck Repair	√
I-90/Ritzville to Tokio - Paving of Outside Lanes Only	√
NC Region Sign Update 2009-2011	√
SR 11/WSP Entrance Vicinity to Cook Road - Paving	√
SR 150/3 Miles E of Manson - Slope Stabilization	√
SR 155/S of Electric City - Rock Slopes Scaling	√
SR 167/I-405 I/C Vic to SW 7th St Vic - Paving	√
SR 17/ SR 174 Intersection Northward - 2011 Seal	√
SR 17/Foster Creek - Drainage	√
SR 171/Alder and Ash Street - Signal Rebuild	√
SR 171/Moses Lake - Paving	√
SR 20/North Cascades Highway - Chip Seal	√
SR 20/Rocky Creek to Marblemount Vicinity - Paving	√
SR 20/Tonasket School Slope - Drainage	√
SR 262/Road Approach Canal - Drainage	√
SR 28/East of Soap Lake - 2011 Seal	√
SR 509/S Normandy Rd Vic to S Normandy Rd Wye Connection - Paving	Advanced
SR 522/Hall Rd Vicinity to Kaysner Way - Paving	Advanced
SR 529/BN Railroad Br to North Access Road - Paving	√
SR 530/Skaglund Hill Slide	√
SR 900/Bronson Way N to Sunset Blvd N - Paving	Advanced
US 12/Allan Rd - Intersection Improvements	Advanced
US 195/Vicinity Cornwall and Mullen Hill Rd to Jct I-90 - Median Barrier	√
US 2/43rd Ave SE Vic to 50th Ave SE Vic - Bridge Rehabilitation	Late
The advertisement date was delayed from fall 2010 to winter 2010 to avoid costs associated with opening the construction site and then closing it again for the winter. This project requires weather-sensitive materials that cannot be applied in low temperatures.	
US 2/Channel Lining - Drainage	√
US 2/Stevens Pass - Recessed Plastic Edge Lines	Late
Ad date postponed till fall of 2010 due to shortage and cost of paint.	
US 2/WB Snohomish River Bridge - Major Bridge Rehabilitation	Advanced
US 97A/Knapp Hill Tunnel Stage 4 - Drainage	√
US 97A/N of Wenatchee - Rebuild Lighting System	√
I-82/Grandview to Prosser - Dowel Bar Retrofit and Concrete Rehab	Emergent
I-82/Yakima River Br Vic to Granger - Dowel Retrofit/Concrete Rehab	Emergent
SR 17/Moses Lake Vicinity - Median Barrier	Emergent
SR 21/Keller Ferry Boat - Replace Boat	Delayed

Data source: WSDOT Capital Program Development & Management.

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds (PEF) Projects: Advertisement record

Six individually tracked Pre-Existing Funds (PEF) projects: results through December 30, 2010

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	Dec-11	
SR 202/SR 520 to Sahalee Way - Widening (King) Project operationally complete February 2008.	\$36.9 2001-03	\$81.2 2010	May-98	✓	Aug-05	✓	Feb-08	✓ Early
SR 539/Horton Road to Tenmile Road - Widen to Five Lanes (Whatcom) Project operationally complete November 2008.	\$32.0 2001-03	\$68.3 2010	Oct-90	✓	Jan-07	✓	Nov-08	✓
SR 28/E End of the George Sellar Bridge - Construct Bypass (Douglas) Advertisement delayed due to right of way issues.	\$9.4 2004	\$28.0 2010	May-04	✓	Feb-11	Late	Dec-11	
US 101/Purdy Creek Bridge - Replace Bridge (Mason) 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.	\$6.0 2004	\$10.2 2010	Aug-04	✓	May-08	Late	Aug-09	✓ Early
SR 303/Manette Bridge Bremerton Vicinity - Replace Bridge (Kitsap)	\$25.5 2002	\$82.9 2010	Sep-96	✓	Mar-10	✓	Jan-12	

Data source: WSDOT Capital Program Development & 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 Trends Highlights

In 2010, WSDOT awarded construction contracts valued at over \$2.5 billion.

WSDOT's Construction Cost Index (CCI) increased 3.8% in 2010.

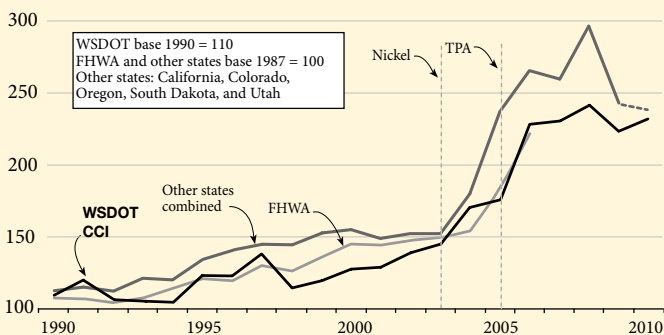
In 2010, WSDOT received an average of 5.5 bids per contract, the highest average number of bids received per contract to date.

Components that make up WSDOT's CCI

By material and corresponding weight as a percentage

Hot mix asphalt	48.5%
Structural concrete	17.4%
Roadway excavation	10.7%
Crushed surfacing	7.9%
Structural steel	6.9%
Steel reinforcing bar	5.4%
Concrete pavement	3.2%

Data source: WSDOT Construction Office.



Data source: WSDOT Construction Office.

Notes: WSDOT index is for the 2010 calendar year. FHWA index was discontinued in 2007. Other states 2010 data is the average of Colorado and Utah quarters 1, 2, and 3, and Oregon quarters 1 and 2. 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.

Construction cost inflation remained low in 2010. This was welcome news for WSDOT as some of the largest remaining projects in the capital delivery program – including the SR 99 Alaskan Way Viaduct replacement, SR 520 pontoon construction and eastside corridor project, and the first phase the I-90 Snoqualmie Pass East project – were awarded.

In 2010, WSDOT awarded more than \$2.5 billion dollars in construction contracts, with the 10 largest contracts accounting for more than \$2.1 billion, nearly 85% of the total. The total awarded amount was over \$544 million less than engineer's estimates. (For more information about WSDOT's construction contracts, see p. 94 of the June 30, 2010 *Gray Notebook* 38.)

With the state's highway contractors busy building a large number of WSDOT projects already, it is notable that WSDOT still received good bids on the large amount of work contracted out in 2010. These bids were, at least partially, due to the continued recession. WSDOT's capital delivery program continued to be a leading source of construction jobs in 2010. The downturn in the construction sector has resulted in intense competition between contractors for any remaining work, such as the highway projects WSDOT awarded in 2010.

WSDOT tracks construction cost information and calculates a Construction Cost Index (CCI) based on low bids for seven work activities that commonly occur on highway construction projects. The bids for these seven activities include the cost of all materials, labor, and equipment associated with the activity, as well as the overhead and profit contractors include in their bids. Each of the seven items has a different weight in WSDOT's CCI. The weighted index provides an inflation rate for WSDOT's highway construction program as a whole, so activities associated with current resurfacing, road construction, or bridge construction are represented in the index at the same level that they have been historically represented in WSDOT's construction program.

WSDOT's Construction Cost Index increased 3.8% in 2010

WSDOT's CCI increased 3.8% in 2010, just 0.2% higher than the predicted rate of inflation for 2010. From 1990 through 2001, the CCI remained predictable, increasing an average of 1.5% a year, making it easy for WSDOT to estimate future costs and keep project budgets in check. In 2002, just as WSDOT was preparing to begin delivering a large capital construction program, cost inflation began to rise at a faster rate than previously seen and became less predictable. In the nine years from 2002 to the end of 2010, WSDOT's CCI increased nearly 65%, compared to an increase of 21% in the 11 years prior to 2002. Construction cost inflation rates tripled immediately after WSDOT began to calculate the budget for the 2003 Nickel and 2005 Transportation Partnership Act (TPA) programs.

Most recent trends show improvement between 2007 and 2010: costs increased just 2% overall, making it easier for WSDOT to stay within project budgets, many of which were

Construction Cost Trends

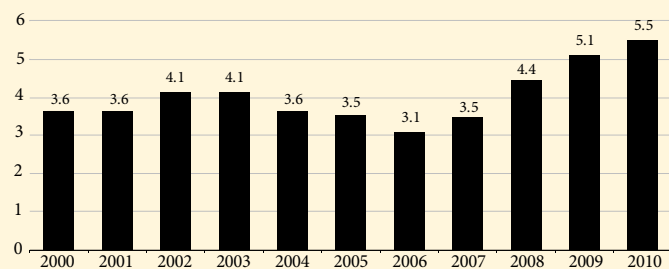
revised in 2007 due to the cost increases experienced between the time that the Nickel and TPA programs were originally budgeted and the end of 2006. Additionally, due to reduced cost inflation and intense bidding competition, WSDOT was able to do more than expected with funding received from the 2009 Recovery Act. Due to low bids on the original list of Recovery Act projects, second and third tier project lists funded by the cost savings were added. (See pp. 46-50 for more information on Recovery Act-funded projects.)

If the demand for construction of housing and commercial space remains stagnant or continues to decline, WSDOT anticipates that the reduced demand for construction materials and increased competition between contractors for remaining projects will continue to keep inflation on construction materials low. While the agency has already contracted the majority of Nickel and TPA projects, a few large projects remain, such as the SR 520 floating bridge and the SR 520 western corridor, the two remaining segments of Snoqualmie Pass, Tacoma HOV projects such as the SR 16 Eastbound Nalley Valley Viaduct, and parts of the I-5 widening south of Olympia. These projects, as well as upcoming large projects that have not yet been budgeted, (such as the I-5 Columbia River Crossing), also stand to benefit from a return to more predictable cost inflation rates.

Average number of bids soars to 5.5 in 2010

The most favorable prices are received when a large number of contractors are interested in bidding for projects being advertised by WSDOT. In 2010, WSDOT received an average of 5.5 bids per project, the highest average number of bids per project ever, and well above the agency goal of three or more bidders on a project. A majority of these bids also came in lower than engineer's estimate. This is a very different climate from just five years ago, when WSDOT was competing with large public and private sector construction programs to attract the interest of contractors. On average, WSDOT has received two more bids per project compared to 2006 and 2007.

Average number of bidders per WSDOT contract
2000 - 2010



Data source: WSDOT Construction Office.

More importantly, WSDOT has seen a large increase in the number of bidders on projects valued between \$10 million and \$50 million dollars. From 2004 to 2008, there was an observable reduction in competition on these larger projects and the cost consequences affected WSDOT's budget. In 2010, WSDOT contracts valued at between \$25 million and \$50 million received nearly five more bids per project compared to 2006 (an average of eight bids per project), and nearly four more bids on contracts valued between \$10 million and \$25 million (an average of 6.5 bids per project).

Average number of bidders by size of contract
2006 - 2010

Value of contract	2006	2007	2008	2009	2010
Less than \$1 million	2.9	3.4	4.1	5.4	4.9
Less than \$5 million	3.3	3.2	4.4	4.7	5.7
Less than \$10 million	2.7	4.3	4.8	4.0	6.5
Less than \$25 million	3.3	4.8	6.6	8.0	8.0
Less than \$50 million	3.5	4.9	5.7	5.8	4.0
Greater than or equal to \$50 million	N/A	5.5	5.0	2.8	5.4
Average	3.10	3.48	4.43	5.10	5.49

Data source: WSDOT Construction Office.

The number of bids received is WSDOT's best indicator of contractor capacity in the construction sector. When the number of bidders is low, contractors are operating at capacity and unable to bid on WSDOT projects – all contractors have a limit to the amount of work they can perform simultaneously; as competition is reduced, contractors are less willing to accept risk on WSDOT projects, and raise their prices to compensate. When the number of bidders is high, contractors have excess capacity and are not performing the full amount of work they are capable of, with equipment or workers that are idled.

When these conditions persist, contractors must sell off equipment and reduce their workforce, resulting in a temporary reduction in the capacity of work they are able to perform. In the current economic climate, the long-term ramifications of excess capacity in the construction industry is concerning. If these conditions persist for an extended period of time, some contractors may be forced out of business, leading to long term consequences related to construction industry capacity, retention of expertise, and competition, which could ultimately result in higher costs for WSDOT.

Cross-Cutting Management Issues

Utilities

Utilities Highlights:

Of the 10 Nickel and Transportation Partnership Account projects that were advertised between July 1 and December 31, 2010, one was assigned at Risk Level 2 and three were assigned at Risk Level 3.

There were no Pre-Existing Funds (PEF) projects assigned a utilities risk level above Risk Level 1.

For more information about project with utilities delays or concerns, please consult the Watch List on pp. 75-79.

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 utilities companies.

WSDOT tracks utility risks for all Nickel, Transportation Partnership Account (TPA), and Pre-Existing Funds (PEF) projects. Six Nickel and TPA projects with utility impacts were advertised between July 1 and December 31, 2010. Of these six projects, two were assigned the lowest utilities risk, Risk Level 1, compared to 10 for the previous six months. The remaining projects include one assigned Risk Level 2 and three assigned Risk Level 3. The three risk levels are described in the table below.

Utilities risk levels for advertised Nickel and TPA projects

Level	Description	Jan-Jun 2010	Jul-Dec 2010
1	Low – Utilities have been relocated, and/or are clear of construction.	10	2
2	Moderate – Utility companies are actively pursuing relocation and the department has assurances the utilities will be clear by the date bids are opened.	1	1
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. The department has assurance that the utility company will be able to meet the date stipulated on the contract.	4	3
Total		15	6

Data source: WSDOT Utilities Office.

Data note: Totals do not include projects funded primarily by Pre-Existing Funds (PEF).

Background information for projects assigned Risk Level 2

Projects funded by the 2003 Nickel package

I-5 Ground Mound to Maytown Stage 2 – Replace interchange (Thurston)

This project is part of the southwest Washington I-5 corridor expansion program (see p. 59 of *Gray Notebook* 39). WSDOT is constructing a new flyover interchange for U.S. 12, to accommodate the expanded I-5 corridor. The flyover will be constructed off-site and then installed over I-5, to reduce impacts to traffic. Three Puget Sound Energy (PSE) utility poles and associated wires are present along the west side of Old Highway 99 to the south of U.S. 12 and must be relocated to complete the widening of I-5. The project was advertised on August 16, 2010, at Risk Level 2. The relocation of the PSE poles and wires will not be completed until March 1, 2011, but this is not expected to delay work on the project. Construction on the interchange project began in December 2010, with an expected completion date in fall 2012.

Utilities

Background information for projects with utilities Risk Level 3

Projects funded by the 2003 Nickel package

SR 161 – 26th Street East to Jovita Boulevard – Add lanes (Pierce)

This project widens SR 161 in Edgewood with one additional lane in both directions, adds wider sidewalks for pedestrians and new bike lanes for bicyclists. The project was advertised on December 27, 2010, at Risk Level 3. A Puget Sound Energy transmission line that runs west along the length of the SR 161 corridor must be relocated. The relocation has been designed and is ready to be constructed once winter energy usage is within the acceptable range to deactivate the lines for the switch over to the new line. Puget Sound Energy has scheduled the switch over for March 2011.

Projects funded by the 2005 Transportation Partnership Account (TPA) package

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

This project will reconstruct the SR 520 corridor from Medina to 108th Avenue (SR 202) by adding an additional lane in each direction, and relocate the existing HOV lanes east of I-405 to the inside lane of SR 520, resulting in a six-lane corridor that will include two full HOV lanes. This project was awarded on November 29, 2010, at Risk Level 3; construction is expected to begin in early 2011 and be operationally complete by 2014. This project is a design-build project: the contractor is responsible for identifying utilities in WSDOT's right-of-way that will be in conflict with the final design. The contractor has identified

PSE lines that will be replaced when the project's bridges and highway lids are in place. Current plans call for building redundancies into the PSE system, so the existing lines can be removed with minimal service interruptions to customers. There are also water supply and sewer lines, owned by the cities of Bellevue and Kirkland, along the corridor that are likely to be affected by the final design. The contractor is working with the two cities on relocation plans.

SR 520 – I-5 to Medina Stage 1 – Evergreen Point Floating Bridge Replacement and Landings Project (King)

The replacement of the SR 520 Evergreen Point floating bridge will help improve mobility along the cross-lake corridor by having a highway with six lanes. This includes two general-purpose lanes and one new transit/HOV lane in each direction, along with cordoned-off shoulders for pedestrians and bicyclists. The project was advertised on December 6, 2010, WSDOT expects to award the contract in mid-2011. This design-build project was awarded at Risk Level 3. The design-builder is responsible for finalizing the design of the project, and relocating or coordinating relocations for all the existing utilities that will conflict with the approved design.

The main utility impact identified in this project is the relocation of the Lake Line sanitary sewer along the shore of Lake Washington, which is owned and operated by the City of Bellevue Public Utilities. Subsurface utility engineering has been conducted on this facility, and preliminary relocation plans will be supplied to qualified bidders as part of the project's Request for Proposal addendum. WSDOT continues to work with the City of Bellevue Public Utilities on those plans.

Cross-Cutting Management Issues

Right-of-Way

Right-of-Way Highlights

65% of right-of-way certifications were completed on time July through December 2010.

WSDOT acquired a total of 130 parcels in the second half of 2010.

There were a total of nine Judgements and Decrees in 2010, out of which eight were in the second half of 2010.

Before a project is advertised for bidding, WSDOT must certify that all rights necessary to construct, operate, and maintain the project have been acquired. WSDOT's business practices regarding acquiring real estate are strictly guided by state and federal regulations (such as Title 8 and Title 47 RCW, Title 468 WAC, 23 and 49 CFR, and Title 23 USC: the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended)). WSDOT's goal is to deliver 100% on-time certification for all projects.

Seventeen projects with a right-of-way phase were scheduled to be certified in the last six months of 2010. Eleven of the 17 were certified on time (65%), and six certifications were late. Two projects were design-build and will be certified as needed during each phase.

Projects with certification-related issues

July-December 2010

Project title	Right-of-Way certification related issue
US 101/South of Beacon Point Drive - Culvert Replacement	Delay in acquiring environmental approval (NEPA)
SR 3/Judy Lane Vicinity - Major Drainage	Delay in acquiring environmental approval (NEPA)
SR 28/East End of the George Sellar Bridge - Construct Bypass	Plan revisions to add two temporary construction easements have delayed certification.
US 2/West of Leavenworth - Slope Stabilization	Work with the USFS is nearing completion. Environmental work not complete.
SR 155/South of Electric City - Rock Slopes Scaling	This certification is being reported "late" because it slipped from September to October 2010. The ad was not delayed.
SR 20/Libby Road Vicinity to Sidney Street Vicinity - Realignment and Widening	Delay in acquiring environmental approval (SEPA)
SR 99/South King Street Vicinity to Roy Street - Viaduct Replacement	Design-build. Right-of-Way will be certified as needed during each phase.
SR 520/Medina to SR 202 Vicinity - Eastside Transit and HOV	Design-build. Right-of-Way will be certified as needed during each phase.

Data source: WSDOT Real Estate Services.

On time right-of-way certification results

	Jan-June 2007	July-Dec 2007	Jan-June 2008	July-Dec 2008	Jan-June 2009	July-Dec 2009	Jan-June 2010	July-Dec 2010
Number of projects with a right-of-way phase	6	45	49	24	15	16	44	17
Number of projects with a right-of-way certification related delay	0	0	3	0	0	4	8	6
Number of projects delayed due to Real Estate Services right-of-way activity management	0	0	3	0	0	0	1	0
Percent of projects with a right-of-way phase that had an on-time certification	100%	100%	98%	100%	100%	75%	82%	65%

Data source: WSDOT Real Estate Services.

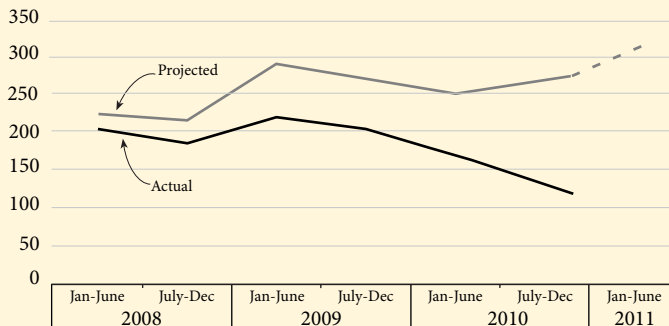
Right-of-Way

Acquisitions projected to increase in first half of 2011

WSDOT acquired a total of 130 parcels in the second half of 2010, compared with 169 acquisitions in the first six months of 2010, and 204 in the second half of 2009. Projections for January through June, 2011 (the remainder of the 2009-2011 biennium), equal 316 parcels. This exceeds the projections (250 parcels) for the first same period of 2010. The actual parcel acquisitions for January through June 2010 were approximately 68% of projections (169 actual parcel acquisitions vs. 250 projected parcel acquisitions).

Acquisitions for all Nickel, TPA, and PEF projects

January 2008 - December 2010 actuals vs. projections



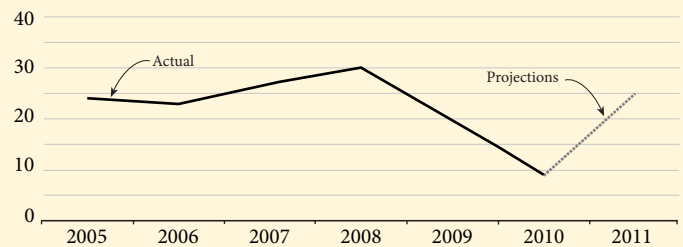
Data source: WSDOT Real Estate Services.

Right-of-Way condemnations

Condemnation involves legal action to acquire property by operation of law. Of the 23 open condemnation cases, 15 are new cases opened in the last six months of 2010. Eight Judgment and Decrees were issued in the second half of 2010, bringing the annual total to nine; 20 were issued for the entire year of 2009.

Condemnations for all Nickel, TPA, and PEF projects

2005 - 2010 actuals and 2011 projections



Data source: WSDOT Real Estate Services.

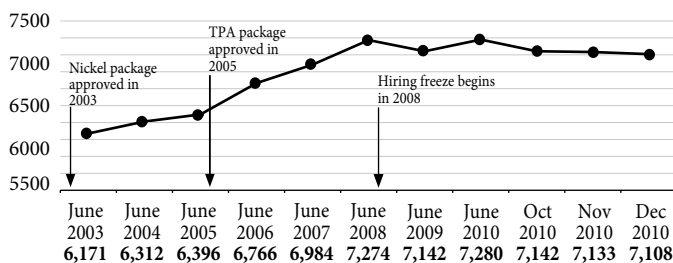
Workforce Level and Training Quarterly Update

Workforce Level and Training Highlights

WSDOT employed 121 fewer employees on December 31, 2010 than at the same time in 2009.

Number of permanent full-time employees

From June 2003 to December 2010



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

Compliance with courses mandatory for all WSDOT employees remained steady in most categories in the quarter ending December 31, 2010.

Certification with mandatory crane operator training is now above 90%, up from 64% in September.

On December 31, 2010, WSDOT employed 7,108 permanent full-time employees, 63 fewer employees than the previous quarter ending September 30, 2010, mostly due to retirements and resignations. WSDOT employed 121 fewer employees than at the end of December 31, 2009, due in part to a hiring freeze that fills only critical positions. The chart below shows the number of full-time employees since June 30, 2003. The total number of full-time equivalencies (FTEs) will generally exceed the number of permanent full-time employees, as seasonal, permanent, part-time, and non-permanent/on-call workers are funded from FTE allocations.

Workforce training compliance remains steady for most required courses

Compliance for required training for all WSDOT workers remained relatively steady in the quarter ending December 31, 2010. The graphs below show the compliance with the required diversity and policy courses over the last two years.

Diversity training compliance

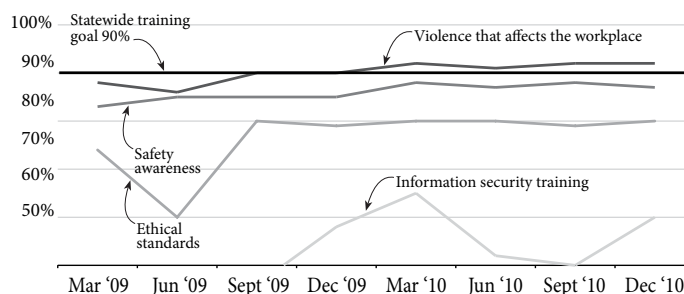
WSDOT conducts mandatory training for managers and employees to educate and inform a diverse workforce on agency policies and methods for maintaining a respectful workplace. Employee training compliance for the valuing diversity and disability awareness courses remain above the 90% compliance goal at 95% and 94% respectively, at the end of 2010.

Sexual Harassment/Discrimination training compliance is at 89%, down slightly from 90% in September 2010, and up from 84% in December 2009. The mandatory training is conducted as a refresher every three years for managers and supervisors and every five years for employees. WSDOT has been able to keep the compliance high by forecasting when employees will be due for training, communicating with managers, scheduling training facilities, and conducting training sessions with larger class sizes. WSDOT conducted 110 diversity training module classes statewide in 2010 (compared to 205 in 2009).

WSDOT is planning to revise the Disability Awareness Module to ensure consistency with changes to the WSDOT Human Resources Desk Manual, particularly changes concerning reasonable accommodations.

Required policy training for all WSDOT employees

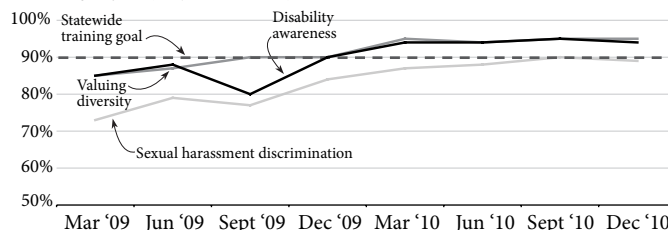
Percentage of employees in compliance, March 2009 to Dec. 2010



Data Source: WSDOT Human Resources Office, Staff Development.

Required diversity training for all WSDOT employees

Percentage of employees in compliance, March 2009 to Dec. 2010



Data source: WSDOT Human Resources Office, Staff Development.

Workforce Level and Training Quarterly Update

Required training for all employees, by region

Compliance as of December 31, 2010

Course	Ferries	Northwest	North Central	Olympic	Southwest	South Central	Eastern	Headquarters	Total
Disability awareness	94%	94%	90%	95%	98%	96%	98%	93%	94%
Ethical standards*	88%	89%	89%	56%	98%	95%	100%	59%	80%
Sexual harassment/discrimination*	87%	88%	89%	93%	97%	95%	97%	83%	89%
Security awareness	90%	84%	75%	89%	99%	76%	99%	84%	87%
Valuing diversity	94%	96%	90%	95%	98%	96%	98%	94%	95%
Violence that affects the workplace	91%	94%	85%	91%	99%	97%	99%	87%	92%
Information security awareness*	16%	68%	65%	52%	98%	91%	98%	67%	60%

*These courses have a refresher required at least once every five years. Information security training is required every year, ethical standards is required every three years, and sexual harassment/discrimination is required every three years for managers and every five years for all employees.

Data source: WSDOT Human Resources Office of Staff Development.

Policy training compliance

Compliance with mandatory policy courses for all employees remained relatively steady in the quarter ending December 31, 2010. Information Security training compliance improved to 60% on December 31, 2010, from 50% on September 30, 2010.

The table at the top of the page shows the agency's compliance with required diversity and policy training.

Regional performance – diversity

All regions, headquarters, and ferries met the agency's 90% compliance goal for the Valuing Diversity and Disability Awareness training courses, while five of eight regions met the 90% goal for sexual-harassment/discrimination training.

Regional performance – policy

Information security, a new course, has the lowest agency compliance and its compliance; compliance is typically lowest among employees who do not regularly use computers or phones, including many ferries employees.

Compliance with statutorily required safety and maintenance training remains steady

Statutorily required maintenance and safety training compliance for WSDOT employees was 84% on December 31, 2010, no change from the previous quarter. Safety training compliance remained at 84% this quarter, while maintenance training compliance was 82%, a 1% decrease from the last quarter. The graph at right shows employee safety and maintenance training compliance between March 30, 2009, and December 31, 2010.

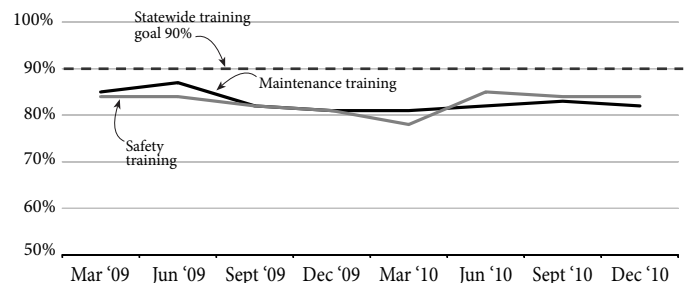
Crane operation certification compliance improved

WSDOT employees operate mobile cranes for maintenance and inspections on state highways and construction projects. Following the collapse of a tower crane in Bellevue in 2006, the state Legislature adopted a new crane safety law in 2007 which took effect on January 1, 2010. The law and regulations require crane operators to meet experience requirements, and pass written and hands-on exams.

WSDOT has identified 55 employees who require mobile crane training and certification. As of December 31, 2010, 50 (91%) employees received certification, including 15 employees certified between October 1 and December 31. The improved compliance means more employees are authorized to operate cranes at maintenance and construction sites.

Maintenance and safety training compliance

By percentage of employees in compliance Mar 2009 to Dec 2010



Data Source: WSDOT Human Resources Office, Staff Development.

Workforce Level and Training Quarterly Update

Mandatory safety and maintenance training compliance

WSDOT tracks statutorily required training compliance for its maintenance workers by region. The table to the right documents each region's compliance, with all the courses listed as a single measure. For the fourth quarter, Southwest region met the 90% goal for safety and maintenance training compliance. Training compliance for this quarter improved in one region, declined in three regions, and remained steady in two regions.

The table below shows the year-end compliance for WSDOT maintenance workers with each safety and maintenance training course.

Region maintenance and safety training compliance

Percentage of employees in compliance on Dec. 31, 2010; Goal is 90%

Region	% in compliance	% change from last quarter	Biennium average	Goal met
Northwest	78%	0%	75%	
North Central	85%	0%	83%	
Olympic	85%	1%	81%	
Southwest	97%	-1%	95%	√
South Central	81%	-2%	84%	
Eastern	88%	-1%	90%	

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

Statutorily required maintenance and safety training

Quarter ending December 31, 2010

Course title	Total people requiring training	Total people complying	% complying December 2010	% complying December 2009	Current biennium average
Aerial Lift	215	188	87%	86%	90%
Bucket Truck	349	318	91%	78%	83%
Confined Space Entry	689	573	83%	77%	81%
Drug & Alcohol Certification	1,279	1,193	93%	92%	93%
Drug Free Workplace	324	304	94%	92%	92%
Electrical Safety Awareness	523	453	87%	84%	77%
Excavation, Trenching & Shoring	527	446	85%	81%	83%
Fall Protection	787	715	91%	89%	88%
Forklift	1,096	956	87%	87%	87%
Hazard Communications	1,420	1,308	92%	90%	90%
Lockout/Tagout	770	667	87%	85%	85%
Personal Protective Equipment	1,390	1,211	87%	86%	86%
Proper Lifting	1,441	1,255	87%	84%	84%
Supervisor Return to Work	197	157	80%	82%	78%
Blood borne Pathogens ¹	546	385	71%	60%	63%
Fire Extinguisher ¹	1,377	992	72%	57%	68%
Hazardous Materials Awareness ¹	815	433	53%	77%	66%
Hearing Conservation ¹	1,306	1,079	83%	86%	80%
Lead Exposure Control ¹	109	52	48%	40%	36%
Railway Work Certification ¹	5	3	60%	0%	70%
Respirator Protection ¹	173	71	41%	25%	36%
Emissions Certification ²	74	16	22%	25%	53%
First Aid ³	1,461	1,300	89%	86%	84%
Flagging & Traffic Control ³	1,179	1,071	91%	89%	92%
Mobile Crane NCCCO Certification ⁴	55	50	90%	N/A	71%
Total	14,903	12,319	83%	83%	

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

¹ Training required annually. ² Training required every two years. ³ Training required every three years. ⁴ Training required every five years.

Transportation Research Annual Report

Transportation research provides information and innovation for Washington's transportation system. Pursuing innovation through research is a major strategy to keep Washington's transportation system safe, reliable, and sustainable by continuously improving facilities and services. Research helps WSDOT build better roads and bridges, create safer and more efficient travel, develop innovative and less expensive ways to construct or rehabilitate our system, and improve our understanding of emerging issues that impact our transportation system.

WSDOT is a national leader in transportation research and innovation

WSDOT is a nationally-recognized leader in developing transportation innovations, technologies, and best practices. Washington has the most "scanned" transportation system – other states seeking innovative solutions look to WSDOT more than any other DOT – and since 1999, WSDOT has been invited to participate in 17 international scans.

Eighty-two WSDOT employees currently serve on 236 national research committees, expert task groups, and panels to guide the identification of research needs and implementation of funded projects. Of these, WSDOT employees chair 23.

Contributions made by WSDOT's Office of Research and Library Services

The Office of Research and Library Services leads WSDOT's research program by providing specialized research and information that lead to innovation. Staff provide expertise and resources to address client research inquiries, preparing, for example, 22 transportation synthesis reports that summarize currently available information about a specific topic, such as "Electric Vehicle Technology, Sales, Taxation and State Law," or "Transportation Energy Efficiency Policies." WSDOT's library also offers a range of resources and services to help researchers identify useful information and gaps in knowledge, refining research efforts to advance the state of the practice.

Recently, literature searches were done on topics such as the effects of fuel prices on the number of vehicle miles traveled, rumble strip noise, identifying noise standards at airports, standards for river flow deflection structures, and pile driving noise effects on marine mammals.

WSDOT-led research has created highway rumble strips that reduced crossover accidents by 45%, reduced congestion by creating better motorist information and innovative operational methods, sped up construction times saving money and reducing travel delays, improved seismic vulnerability for high cost bridge structures, and found better approaches to pavement management so that the state's transportation infrastructure investments last longer.

Funding for transportation research

WSDOT's transportation research is funded primarily from federal sources with state match requirements. Research investments totaled almost \$11 million in the 2009-2011 biennium, involving 153 research projects.

To maximize funding, WSDOT seeks partnerships with other agencies and sponsors to support research projects (see the panel 'Research partners' on page 94). WSDOT managers,

Transportation Research Highlights

WSDOT has 153 research projects, worth nearly \$11 million, in progress during the 2009-2011 biennium.

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

Research projects address research needs in all six transportation policy goal areas.

All currently funded research projects are on budget.

Total value of 2009-2011 research projects

Number of projects by funding source

Funding source	Amount	Projects
State Planning & Research Fund	\$4,082,392	54
Client-sponsored research	\$4,116,057	33
Synthesis reports	*	44
Transportation Pooled Fund projects	\$2,778,763	22
Total all funding sources	\$10,977,212	153

Source: WSDOT Research Office.

* Synthesis reports produced in-house by WSDOT.

Transportation Research Annual Report

State Planning & Research Funded Projects

with input from a wide range of stakeholders, generate ideas for research projects, which are prioritized within available funding and developed into study designs. Specialized staff manage the collaborative research process with universities and other organizations.

Funding distribution by strategic transportation goals, 2009-2011 biennium

For approved State Planning & Research projects

Safety	\$95,000
Preservation	\$1,373,209
Mobility/Congestion Relief	\$933,927
Environment	\$1,425,125
Stewardship	\$235,131
Economic Vitality	\$20,000
Total all funded projects	\$4,082,392

Source: WSDOT Research Office.

Number of WSDOT research projects planned

Projects with State Planning & Research funding only, planned for the 2009-11 biennium

Research projects planned for the biennium	46
Research projects continued from previous biennium	23
Research projects started	31
Research projects completed	13
Research projects cancelled	5
Research projects on schedule	29
Research projects on budget	100%

Source: WSDOT Research Office.

Research partnerships

Washington Transportation Center (TRAC) was established in 1983 by WSDOT, the University of Washington, and Washington State University to link government research needs with university experts and the private sector. TRAC conducts 75% of WSDOT-sponsored research this biennium.

Transportation Research Board (TRB) is part of the National Research Council within the National Academies. Forty-two WSDOT employees serve on 62, and chair seven, of the 200 TRB standing committees.

TRB National Cooperative Research Programs (CRP) were established by Congress in the following emphasis areas: highways, transit, airports, freight, environment, hazardous

Strategic research to support the transportation mission

The transportation research program helps WSDOT achieve its mission to keep people and business moving by operating and improving the state's transportation systems vital to taxpayers and communities. The following projects highlight some of the recent research that advances WSDOT's goals. More information on each project can be obtained by visiting www.wsdot.wa.gov/research.

Transportation policy goal: Safety

Improving traveler safety

Animal-vehicle collisions are increasing, and are a major safety concern nationwide and in Washington. State Farm Insurance reported that collisions between deer and vehicles in Washington increased by 15% between 2002 and 2007. Understanding the relationships between all the associated factors, such as roadway geometry and traffic characteristics, is important to select effective countermeasures against such collisions. This recent WSDOT study identified seven Washington highway corridors that can be targeted for safety improvement investments. (See pages 38-39 for a related topic, as a proposed fish passage barrier project might also reduce deer-vehicle collisions.)

Improving highway safety performance

WSDOT leads a multi-state Roadside Safety Research Committee to develop collaborative research for and testing of highway roadside features such as guardrails, median barriers, signs, and curves. Recently completed research examined a new barrier design that allows for water to flow off the highway

materials, and commercial bus. Fifty-six WSDOT employees serve on 79 CRP panels and chair 14.

Strategic Highway Research Program 2 (SHRP2) is a national, short-term program of focused research that investigates the underlying causes of highway crashes and congestion in four interrelated focus areas: safety, renewal, reliability, and capacity. Nine WSDOT employees serve on 12 SHRP2 panels and task groups, including three of the four focus areas.

Transportation Pooled Fund (TPF) is a way for states and other organizations to partner funding to pursue common research interests. WSDOT is currently participating in 37 TPF studies, serving as the lead in 13 studies. Washington's investment in this research leverages \$10 for every dollar contributed to the fund.

Strategic Research Projects

surface and drain into the median, thus removing standing water on the freeway. This Pooled Fund research has also produced better guardrail connections at bridges, improved cable barrier systems, and produced designs for safer sign posts.



New guardrail designs are crash tested at the Texas Transportation Institute's crash test facility to ensure that new or modified roadside features are safe.

Transportation policy goal: Preservation

Preserving history and aesthetics while retrofitting for seismic safety

WSDOT investigated retrofit measures for improving the seismic performance of cruciform-shaped columns in the Aurora Avenue Bridge located in Seattle, Washington. It was important that the historical and aesthetic features of this bridge remain, so a retrofit design to retain the cruciform shape of the columns was essential. Fiber reinforced polymer (FRP) jacketing was used to conform to the original shape and the FRP jacketing, when anchored, resulted in improved seismic performance. The FRP jacket does not adequately confine movement, so the final retrofit design incorporated corner anchorage and steel collars filled with high-strength grout in the hinge regions. This produced a satisfactory seismic response while preserving the historic and aesthetic features and will be used as the retrofit design for the Aurora Avenue Bridge.

Transportation policy goal: Mobility/Congestion Relief

Reducing incidents that cause congestion and travel delay

A lot of congestion is caused by incidents on the freeways such as disabled vehicles, accidents, and distractions. To improve understanding of incidents and manage them more effectively, WSDOT research developed a practical method for quantifying

freeway incident-induced delay. Estimating the duration of delay caused by such incidents is crucial for assessing the effectiveness of operational strategies on the roadway network; estimates help traffic engineers understand the impacts of various types of incidents under different traffic and road conditions, and allows WSDOT to optimize the Incident Response program; they are a key component of active traffic management.

This research resulted in a new algorithm that allows WSDOT to calculate traffic on a large scale freeway network so that Incident Response can be more effectively deployed. This research also found that although the frequency of incident occurrence is lower during weekend days, the average clearance time for weekend incidents is typically longer, and the associated delay is longer than weekday incidents. This might influence the schedule for incident response resources during the weekends. (See pages 26-30 for the Incident Response program's quarterly report.)

Transportation policy goal: Environment

Reducing construction noise impacts to marine species

Pile driving is a construction activity that is required when structures are located over water. The sound created by pile driving may be harmful to wildlife. WSDOT research has led to a new understanding of how sound energy is created and dissipated so that new sound attenuation methods can be developed that will reduce pile driving impact sound levels and protect important marine species. (See page 44 of *Gray Notebook 38*.)



A "bubble curtain" is sometimes used to lessen the sound caused by driving piles for construction piers and/or building facilities that are located over water.

Transportation Research Annual Report

Strategic Research Projects

Transportation policy goal: Economic vitality

Improving freight routing capabilities for commodity flow

Washington's economy relies on the efficient movement of freight on a multi-modal transportation system. WSDOT research has improved the ability to fully understand and accurately characterize freight vehicle route choices so that strategic investment decisions can be made. A comprehensive survey of freight service providers/carriers and freight shippers provided specific information regarding the logic behind routing decisions and the factors that affect these decisions.

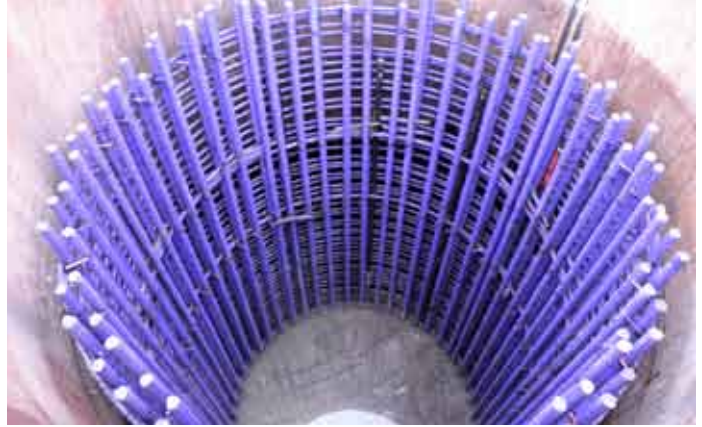
In 2011, the WSDOT research team will conduct a thorough evaluation and analysis of the survey data to develop specific freight routing rules and guidelines to use with the Washington Statewide Freight Model. These research results will provide insight into how routing decisions are made within different sectors of the freight transportation industry. Policy makers may then be able to identify the state's important freight corridors, their infrastructure needs to support freight movement, and financial strategies to fund projects so that efficient freight movements support the economy.

Transportation policy goal: Stewardship

New tools to make the job safer and lower costs

Drilled shafts are large diameter, cast-in-place, deep foundation concrete elements that as a result of their construction processes are vulnerable to irregularities. It is difficult to visually inspect drilled shafts that are below water and to verify that a shaft was constructed as expected, creating some risk that the concrete column may be compromised.

Research is being done to refine a new method – Thermal Infrared Integrity – that uses the heat signature of concrete during the hydration phase of concrete curing to determine irregularities that may exist in the drilled shaft. This method allows engineers to verify that the shaft is correctly poured and will adequately support the structure.



Drilled shaft tested with an infrared camera to determine irregularities.

WSDOT tested the Thermal Infrared Integrity method on the Manette Bridge, when one of the shafts caved in during construction. The test method allowed WSDOT to “see” down into the 80-foot shaft to evaluate the structural and geotechnical capacity in support of the new bridge. The infrared testing showed the exact location of the cave-in and that it did not affect the structural or geotechnical capacity of the bridge. By using this test method, WSDOT and the contractor were able to save money and time and did not have to abandon the location and re-drill the shaft.

Aligning state highways with community goals

500 miles of state highways in Washington serve as main streets for cities of all sizes. Main street highways are important to Washington's communities, by providing local access for and serving regional mobility needs. The state must maintain traffic flow and ensure safety on main street highways. Sections of these main street highways have some of the highest rates of pedestrian and traffic collisions in the state. WSDOT research demonstrated that additional investment in community design helps ensure improved safety, mobility, and efficient project delivery.

Highlights of Program Activities

For the quarter ending December 31, 2010

Project starts, updates, or completions

Project starts

SR 99 Alaskan Way Viaduct (King)

In October, crews began installing a \$5.5 million automated system that can safely close off the Alaskan Way Viaduct to traffic within two minutes of detecting a significant earthquake. This would be a dramatic improvement on the current closure process, which can take up to two hours and require the help of many emergency response teams.

The automated viaduct closure system consists of nine traffic gates placed at or near on-ramps to the viaduct and controlled by an earthquake detection system. If the earthquake sensors detect significant ground movement – roughly a 5.0 magnitude earthquake or greater – the system would automatically signal all nine traffic gates to lower into place. The system also will send a warning message to WSDOT's 24-hour traffic management center and the City of Seattle Department of Transportation. If the system is activated, WSDOT's bridge crew would need to inspect the viaduct before it could be reopened to drivers. WSDOT expects to test the automated viaduct closure system and have it fully functional early in 2011.

SR 14 Cape Horn Bridge to Cape Horn Road – Safety improvements (Skamania)

At the far west entrance of the Columbia River Gorge, SR 14 weaves its way around Cape Horn eastward along the Columbia River. Drivers find themselves navigating a challenging roadway, especially from November through March when cold winds whip in from the river and turn wet roads to ice.



Mudslide on SR 14 near Cape Horn in western Skamania County adds another layer of difficulty to traversing the as-yet-unimproved road.

Crews recently started work on a major safety improvements project which straightens out SR 14 curves between Cape Horn Bridge and Cape Horn Road, offering drivers more consistency along the corridor. Contract crews will also build turn lanes at Salmon Falls and Cape Horn roads, allowing drivers to turn onto these intersecting roads without stopping traffic on SR 14. As part of the associated Cape Horn Trail project, crews are building two pedestrian tunnels beneath SR 14 near the Cape Horn viewpoint and Cape Horn Road, with funding provided by the Western Federal Lands Highway Division. WSDOT expects to complete the entire project by fall 2011.

Project updates

I-82 Valley Mall Boulevard (Yakima)

Right on schedule, WSDOT and contractor crews opened to traffic two of three roundabouts and the new I-82 eastbound on- and off-ramps on November 17. When construction resumes in the spring, crews will build the third and final roundabout and the new I-82 westbound off-ramp, rebuild a new I-82 eastbound overpass, and demolish and rebuild a new I-82 westbound overpass. Crews will also work on the City of Union Gap's portion of this project, which includes reconstructing the intersection of Main Street and Valley Mall Boulevard to provide four lanes with left and right turn lanes, a bus pull-out, street lights, and a traffic signal.



WSDOT and contractor crews were close to opening two of the three roundabouts on the I-82 Valley Mall Boulevard Interchange Improvements project in mid November.

This important project will encourage economic growth and development for the Yakima Valley, particularly the cities of Union Gap and Yakima. By fall 2011, drivers will enjoy smoother access to and from I-82, less congestion and delay on Valley Mall Boulevard, and wider bridges on I-82 that will accommodate future growth.

Highlights of Program Activities

For the quarter ending December 31, 2010

Project completions

SR 503 Battle Ground (Clark)

WSDOT and its contractor, Rotschy Inc. of Yacolt, completed a \$6.5 million project to keep more than 16,000 vehicles moving smoothly each day on SR 503. The SR 503 Lewisville Climbing Lanes project added new lanes in both directions of SR 503 between 244th Street and 269th Street. Climbing lanes reduce collisions and backups by giving slower, heavier vehicles an additional, safe lane to travel up steep grades. In addition to building climbing lanes, the project improved traffic signals and signage on SR 503, and resurfaced and restriped the highway between 244th Street and 269th Street and at Gabriel Road.

SR 520 HOV lanes – Redmond (King)

Redmond drivers to and from the Sammamish Plateau noticed a big difference in their evening commute when WSDOT opened new lanes on eastbound SR 520 between West Lake Sammamish Parkway and SR 202. Drivers now have two new lanes, including an HOV lane. This will dramatically reduce travel times for transit users, carpoolers and vanpoolers.

Other traffic improvements include two rebuilt ramps to and from West Lake Sammamish Parkway, 89 new light fixtures, storm drains, more than a mile of new concrete barrier and three miles of new guardrail. Morning commuters out of Redmond were already enjoying the two new westbound lanes which opened early November. Drivers are emailing WSDOT to say how they've cut their morning commute times by 75%. This \$85 million project, funded by the 2003 Nickel gas tax, is a multi-phased program to reduce commute delays and increase safety in the SR 202/SR 520 corridor.



An unusual and historic medallion design adorns the new SR 520 flyover walls at the City of Redmond's gateway locations.

I-5 Ship Canal Bridge (King)

WSDOT installed more than 700 specially designed panels above the I-5 express lanes on the Ship Canal Bridge as part of a pilot project to reduce traffic noise for nearby residents. Crews have also installed approximately 350 noise-absorptive panels alongside the express lanes in an effort to reduce reflective noise that bounces to the communities flanking the highway. Located in a heavily-traveled urban area, traffic noise from the bridge reaches the densely populated Seattle neighborhoods of Eastlake, Roanoke Park, University District and Wallingford.

With the panels now in place, noise level testing begins. WSDOT engineers took baseline measurements in 22 locations before installation. They will test the same locations periodically for sound quantity and quality. Seasonal testing also is part of the research to see how the noise levels change with air temperature. Engineers also want to know how the panels hold up over time. After a year of seasonal testing, experts will conduct annual tests and provide a full report at the end of the testing period in 2013.

SR 510 Yelm (Thurston)

Crews have completed the SR 510 Yelm Loop Stage 1 project and the new road, Mud Run Road to Cullens Road, opened to traffic on October 20. Motorists who travel SR 510 now have an alternate route, especially helpful during the morning and afternoon commutes during the school year, when traffic backs up near the high school.

The new road is the first of two phases designed to relieve congestion in one of the fastest growing areas in Washington. Since 2000, Yelm's population has grown by more than 50 percent. The second phase of the project, which extends the new road from Cullens Road to SR 507, will begin once funding is available.

Ferries

New action plan for the ferry system

WSDOT's Ferries Division will implement most of the 36 recommendations to improve ferry operations made by an independent panel. The Passenger Vessel Association conducted a review, released on September 9, 2010, of how well the Ferries Division has implemented changes recommended by past system reviews and audits; the report also makes further recommendations for efficiency improvements. Changes will be made in ferry management, vessel and terminal maintenance, finance, scheduling, labor and customer service.

For the quarter ending December 31, 2010

Chetzemoka inaugural sailing November 14

Washington's first new ferry in more than a decade made its inaugural sailing on November 14, between Whidbey Island and Port Townsend. The 64-vehicle MV *Chetzemoka*, named after the Klallam Chief Chetzemoka (c. 1808–1888), was christened by Governor Chris Gregoire and recognized by the S'Klallam tribes.

The Governor, legislators, state and local officials, and about 300 invited guests from communities on both sides of Admiralty Inlet boarded the vessel at the Whidbey Island Coupeville (previously called Keystone) terminal following the ceremonies. The *Chetzemoka* was then put through her paces as she cruised to Port Townsend, where representatives of the Klallam tribes conducted a ceremony aboard the vessel. Afterwards, the 750-passenger ferry was available for public viewing, before starting full service on November 16.



Leaders of the Jamestown S'Klallam tribe performed a blessing on the new ferry MV Chetzemoka.

Aviation

Draft land-use planning guide available for public review

WSDOT made its draft of the *Airports and Compatible Land Use Guidebook* available online for public review and comment during a 10-day public-comment period from October 27 to November 9. The guidebook does not change land-use requirements, but is intended to serve as a better tool with reader-friendly graphics and visual aids to communicate concepts and effective practices. It includes a six-step planning process with tools, worksheets, and reference materials to assist local jurisdictions, planners and airports in making informed land-use compatibility decisions.

Rail

Paula Hammond elected chair of national rail coalition

Washington Secretary of Transportation Paula Hammond was unanimously elected chair of the States for Passenger Rail Coalition by state transportation directors.

As coalition chair, Hammond will work with other states and transportation advocacy groups to build support for continued passenger rail program funding. The States for Passenger Rail Coalition was established in 2000 and is an alliance of 32 state departments of transportation: its mission is to promote the development, implementation and expansion of intercity passenger rail services.

Washington receives additional funding for high speed rail improvements

Washington will receive \$31 million in federal funds to improve passenger stations in Seattle and Tukwila and to ease rail congestion in Mount Vernon. When combined with \$590 million in federal stimulus funds awarded earlier this year, this latest grant brings Washington's total funding for high speed rail to \$621 million.

More than \$18.2 million will be spent to seismically retrofit King Street Station in Seattle and its clock tower, as well as restore the station's main hall and upgrade electrical, mechanical and plumbing systems. The grant contributes \$9 million to Sound Transit's Tukwila Station project, a new train station for use by Sounder commuter trains and Amtrak *Cascades* intercity trains. In Mount Vernon, \$3.3 million will be spent to build sidings – passing lanes for trains – that will improve speed and reliability for freight and passenger trains.



King Street Station's historic ceiling was recently revealed during restoration works. Photo courtesy: SDOT.

Highlights of Program Activities

For the quarter ending December 31, 2010

Traveler Information and Safety

WSDOT Web usage breaks records

Winter weather conditions drove a record number of people to WSDOT's website. The website's typical average page views are close to one million daily. The Puget Sound winter blast on November 22, just before Thanksgiving weekend, surged that number to a new record of 11.7 million page views. The agency estimates that more than 500,000 people came to the WSDOT website to get information on road conditions.

The staggering number of people looking for current road conditions and other travel information available on the website meant that the term "wsdot" became the fourth most searched-for term in the United States for four hours on Google's search engine – a real-world demonstration of the value of WSDOT website information to the traveling public.

New Good To Go! passes for electronic tolling

Good To Go!, the state's electronic toll collection system, unveiled five new devices that allow drivers to pay tolls without stopping. The new tolling passes, including smaller and movable options, will be available to drivers in early 2011, before the start of tolling on SR 520. They will offer a wider range of options for paying tolls on all Good To Go! toll roads in Washington.

Smarter Highways on SR 520

WSDOT activated its latest stretch of Smarter Highways on SR 520 between 130th Ave NE in Bellevue and I-5 in Seattle on November 16, when the new electronic signs over SR 520 were turned on in time for the morning commute. These signs give drivers instant traffic information to help them better navigate one of the state's toughest daily commutes.

The automated traffic management system features a network of sensors and 70 electronic signs that automatically respond to changing traffic conditions and provide drivers real-time information. Overhead electronic signs alert drivers to change lanes



Smarter Highways signage in action on SR 520 at the bridge.

when an incident blocks traffic ahead or to gradually adjust their speed before they reach slower-moving traffic.

SR 520 is the second corridor in the state – and one of the first in the nation – to experience this cutting-edge traffic management system. The system is currently in place on I-5 between Boeing Access Road and I-90, and is scheduled to begin on I-90 between I-5 and 150th Avenue SE in Bellevue in spring 2011.

Announcements, awards and events

WSDOT selects 47 aging bridges for improvements, paid for through federal funding

WSDOT selected 47 city and county bridge projects across the state to receive \$80.6 million in federal funds. These projects will replace, remove and/or repair aging, obsolete and structurally deficient bridges. The funding comes from the federal Highway Bridge Program.

Winter closures for passes and highways

Chinook and Cayuse passes close for the season

Due to deteriorating weather conditions on Chinook (SR 410) and Cayuse (SR 123) passes, WSDOT closed the mountain highways for the season on November 16.

Each year, WSDOT closes Chinook (elevation 5,430 feet) and Cayuse (elevation 4,675 foot) passes for the winter due to high avalanche risk and hazardous driving conditions. Both passes include numerous slide areas that pose significant danger to travelers, as well as to WSDOT maintenance crews and Mount Rainier National Park staff.

Chinook Pass is closed from Morse Creek (five miles east of the summit) to Crystal Mountain Boulevard (eight miles northwest of the summit). Access to the Crystal Mountain Ski Resort from SR 410 remains open. Cayuse Pass is closed within Mount Rainier National Park from the summit at the junction of SR 410 and SR 123 to Stevens Canyon Road.

North Cascades Highway closed for the season

The North Cascades Highway (SR 20) is also officially closed for the season after a storm dumped two feet of new snow and significantly increased avalanche danger. WSDOT avalanche experts and maintenance crews found a foot of new snow at the closure gates and twice that amount at higher elevations when they took a trip up the highway on December 1. Crews also found several snow slides across the highway. The highway over Washington Pass is closed between milepost 134, seven miles east of Diablo Dam on the west side of Rainy Pass, and milepost 171, nine miles west of Mazama on the east side of the Pass.

Gray Notebook Subject Index

Topic (Edition)	Edition number / date (Washington state fiscal year)	Topic (Edition)	Edition number / date (Washington state fiscal year)
2001	1 / Mar 31, 2001 (FY01 Q3)	2 / June 30, 2001 (FY01 Q4)	3 / Sept 30, 2001 (FY02 Q1)
2002	5 / Mar 31, 2002 (FY02 Q3)	6 / June 30, 2002 (FY02 Q4)	7 / Sept 30, 2002 (FY03 Q1)
2003	9 / Mar 31, 2003 (FY03 Q3)	10 / June 30, 2003 (FY03 Q4)	11 / Sept 30, 2003 (FY04 Q1)
2004	13 / Mar 31, 2004 (FY04 Q3)	14 / June 30, 2004 (FY04 Q4)	15 / Sept 30, 2004 (FY05 Q1)
2005	17 / Mar 31, 2005 (FY05 Q3)	18 / June 30, 2005 (FY05 Q4)	19 / Sept 30, 2005 (FY06 Q1)
2006	21 / Mar 31, 2006 (FY06 Q3)	22 / June 30, 2006 (FY06 Q4)	23 / Sept 30, 2006 (FY07 Q1)
2007	25 / Mar 31, 2007 (FY07 Q3)	26 / June 30, 2007 (FY07 Q4)	27 / Sept 30, 2007 (FY08 Q1)
2008	29 / Mar 31, 2008 (FY08 Q3)	30 / June 30, 2008 (FY08 Q4)	31 / Sept 30, 2008 (FY09 Q1)
2009	33 / Mar 31, 2009 (FY09 Q3)	34 / June 30, 2009 (FY09 Q4)	35 / Sept 30, 2009 (FY10 Q1)
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)

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)
- Air Search and Rescue (6, 13, 17, 26, 29, 33, 37)
- Airport Aid Grant Program: Amount Awarded (6, 13, 17, 21, 25, 29, 33, 37)
- 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)
- Fuel: Taxable Gallons (6)
- Project Delivery (21, 25, 29, 33, 37)
- Registrations of Pilots, Mechanics or Aircraft (6, 10, 13, 17, 21, 25, 29, 33, 37)
- 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)
- Bridge Condition Ratings and Safety (26, 30, 34)
- Bridge Condition Ratings: State Comparison (8, 30)
- Bridge Replacements (19, 23, 26, 30, 34, 38)
- Bridge Structural Condition Ratings (11, 15, 19, 22, 23, 26, 30, 34, 38)
- Deck Condition Rating (26, 38)
- Deck Protection Program: Overview (4, 8, 11, 15, 23, 26, 30, 34, 38)
- Deck Protection Projects: Planned vs. Actual Projects (4, 5, 8, 11, 15, 23, 26, 30, 34, 38)
- Floating Bridge Preservation (38, 39)
- Hood Canal Bridge Update (11-35)
- Inspection Program (4, 11, 15, 19, 23, 26, 38)
- Inventory of WSDOT Bridges (4, 5, 8, 11, 15, 19, 23, 26, 30, 34, 38)
- Movable Bridge Repair (19, 26, 30)
- 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)

Topic (Edition)

Bridge Conditions, continued

- Risk Reduction (19, 23, 26, 30, 34, 38)
- Scour Mitigation (4, 11, 15, 19, 23, 26, 30, 34)
- 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)
- 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*)
- 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*)

*Note: Some performance measures for *Gray Notebook* 35 & 39 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*)

Comparisons of Conditions

- 2002-2003 (15)
- 2003-2005 (23)
- 2004-2006 (27)
- 2005-2007 (31)
- 2006-2008 (35*)
- 2007-2009 (39*)
- Six Month Reports (31, 33, 34, 36, 38, 40)
- Congestion Measurement Principles (5, 6, 19, 23, 27, 31, 35, 39*)
- Congestion Monitoring (19, 23, 27, 31, 33, 35*, 36, 39*)
- Construction Management (35*)
- Cost of Delay (15, 23, 27, 31, 35*, 39*)
- 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*)
- Highway Improvements Have Reduced Congestion (9, 3, 35*, 36, 38, 39*)

HOV Lane Performance

- Person Throughput (19, 23, 27, 31, 35*, 39*)
- Lane Miles Added to the System (35*)
- Travel Time Performance by Corridor (35*, 39*)
- Induction Loop Detectors (5)
- Intelligent Transportation Systems in Washington (5, 22, 31, 35*, 39*)
- Lost Throughput Efficiency (19, 23, 27, 31, 35*, 39*)

Measuring Delay

- By Time of Day (2, 5)
- By Route (19, 23, 27, 31, 35*, 39*)
- Distribution Statewide (in 3-D) (23, 27, 31, 35*, 39*)
- Peak Travel Times by Route (15, 19, 23, 27, 31, 33, 35*, 36, 39*)
- Percentage of Weekdays with Average Speeds 35 MPH or Below (Severe Congestion) (19, 23, 27, 31, 35*, 39*)
- Sources of Congestion (15, 19, 23, 27, 39*)
- Texas Transportation Institute's Urban Mobility Report (27, 35*, 39*)

Tolling

- Affecting Congestion (27, 35*, 39*)
- High Occupancy Tolling (35*, 39*)
- Travel Times for Electronic *Good to Go!* Lanes (27, 35*, 39*)
- Volume of Users (27, 35*, 39*)
- Traffic Speeds (9, 27, 35*, 39*)

Travel Times

- Before and After Results of Capacity Additions, Projects (27, 31, 35*, 36, 38, 39*)
- Before and After Results of System Efficiencies (27, 31, 35*, 39*)
- Performance by Corridor (19, 23, 27, 31, 33-35*, 36, 39*)
- Reliability (95% Confidence Interval) by Corridor (6, 9, 15, 27, 31, 35*, 39*)
- Travel Time to Work Comparison: State and County Rankings (5)
- With and Without Incidents (6, 33)

Vehicle Miles Traveled

- By Corridor (35*)
- Statewide (35*, 39*)
- Trends and related effects (33, 34, 35*, 36, 39*)

Volume

- By Corridor (5, 9, 31, 35*, 39*)
- Statewide (35*)
- Trends from 1993-2002 (9)

Topic (Edition)

Construction Program for State Highways – continued

- 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, 23-40)
- Construction Program Delivery: Planned vs. Actual Advertisements (1-19, 23-40)
- Contracts Awarded: Award Amount to Engineer's Estimate (6, 10, 14, 18, 22, 26, 30, 34, 38)
- Contracts Completed: Final Cost to Award Amount (6, 10, 14, 18, 22, 26, 30, 34, 38)
- Contracts Completed: Final Cost to Engineer's Estimate (6, 10, 14, 18, 22, 26, 30, 34, 38)
- 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)
- 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)
- 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 (32-40)
- Tacoma/Pierce County HOV I-5 Lane Additions (25-40)
- Tacoma Narrows Bridge Update (8-30)
- Southwest Washington I-5 Corridor Expansion Program (36, 38, 39)

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)
- Diesel, Particulate Matter (17, 26, 31, 39)
- 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)

Chronic Riverbank Erosion

- Hoh River (15)
- Sauk River, SR 530 (32)
- Ecology Embankment Pollutant Removal (8, 28)
- Endangered Species Act (23, 27-33, 38)
- Environmental Compliance (9, 12, 16, 18, 20, 23, 24, 25, 28, 32, 36, 40)
- 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)
- 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)
- Environmental Impact Statement Concurrence Request Approval Rate (13)
- Environmental Impact Statement Processing Time (9, 13, 28, 32, 36, 40)

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

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)

Impact (23, 26, 31)

Retrofits (35, 39, 40)

Quieter Pavement Testing (22, 24, 26, 28, 31, 35, 39)

Operational Improvements (22)

Organic Recycling Award for WSDOT (12)

Programmatic Permits (13, 17, 22, 26, 30, 33, 34, 38)

Recycling Aluminum Signs (7)

Stormwater Treatment Facilities (12, 16, 20, 24, 28, 32, 37)

Violations (9, 12, 16, 24, 28, 32)

Water Quality Impacts (16, 20, 24, 28, 32, 37)

Wetland Internship (14)

Wetland Replacement (Mitigation) Monitoring (5, 9, 12, 14, 16, 20, 24, 25, 28, 33, 37)

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 (24-40)

New Vessel Construction (32-40)

Customer Comments (3-40)

Environmental Stewardship (26, 31, 34, 35, 39)

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, 40)

Life Cycle Preservation Performance

Terminals: Condition Ratings (35, 37)

Vessels: Condition Ratings (35, 37)

Vessels: Fleet Condition Ages by Class of Vessels (13, 21)

Vessels: Planned vs. Actual (12-33, 35, 37)

Service Reliability

On-Time Performance (3-39)

Terminal and Vessel Incidents (26, 29)

Trip Planner (17, 18)

Trip Reliability Index and Trip Cancellation Causes (3-40)

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)

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)

Maintenance of State Highways

Anti-Litter Campaign Update (5, 11)

Capital Facilities

Age (34, 38)

Americans with Disabilities Act (ADA) (26, 30, 37, 38)

Benchmarks (18, 22, 26, 30)

Backlog of Maintenance and Replacement (22, 34, 38)

Topic (*Edition*)

Maintenance of State Highways, continued

Capital Facilities Construction Projects (18, 22, 26, 30, 34, 38)

Environmental Stewardship, Sustainability (18, 22, 26, 30, 34, 38)

Facility Conditions, Ratings, and Trends (18, 22, 26, 30, 34, 38)

Locations of Facilities (34)

Preventative Maintenance (18, 22, 26, 30, 34, 38)

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)

Estimated Costs of Maintenance Backlog (36, 40)

Percentage of Maintenance Backlog (28, 32, 36, 40)

Percentage of Targets Achieved (24, 28, 32, 36, 40)

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)

SRA Improvement Program (21, 25, 29, 33, 37)

SRA Locations and Amenities (9, 13, 17, 19, 33, 37)

SRA Level of Service (17, 21, 25, 29, 33, 37)

SRA Preservation (17, 21, 25, 29, 33, 37)

SRA Survey (9, 17, 21, 25, 29, 33, 37)

SRA Truck Parking and Security (17, 21, 25, 29, 33, 37)

SRA Visitors (21, 25, 29, 33, 37)

SRA Wireless Internet Access (19, 25, 29)

Stormwater Treatment Facilities (31, 37)

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)

Automated Anti-Icing Systems (7)

Avalanche Control (15, 21, 29, 33, 37)

Living Snow Fence on SR 25 (9)

Mountain Pass Highway Closures (7, 9, 17, 21, 25, 29, 33, 37)

Salt Pilot Project (7, 10, 17, 18)

Snow and Ice Control Operations (4, 7)

Snow and Ice Expenditures (17, 21, 25, 29, 33, 37)

*Note: Some performance measures for *Gray Notebook 35 & 39* 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)
- Winter Severity and Snow & Ice Expenditures (4, 9, 13, 17, 21, 25, 29, 33, 37)

Pavement Conditions on State Highways

Pavement Conditions:

- Bridge Condition by Deck Area (26, 38)
- City and Local Conditions (40)
- Pavement Condition Trends (4, 8, 12, 16, 20, 22, 24, 28,32, 36, 40)
- Pavement Ratings (20, 24, 28, 32, 36, 40)
- Pavement Smoothness Rankings by State (4, 8, 12, 16, 20, 24, 28, 32)
- Various Pavement Types (2, 32, 36, 40)

Pavement Types:

- Chip Seal Pavements (28, 32, 36, 40)
- Concrete Pavement (16, 36, 40)
- Portland Cement Concrete Pavement (16, 28, 32, 36, 40)
- Selecting Pavement Types (16, 36, 40)
- Quieter Pavement (35)

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)
- Pavement Lane Miles, Annual Vehicle Miles Traveled, and Programmed Dollars (12, 16, 32, 36, 40)

Program Activities Highlights

- Project Starts, Completions, Updates, and Highlights (20, 21, 23-39)

Project Reporting (Beige Pages) – see also

Construction program for state highways

- Capital Project Delivery: Executive Summary (26-40)
- Capital Project Delivery: Executive Summary, Rail and Ferries (24-40)
- Completed Projects Wrap-Ups (31-40)
- Construction Cost (20-40)
- Construction Employment Information (20, 21, 22, 23, 24, 25, 26, 27, 33-40)
- Construction Safety Information (20, 21)
- Consultant Usage (12-14, 16, 18, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39)
- Current Project Highlights and Accomplishments (10-19, 21-40)
- Environmental Documentation, Review, Permitting and Compliance (20, 24-33, 38)

Financial Information

- 2009 American Recovery and Reinvestment Act (Recovery Act) funds (33-40)
- Transportation 2003 (Nickel) Account (20-40)
- Multimodal Account (20-40)
- Transportation Partnership Account (20-39 40)
- Pre-Existing Funds (PEF) (20-40)
- Hot Mix Asphalt (21, 23-27, 29, 30, 32, 33, 35, 37, 39)
- Overview of WSDOT's Three Capital Project Delivery Mandates (20-29)
- Planned vs Actual Number of Projects (20-40)
- Pre-Existing Funds Projects (20-29, 31-40)
- Program Management Information (10-40)
- Project Delivery (11-40)
- Public - Private Partnerships (38, 40)

Recovery Act Projects

- Local Projects Advertised and Awarded (33-39)
- Local Projects Completed (33-40)
- Jobs and other Economic Estimates (33-40)
- State Projects Advertised and Awarded (33-40)
- State Projects Completed (33-40)

Topic (*Edition*)

Project Reporting (Beige Pages) - continued

- Right of Way Risks (20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40)
- Roll-Up of Performance Information (20-40)

Special Project Reports

- I-405 Congestion Relief Projects (31, 39*)
- I-5 Everett HOV Lane Project (30)
- I-90 Snoqualmie Pass Project (40)
- Hood Canal Bridge (20-35)
- New Vessel Construction for WSF (32-40)
- SR 104 Nile Valley Landslide Detours (37)
- SR 520 Floating Bridge Pontoon Program (39)
- Southwest Washington I-5 Corridor Improvement Programs (36, 38, 39)
- Tacoma Narrows Bridge (20-30)
- Tacoma/Pierce County HOV program (25-40)
- US 12 Corridor from Walla Walla to Tri-Cities (32)
- US 395 North Spokane Corridor (34)
- 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)

Rail: Freight

- Economic Trends (18, 31, 35, 37, 39)
- Freight Rail Corridors & Maps (5, 9, 29, 39)
- Freight Rail Study (18, 25)

Grain Train and/or Produce Car Demand

- Carloads (5-9, 11-33, 35, 37, 39)
- Grains (26, 28, 33, 35)
- Meat, Fruit, & Produce (5, 8, 35, 37, 39)
- Palouse River Coulee City Railroad: State Acquisition (24)

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 (24-32)
- Customer Satisfaction (2-4, 7, 9, 12, 14, 16, 21, 23-27)

Farebox Recovery and Revenue

- Recovery (4, 8, 12, 16, 20, 24, 28, 32, 37, 40)
- Revenue by Quarter (35-40)
- Analysis of Farebox Revenue (35-40)
- Internet Reservations and Automated Ticketing (6)
- Investment in Intercity Rail Comparison (5)
- New, Additional, Seasonal, and Temporary service (18, 31, 39)
- On-Time Performance (2-40)
- Operating Costs (4)
- Passenger Trips by Station (6, 20)
- Rail Plus Program (15, 16, 19, 20)

Ridership

- by Funding Entity (25-40)
- by Month (2-34)
- by Quarter (35-40)
- 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 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)

Safety on State Highways, *continued*

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)
- Fatal and Disabling Collisions: at Intersections (9)
- 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)
- Fatalities by Gender and Age Group (10, 27)
- Fatalities per Capita by State (13, 22, 26, 34, 38)
- Fatality Rates: State Highways, All State Public Roads & U.S. (3, 7, 11, 16)

Roadside Safety Features

- Guardrail (11, 24, 28, 35)
- Other (20, 24)
- Rumble Strips (14, 18, 26, 30, 34, 35, 38)
- 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)
- Bicyclist Fatality Locations and Relatable Actions (28, 32, 36, 40)
- Bicyclist Fatality Rates: State Comparison (9, 20, 24, 28, 32, 34, 36, 40)

Safety and pedestrians

- Pedestrian Risk Demographics (20, 36, 40)
- Pedestrian Fatality Federal Safety Benchmark (9, 40)
- Pedestrian Factors in Vehicle/Pedestrian Collisions (8, 28, 32, 36, 40)
- Pedestrian Fatality Rates by State (8, 16, 20, 24, 28, 32, 36)
- Pedestrian Safety in Washington (16, 32, 36, 40)
- Safe Routes to Schools Grant Program Status (9, 12, 40)
- 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)
- By Type of Road (26, 30, 34)

Safety Rest Areas

- Level of Service Trends (13, 17, 21, 25, 29, 33, 37)
- Locations and Amenities (9, 13, 17, 21, 25, 29, 33, 37)
- Preservation: Capital Investment Program (13, 17, 21, 29, 33, 37)
- Program Information (13, 17, 21, 25, 29, 33, 37)
- Survey (9, 17, 21, 25, 29, 33, 37)
- Truck Parking and Security (17, 21, 25, 33, 37)
- Usage (13, 17, 21, 25, 29, 33, 37)

Strategic Highway Safety Plan: *Target Zero* (34, 38)

Speeding Enforcement (23)

Special Features

- 2 Dots 2 Safety (23)
- Ecosystem Initiative Award (23)
- Eruption Watch (15)
- Guardrail Sign Mount (15)
- 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 (25-40)
- History of Incidence Response (16)
- 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)
- Clearance Times (2-5, 8-14, 16-39)
- Commercial Motor Vehicle (27-29, 33, 34, 37)
- Customer Comments (8)
- Economic Analysis (10, 39*)
- Extraordinary (6 hours +) Incidents (26-34, 36, 37, 40)
- Instant Tow Program (27, 28, 29, 36, 39*)
- Non-Collision Response Types (8-14, 19-40)
- Program Activities on Urban Commute Routes (15)
- Program: Construction Zone Traffic Management (19)
- Program: Types of Responses (9-14, 17-29, 40)
- 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)
- Teams: Location and Type (7)
- Then and Now (16)
- Time line (6)
- Times (2, 3, 4, 5)
- Total Number of Responses by Month (7-13, 15-18)

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

Gray Notebook Subject Index

Topic (*Edition*)

Traffic Operations on State Highways, Incident Response - continued

- Total Number of Responses by Quarter (19-23, 25-40)
- Incidents with Clearance Times Over 90 Minutes (6-14, 16, 18-40)
- Injury Collisions in Over 90 Minute Blocking Incidents (25, 26)
- Joint Operations Policy Statement (JOPS) between WSDOT and Washington State Patrol (5, 17)
- Number of Responses to Incidents (18, 20, 23-40)
- 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 (20-40)
- Response Modes (16)
 - Responses to Fatality Collisions (20-40)
 - 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)
- Funding and Value of Research Projects, Activities (34, 40)
- Number of Research Activities (34, 40)
- Number of Research Projects: Planned vs. Actual (34, 40)

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)
- Camera Views (7, 8)
- Other web-based tools (blog, YouTube, Twitter, podcasting, RSS, mobile internet)(26, 33, 37)
- 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)
- Website Daily Usage (7-14, 18-26, 28, 30, 33, 37)
- Website Feedback (8, 9)

Trucks, Goods, and Freight

- Air Cargo Forecast (25, 29, 33, 37)
- Automatic De-icers Help Keep Truckers Safe (16)
- CVISN - Commercial Vehicle Information Systems and Networks (15, 26, 29, 33, 37)
- Cross Border Truck Volumes (6, 10, 16, 21, 25, 29, 33, 37)
- Freight Industry Survey (16, 33)
- Freight Shipments To, From, and Within Washington (10)
- Impediments to Truck Shipping (6, 37)
- Intelligent Transportation Systems Use for Trucks (6, 10, 37)
- Managing Over-Sized Truck Loads (6)
- Marine Cargo Forecast (16, 21, 25, 29, 33, 37)
- Osoyoos/Oroville Border Facts (10)
- Over dimensional Trucking Permits (6, 16)
- Projects with Freight Benefits (10, 16, 21, 25, 29, 32-35)
- 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)
- Supply Chain Performance (25)
- Truck Registrations in Washington (6, 21, 25, 29, 33, 37)
- Truck Counts/Share of Total Daily Vehicle Volumes (6, 37)

Topic (*Edition*)

Worker Safety

- Accident Prevention Activities (14-21, 23-40)
- Compensation Claims (38)

Hearing Loss

- Focus Areas (26, 27, 28, 31, 33-40)
- Rate of Injury (35-40)

OSHA-Recordable Injuries

- Administrative Staff (35-40)
- Annualized Rate (22-36)
- By Type of Injury (28-40)
- Engineering and Maintenance Workers (1-21, 23-40)
- Ferry System Workers (2-21, 23-40)
- Fiscal-Year-to-Date (23-33)
- Quarterly Rate (22-27)
- WSDOT Regions and Ferry System (22-40)
- North American Association of Transportation Safety & Health Officials Meeting (3)

Sprains & Strains

- Focus Area (26, 27, 28, 31, 33-40)
- Rate of Injury (35-40)
- Work Days Lost to Injuries (38, 40)
- 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, 16-40)

Required Training

- For all WSDOT Employees (7-40)
- For Human Resources Personnel (35-36)
- For Maintenance Workers by Region (20-40)
- Workforce Levels (5-40)

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

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 on recycled paper and electrons.