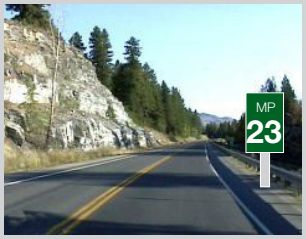
Washington State
Department of Transportation

Measures, Markers and Mileposts

The Gray Notebook for the quarter ending
September 30, 2006

WSDOT's quarterly report to the Governor and the
Washington State Transportation Commission
on transportation programs and department management

Douglas B. MacDonald
Secretary of Transportation



What Gets Measured, Gets Managed

This periodic report is prepared by WSDOT staff to track a variety of performance and accountability measures for review by the Transportation Commission and others. The content and format of this report is expected to develop over time. Information is reported on a preliminary basis as appropriate and available for internal management use and is subject to correction and clarification. The *Gray Notebook* is published quarterly in February, May, August, and November. For an online version of this or a previous edition of the *Gray Notebook*, visit www.wsdot.wa.gov/accountability.

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Measures, Markers and Mileposts

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23rd Edition, Published November 22, 2006

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Navigating the *Gray Notebook*

How is the *Gray Notebook* Organized?

Measures, Markers and Mileposts, also called the *Gray Notebook*, provides in-depth reviews of agency and transportation system performance. The report is organized into two main sections. The *Beige Pages* report on the delivery of the projects funded in the 2003 Transportation Funding Package, 2005 Transportation Funding Package, and Pre-Existing Funds. The *White Pages* describe key agency functions and provide regularly updated system and program performance information. The *Gray Notebook* is published quarterly in February, May, August and November. This edition and all past editions are available on-line at www.wsdot.wa.gov/accountability/default.htm

A separate detailed navigation folio is available at www.wsdot.wa.gov/publications/folio/GNBFolio.pdf

Beige Pages

The *Beige Pages* is WSDOT's project delivery performance report on the Nickel, Transportation Partnership Account, and Pre-Exisiting Funds project programs. It contains detailed narrative project summaries and financial information supporting WSDOT's "no surprises" reporting focus. See page one for details.

White Pages

The *White Pages* contain three types of transportation system and agency program performance updates:

Annual Performance Topics

System performance updates are rotated over four quarters based on data availability and relevant data cycles. Annual updates provide in-depth analysis of topics and associated issues. Examples include Pavement Condition, Congestion, and Bridge Condition.

Quarterly Performance Topics

Quarterly topics are featured in each edition since data is generally available more frequently. Quarterly topics include Worker Safety, Incident Response, Washington State Ferries, and Amtrak *Cascades*.

Special Topics

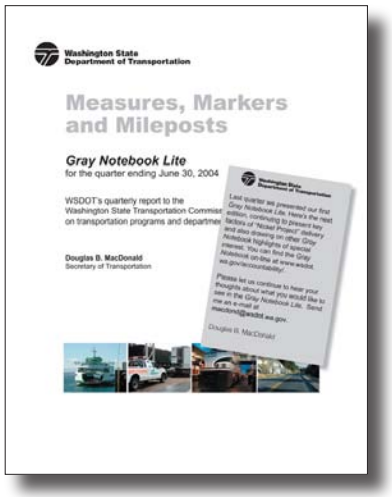
Selected Special Features and Program Highlights are provided in the back of each edition and focus on noteworthy items, special events, and innovations.

Tracking *Business Directions'* Results

WSDOT's business plan, *Business Directions,* outlines the agency's strategic initiatives and associated activities. It reflects WSDOT's program and project delivery responsibilities with the goal of demonstrating the best possible return for taxpayers' dollars. The *Gray Notebook* complements the plan and tracks progress of the six key initiatives. For a copy of *Business Directions*, please visit: http://www.wsdot.wa.gov/accountability/publications/StrategicPlanWEB.pdf

Gray Notebook Lite

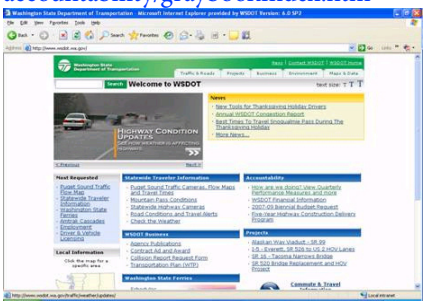
WSDOT publishes a quarterly excerpt of key performance topics and project delivery summaries from the *Gray Notebook*, called *Gray Notebook Lite*. *Lite* allows for a quick review and provides a short synopsis of selected topics. It is published as



a four page folio with a two page *Beige Page* summary insert and can be accessed at www.wsdot.wa.gov/accountability/graynotebook/Lite.pdf

How to Find Performance Information

The electronic subject index gives readers access to current and archived performance information. The comprehensive index is easy to use and instantly links to every performance measure published to date. Measures are organized alphabetically within program areas. A click on the subject topic and edition number provides a direct link to that page. A copy of the subject index is also provided in the back of each edition. To access the index electronically, visit www.wsdot.wa.gov/accountability/graybookindex.htm



Linking Measures to Strategic Objectives

The mission of WSDOT is to keep people and business moving by operating and improving the state's transportation systems vital to our taxpayers and communities.

WSDOT Strategic Plan

Business Directions: WSDOT's 2007-11 Strategic Plan is a summary of WSDOT's work plan based on the programs and budgets authorized by the State Legislature and the policies adopted by the Governor. The plan describes the agency strategic directions and initiatives that are part of WSDOT's program and service delivery mandates. The plan also reflects WSDOT's internal performance management needs, Priorities of Government (POG) responsibilities, the Government Management and Accountability Performance (GMAP) process, the Cabinet Strategic Action Plan, the Legislative Transportation Benchmarks, the OFM Budget Activities, and the Washington State Transportation Plan's current investment priorities.

WSDOT's Plan Supports Priorities of Government and Government Management Accountability and Performance (GMAP)

"Priorities of Government" (POG) is the statewide approach used by the Governor to identify results as the basis for budget decision-making. This approach facilitates strategic thinking and uses performance evidence to make investment choices that maximize results. POG looks at all state activities and how these activities contribute to the framework for the ten statewide results that citizens expect. WSDOT's GMAP forums support the POG process by evaluating and improving the effectiveness of POG activities and reporting its progress in the *Gray Notebook*. The agency's strategic plan (*2007-11 Business Directions*) supports the "Improve statewide mobility of people, goods, and services" POG.

WSDOT actively supports POG goals through the agency's six initiatives (objectives), defined in the agency's strategic plan (2007-11 Business Directions). By tracking the progress of WSDOT's initiatives with key performance measures, the *Gray Notebook* connects WSDOT's initiatives with statewide outcome goals. The table below shows the six WSDOT initiatives and key related performance measures, as well as where and how the results are reported. WSDOT's strategic plan is available at www.wsdot.wa.gov/accountability/publications/StrategicPlanWEB.pdf

Draft Cabinet Strategic Action Plan

The Cabinet Strategic Action Plan is the focus of the Governor's Cabinet performance reporting efforts for 2007. It is a management tool based on a series of discussions with citizens, cabinet agency staff, and the Governor's policy and budget staff. The Draft Cabinet Strategic Action Plan sets the following goals for WSDOT to accomplish by December 31, 2007:

- Complete 90% of highway projects on time and within budget.
- Preserve 97% of bridges and 90% of roads in good or satisfactory condition.
- Reduce congestion by clearing highway accidents quickly: Reduce the average length of over 90 minute incidents by 5% (in coordination with the Washington State Patrol).
- Reduce highway fatalities by 4% (in coordination with the Washington State Patrol).

The *Gray Notebook* tracks results as indicated in the table below.

WSDOT Strategic Initiative	Linked to:	Key Performance Measure	Reporting Cycle	Last Report[1]
1. Manage and operate state transportation facilities to improve the safety and reliability of state transportation systems for the benefit of travelers, shippers, and communities.	Highway Safety	Fatality rates (Vehicle, Bicyclists, Pedestrian) Before and After collision analysis for safety projects Cabinet Strategic Action Plan Measure: Reduce highway fatalities by 4%	Annual	GNB 20 pp. 54-55
	Incident Response	Number of over 90 min incidents; average clearance time Cabinet Strategic Action Plan Measure: Reduce the average length of over 90 minute incidents by 5%	Quarterly	pp. 75-77
	Delay and Congestion	Travel time performance for 35 Puget Sound routes; 95% Reliable Travel Time Duration of congestion	Annual	pp. 54-77
	Amtrak *Cascades*	Percent of trips on-time	Quarterly	pp. 93
	Ferries	Percent of trips on-time	Quarterly	pp. 89-92

Linking Measures to Strategic Objectives

WSDOT Strategic Initiative	Linked to:	Key Performance Measure(s)	Reporting Cycle	Last Report[1]
2. Maintain structures, facilities, support systems, and services to optimize their short-term and long-term usefulness and enhance environmental performance in highway and ferry operations.	Highway Maintenance	Rating for 33 maintenance activities tracked through the Maintenance Accountability Process (MAP)	Annual	GNB 20, p. 58
3. Deliver asset and rehabilitation projects to preserve the state's existing infrastructure assets and utilize lowest lifecycle approaches to extend their useful life.	Ferries	Life Cycle Preservation Performance: Planned projects vs. actual systems/structures preserved, change in cost rating	Quarterly	p. 91
	Pavement Conditions	Percent of pavement in good, fair, or poor condition (cumulative and by type) Cabinet Strategic Action Plan Measure: Maintain 90% of roads in good or satisfactory condition	Annual	GNB 20 p. 37
	Bridge Conditions	Percent of bridges in good, fair, or poor condition (cumulative) Cabinet Strategic Action Plan Measure: Maintain 97% of bridges in good or satisfactory condition	Annual	pp. 49-53
4. Deliver high quality capital projects that add to and improve the state's transportation systems on-time and on-budget.	Capital Project Delivery Programs	Planned vs. actual results of scope, schedule and budget Cabinet Strategic Action Plan Measure: Complete 90% of highway projects on time and within budget	Quarterly	pp. 1-6
5. Communicate transportation system performance and WSDOT agency performance to the public through clear and consistent project delivery and program management reporting.	Performance Reporting	The *Gray Notebook* (Governor, WSTC, Public) GMAP Quarterly Review (Governor) Benchmarks Report (Legislature, WSTC) Priorities of Government (OFM) Budget Activities (OFM)	Quarterly Quarterly Annual Biannual Quarterly	
6. Assure the capability, efficiency, and safety of WSDOT's workforce.	Workforce Training	Compliance ratings for 25 statutory training courses	Quarterly	pp. 46-47
	Workforce Safety	Recordable injuries per 100 workers per calendar year	Quarterly	pp. 43-45

[1]When no *Gray Notebook* edition is indicated above, the measure can be found in this edition of the *Gray Notebook*. Previous editions are available in the *Gray Notebook* Subject Index at www.wsdot.wa.gov/accountability/graybookindex.htm. When viewing this report electronically, edition numbers are hyperlinked to the respective *Gray Notebook* article.

Transportation Benchmarks

In 2002, the Legislature passed RCW 47.01.012, instituting the transportation benchmarks recommended in 2000 by the Governor-appointed Blue Ribbon Commission on Transportation. The benchmarks require WSDOT to report performance data related to nine policy elements (see list below) to the Legislature and the Washington State Transportation Committee.

The benchmarks track transportation performance at a high level, and reflect social goals that are important to the health and safety of Washington State citizens, and to the efficiency of our state's transportation system. WSDOT does not have control over some of these benchmarks, for instance, the number of people who travel alone to work, or the number of miles they drive. Similarly, WSDOT works for citizens to meet their transportation needs by improving roadway, bridge, congestion, and safety conditions. The benchmark report is updated and published annually in the June edition of the *Gray Notebook*.

- Safety
- Roadway Pavement Condition
- Bridge Condition
- Non-Auto Share of Commute Trips
- Per Capita Vehicle Miles Traveled
- Administrative Efficiency
- Traffic Congestion and Driver Delay
- Transit Cost Efficiency

Information regarding Benchmarks can be found at:

Gray Notebook Special Excerpt: Transportation Benchmarks 2006 Report: www.wsdot.wa.gov/accountability/benchmarks/default.htm

Annual Transportation Benchmarks Report: June 30, 2006 GNB, www.wsdot.wa.gov/accountability/Archives/graynotebookJun-06.pdf

Benchmarks Implementation Report: www.wsdot.wa.gov/accountability/benchmarks/BenchmarksImplementationReport.pdf

Project Reporting on the Capital Project Delivery Program

Introduction

WSDOT prepares information for legislators, state, and local officials, interested citizens and the press on the progress of the capital delivery program, including the 2003 Transportation Funding Package, the 2005 Transportation Funding Package, and the Pre-Existing Funds Program. Much of the detailed information can be found on-line at the WSDOT website. The *Gray Notebook*, in these special *Beige Pages*, highlights each quarter's progress and reports on financial and other program management topics as well as detailed information on key projects.

The *Beige Pages* for this quarter are organized in the following manner:

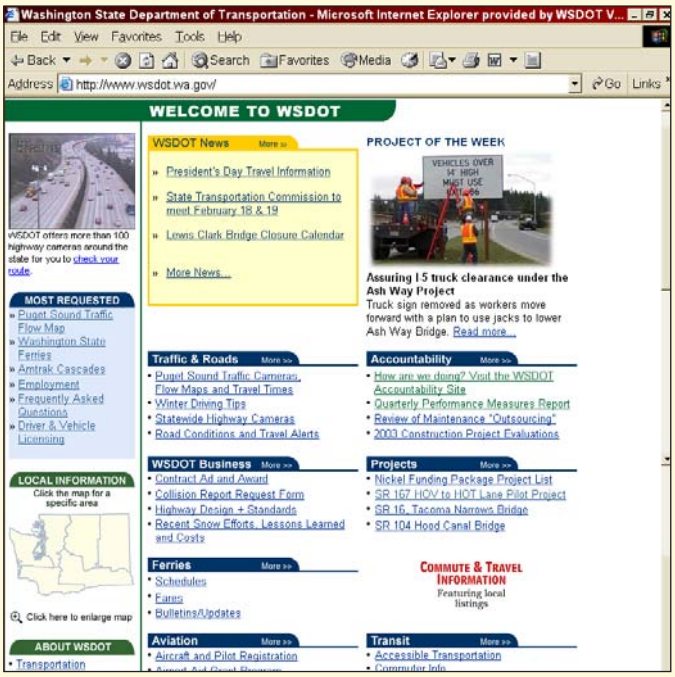
- Overview of the Three Capital Delivery Mandates
- 2003 and 2005 Transportation Funding Package Project Delivery
- Financial Information
- Pre-Existing Funds
- Special Project Updates
- Cross-Cutting Management Issues

We welcome suggestions and questions that can help us strengthen this project delivery and accountability reporting.

Overall, WSDOT's project reporting uses several different tools, including the *Gray Notebook*, 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.

Navigation to the Home Page and the Project Pages

The Home Page (shown below) has several links that allow access to the individual Project Pages. The Accountability navigation bar provides access to the on-line version of the *Gray Notebook* which provides some project "hot links." The Projects navigation bar provides direct links to several of the state's largest projects and access to WSDOT's Projects Page. The Projects Page can also be accessed from any WSDOT web page by clicking on the "projects" tab at the top of every page. WSDOT's home page can be found at www.wsdot.wa.gov/.

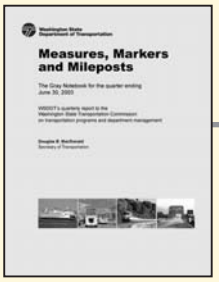


While WSDOT has developed user-friendly reports and front end applications to access project information on-line, it is important to note that the data used to generate these reports comes from antiquated legacy mainframe computer systems. Although the quality of the data is good, the time and effort needed to compile, verify and validate the data in these reports each quarter is considerable (in other words, these reports are the result of much manual input and effort, not the output of a modern project management information system).

This overall issue was addressed in two recently completed reports: one from the Joint Legislative Audit Review Committee titled, "Overview of Washington State Department of Transportation Capital Project Management" and a second report, commissioned by the Transportation Performance Audit Board, titled "Review of WSDOT's Use of Performance Measurement." In each of these reports, a key recommendation was made to conduct an assessment of the effectiveness of current information systems and options for addressing any deficiencies.

Project Reporting on the Capital Project Delivery Program

Project Information Roadmap



Home Page

Gray Notebook

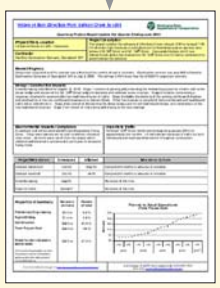
Project Pages

Project Pages report on all WSDOT capital delivery program projects. Project Pages provide detailed information updated regularly:

- Overall Project Vision
- Financial Table, Funding Components
- Roll-up Milestones
- Roll-up Cash Flow, Contact Information
- Maps and Links QPR
- Quarterly Project Reports

Quarterly Project Reports (QPRs) summarize quarterly activities:

- Highlights
- Milestones
- Status Description
- Problem Statement
- Risks and Challenges
- Project Costs/Cash Flow
- Contact Information



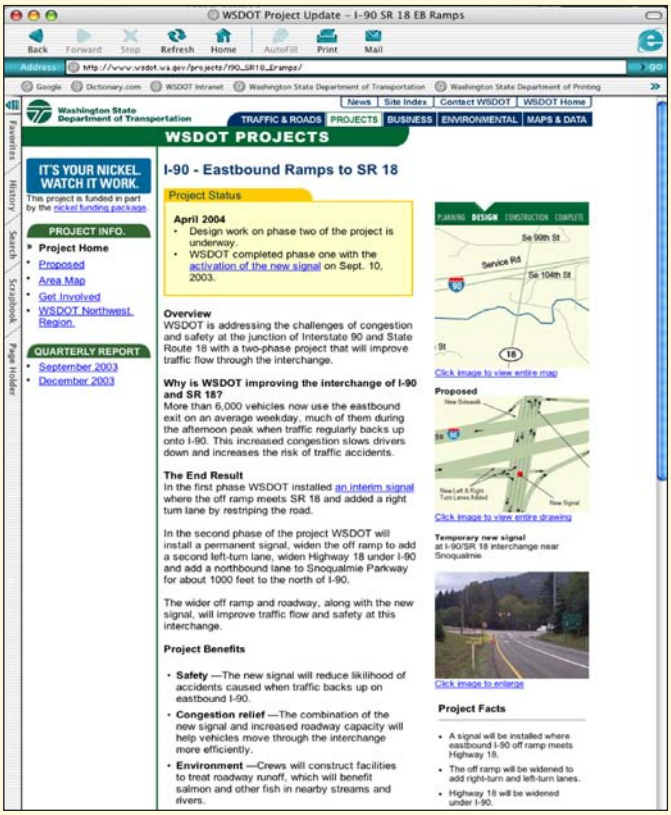
Project Pages

Project Pages contain information on all aspects of a specific project. An existing Project Page is shown below.

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.

The Quarterly Project Reports are accessible through a link on the Project Page.

Project Pages provide a summary of the project status to date and are updated regularly to the best of WSDOT's ability. Project Pages can be found at www.wsdot.wa.gov/projects/



WSDOT'S Capital Project Delivery Programs

Executive Summary: Roll-Up of Performance Information

Each quarter WSDOT provides a detailed update on the delivery of the highway capital programs through the *Gray Notebook*, and via the web through the Project Pages and Quarterly Project Reports. As WSDOT's primary delivery report, the *Gray Notebook* includes the *Beige Pages* for the purpose of providing the current status of the Capital Improvement and Preservation Programs: major Pre-Existing Fund (PEF) projects, the projects funded by the 2003 5-cent gas tax (Nickel), and the 2005 9 1/2-cent gas tax (Transportation Partnership Account, TPA).

Since PEF projects are budgeted by program for improvement and preservation of the highway system, the delivery of the work included in the 727 PEF projects is reported programmatically six program categories of work. By contrast, each of the 124 Nickel and 165 TPA projects funded in the 2005-07 biennium has a line item budget and is monitored and reported at the individual project level. Note the program budgets for PEF, Nickel, and TPA have been updated from previous *Gray Notebook* editions based on the 2006 Supplemental Budget.

Performance Information *As of September 30, 2006, Dollars in Thousands*	**Nickel (2003)**	**Transportation Partnership Account (TPA, 2005)**	**Combined Nickel & TPA**	**Pre-Existing Funds**
Total Biennial Number of Projects (2005-07)	124	165	289	727
Total Biennial Program (2005-07)	$1,162,457	$384,106	1,546,563	$1,036,798
Schedule, Scope and Budget Summary: Results of Completed Projects				
	See Pages 3-6	See Pages 3-6	See Pages 3-6	NA
Cumulative to Date, 2003 – September 30, '06				
Total Completed	39	17	56	-
% Completed Early or On-Time	95%	88%	93%	-
% Completed Within Scope	100%	100%	100%	-
% Completed Under or On-Budget	92%	82%	89%	-
% Completed On-Time and On-Budget†	87%	71%	82%	
Current Legislative Expectation (Baseline)	$302,652	$9,393	$312,045	-
Current Estimated Cost to Complete (WSDOT)	$300,201	$9,998	$310,199	-
Biennium to Date, 2005-07				
Total Completed	20	17	37	221
% Completed Early or On-Time	90%	88%	89%	-
% Completed Within Scope	100%	100%	100%	-
% Completed Under or On-Budget	95%	82%	89%	-
% Completed On-Time and On-Budget†	85%	71%	78%	
Current Legislative Expectation (Baseline)	$184,077	$9,393	$193,470	$448,064
Current Estimated Cost to Complete (WSDOT)	$181,753	$9,998	$191,751	$481,386
Advertisement Record: Results of Projects Under Construction or Entering into the Construction Phase				
	See Pages 7-9	See Pages 7-9	See Pages 7-9	See Pages 7-9
Biennium to Date, 2005-07				
Total Advertised	25	4	29	158
% Advertised Early or On-Time	88%	75%	86%	84%
Total Award Amounts to Date	$137,682	$18,459	$156,141	NA
Advertisement Schedule for Projects in the Pipeline: Results of Projects Now Being Advertised for Construction or Planned to be Advertised				
	See Pages 10-11	See Pages 10-11	See Pages 10-11	See Page 10-11
July 1, 2006 through December 31, 2006				
Total in Pipeline	18	23	41	99
% On or Better than Schedule	89%	100%	95%	-

†New Measure: Reflects Draft Cabinet Strategic Action Plan Measure

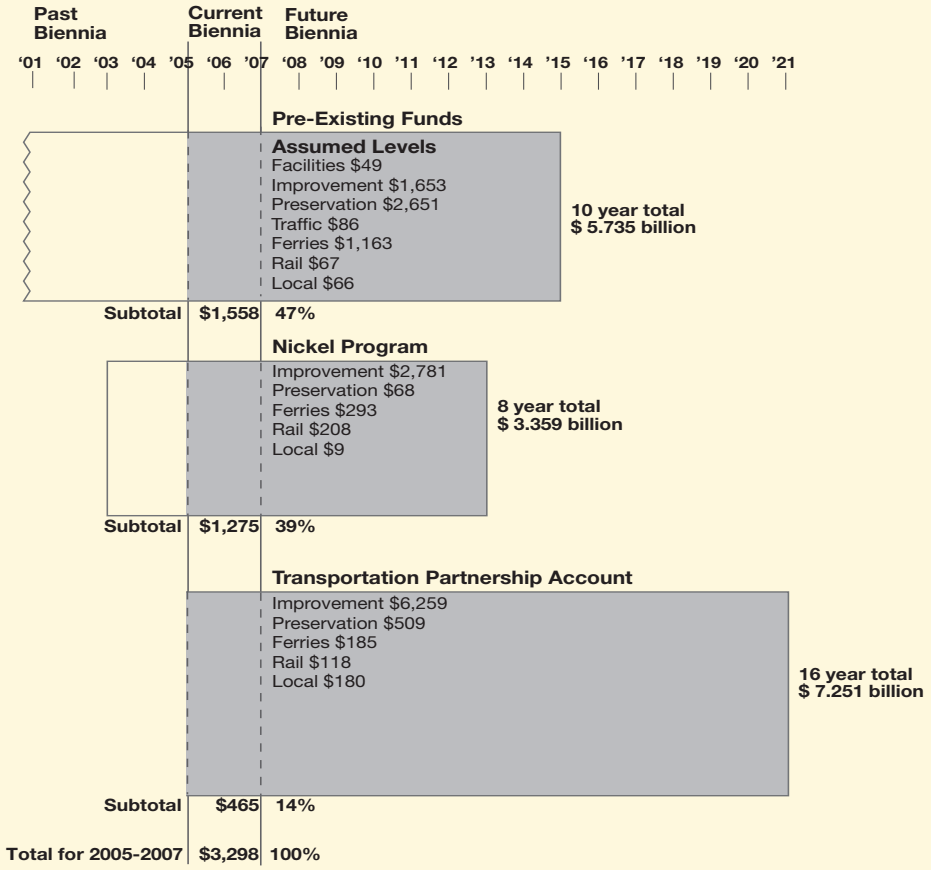
WSDOT's Capital Project Delivery Programs

Overview of WSDOT's Three Capital Project Delivery Mandates

WSDOT's Capital Program: Current and Future Biennium Outlook

2006 Supplemental Budget

Dollars in Millions



2005-07 Capital Delivery Program

The Department's 2005-07 capital program focuses on project and program delivery from all fund sources. WSDOT continues to move forward with the 10-year investment plan for the 2003 Transportation Funding Package as well as beginning the 16-year investment plan associated with the 2005 Transportation Funding Package.

In the 2005-07 biennium, based on the 2006 supplemental budget, capital funds total approximately $3.3 billion. Approximately $1.275 billion will be spent on projects associated with the 2003 Funding Package (Nickel), $465 million will be invested in projects from the 2005 Funding Package (Transportation Partnership Account), and $1.558 billion will be invested from pre-existing funding sources.

2005-07 Transportation Budget, Section 603

Section 603 of the Transportation Budget authorizes the Office of Financial Management (OFM) to make funding adjustments to capital projects under certain circumstances. On September 20, 2006, OFM approved $9.6 million TPA, $18.5 million Nickel, and $12 million Multimodal transfers; totaling $40.1 million as the final action of the first "Section 603" process. The Department has identified projects that were under spending this biennium, in both the Transportation Partnership Account (TPA) and the Nickel Account to offset the increases authorized by the transfers. The Department's request for adjustments is within the legislatively-approved budget and does not exceed the current biennial appropriation.

The funding adjustment request is necessary to correct specific project budget shortfalls that impede the ability to successfully deliver those capital projects. The biennial funding shortfalls were the result of recent construction materials cost escalation, increased preliminary engineering effort, inflation, and difficulty acquiring right-of-way.

WSDOT Capital Project Delivery Programs

Schedule, Scope and Budget Summary

Fifty-Six Projects Completed as of September 30, 2006

Funded with Nickel and Transportation Partnership (TPA) Accounts
Dollars in Thousands

Capital projects are identified as reportable or non-reportable according to legislative requirements. Over the past several months, the Department has completed a comprehensive review of the projects and has updated the project reporting database with the most current data (e.g., milestones, project budget information) for all projects identified as reportable on the Legislative Evaluation and Accountability Program (LEAP) list. As new biennial and supplemental capital program budgets are approved by the Legislature, and as projects are completed, the number of projects (and their respective milestones) being reported will be updated. The following reflects 2006 Supplemental Budget expectations.

Project Description	Fund Type*	On-Time Advertised	On-Time Completed	Within Scope	Current Legislative Expectation (Baseline)	Current Estimated Cost to Complete (WSDOT)	On-Budget**	On-Time and on Budget**†
Cumulative to Date								
I-5/Puyallup River To Fife Interchange	Nickel	✓	✓	✓	338	262	Under	✓
SR 9/SR 528 Intersection - Signal	Nickel	✓	Early	✓	750	751	✓	✓
SR 18/Covington Way to Maple Valley	Nickel	✓	✓	✓	68,525	68,504	✓	✓
SR 25/Guardrail Improvements	Nickel	✓	Early	✓	1,104	1,020	Under	✓
I-90/Bridge Rail Retrofit, Elk Heights Rd Br 90/147	Nickel	✓	✓	✓	117	102	Under	✓
I-90/CLE Elum River Br. 90/134 N	Nickel	✓	✓	✓	1,272	789	Under	✓
I-90/Bridge Rail Retrofit, Thorp Prairie Rd	Nickel	✓	✓	✓	68	55	Under	✓
I-90/Highline Canal to Elk Heights	Nickel	✓	✓	✓	4,666	4,961	Over[1]	
I-90/Ryegrass Summit to Vantage	Nickel	Early	✓	✓	9,316	9,615	✓	✓
I-90/Geiger Road To US 2 Median Barrier	Nickel	Early	Early	✓	781	760	✓	✓
I-90/Sullivan-State Line Median Barrier	Nickel	Early	Early	✓	817	772	Under	✓
U.S. 97A/Entiat Park Entrance - Turn Lanes	Nickel	✓	✓	✓	196	137	Under	✓
SR 124/East Jct. Sr 12 - Reconstruction	Nickel	✓	✓	✓	317	308	✓	✓
I-182/U.S. 395 I/C- Roadside Safety	Nickel	✓	✓	✓	86	69	Under	✓
SR 203/NE 124th/Novelty Rd. Vic.	Nickel	✓	Early	✓	3,634	3,643	✓	✓
SR 231/Spokane River Bridge 231/101 Thrie Beam	Nickel	✓	Early	✓	147	148	✓	✓
U.S. 395/Kennewick Variable Message Sign	Nickel	✓	✓	✓	357	378	Over[2]	

Table and footnotes continue on the following page

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†New Measure: Reflects Draft Cabinet Strategic Action Plan Measure

WSDOT Capital Project Delivery Programs

Schedule, Scope and Budget Summary

Fifty-Six Projects Completed as of September 30, 2006

Funded with Nickel and Transportation Partnership (TPA) Accounts, Dollars in Thousand

Project Description	Fund Type*	On-Time Advertised	On-Time Completed	Within Scope	Current Legislative Expectation (Baseline)	Current Estimated Cost to Complete (WSDOT)	On Budget**	On-Time and on Budget**†
U.S. 395/Nordhein Road Vicinity Guardrail	Nickel	✓	✓	✓	49	44	Under	✓
SR 500/NE 112th Ave. - Interchange	Nickel	Early	✓	✓	26,035	26,130	✓	✓
Biennium to Date (2005-07)								
NC Region Guardrail Improvement	Nickel	✓	Early	✓	$849	$851	✓	✓
I-5/NE 175th St. to NE 205th St - Northbound Auxiliary Lane	Nickel	✓	Early	✓	8,915	8,915	✓	✓
I-5/300th Street NW Vicinity to Anderson Rd Vicinity	TPA	Early	Early	✓	1,288	1,288	✓	✓
I-5/2nd Street Bridge - Replace Bridge	Nickel	✓	Early	✓	14,333	14,412	✓	✓
I-5/SR 11 Vicinity to Weigh Station Vicinity	TPA	Early	Early	✓	436	436	✓	✓
I-5/SR 11 to 36th Street - Median Cross Over Protection	TPA	Early	Early	✓	68	68	✓	✓
I-5/SR 542 Vicinity to Bakerview Road	TPA	Early	Early	✓	202	202	✓	✓
I-5/Main Street to SR 548 - Median Cross Over Protection	TPA	Early	Early	✓	409	409	✓	✓
I-5/Blaine Vicinity - Median Cross Over Protection	TPA	✓	Early	✓	245	245	✓	✓
I-5/Roanoke Vicinity Noise Wall	Nickel	✓	Late[3]	✓	3,764	3,764	✓	
U.S. 12/SR 124 to McNary Pool - Add Lanes	Nickel	✓	✓	✓	12,299	12,198	✓	✓
SR 18/SE 304th to SR 516 - Median Cross Over Protection	TPA	Early	Early	✓	250	250	✓	✓
I-90 /Silica Road to East of Adams Road - Median Cross Over Protection	TPA	Early	Early	✓	322	294	Under	✓
I-90/SR 17 to Grant/Adams County Line - Median Cross Over Protection	TPA	Early	Early	✓	787	749	✓	✓
I-90/Pines Road to Sullivan Road-Widening	Nickel	Early	✓	✓	17,894	17,894	✓	✓
I-90/Argonne Road to Pines Road-Widening	Nickel	Early	✓	✓	18,468	18,386	✓	✓
SR 105/Smith Creek Bridges - Bridge Rail Retrofit	Nickel	✓	✓	✓	514	514	✓	✓
SR 105/ Smith Creek Bridge to Alexson Road Guardrail Upgrade	Nickel	✓	✓	✓	314	314	✓	✓
SR 106/Skobob Creek - Fish Passage	Nickel	✓	✓	✓	1,777	1,777	✓	✓

Table and footnotes continue on the following page

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WSDOT Capital Project Delivery Programs

Schedule, Scope and Budget Summary

Fifty-Six Projects Completed as of September 30, 2006

Funded with Nickel and Transportation Partnership (TPA) Accounts
Dollars in Thousand

Project Description	Fund Type*	On-Time Advertised	On-Time Completed	Within Scope	Current Legislative Expectation (Baseline)	Current Estimated Cost to Complete (WSDOT)	On Budget**	On-Time and on Budget**†
SR 161/204th Street to 176th Street - Widening	Nickel	Late[4]	Early	✓	16,789	16,240	✓	✓
SR 161/234th Street to 204th Street E - Widening	Nickel	✓	Early	✓	17,231	17,231	✓	✓
SR 167/SR 410 To Pierce/King County Line - Median Cross Over Protection	TPA	Early	Late[5]	✓	487	487	✓	
SR 410/Traffic Ave. to 166th Ave East - Median Cross Over Protection	TPA	Early	Late[6]	✓	245	245	✓	
SR 522/North Creek Vicinity to Bear Creek Vicinity	TPA	Early	Early	✓	271	273	✓	✓
SR 527/132nd St. SE to 112th St. SE - Widen to Five Lanes	Nickel	✓	Late[7]	✓	20,933	20,960	✓	
Current Quarter (Ending September 30, 2006)								
U.S. 12/Vicinity Montesano to Elma - Median Cross Over Protection	TPA	✓	Early	✓	1,620	2,091	Over[8]	
SR 14/Two Bridge Rail Retrofits Vancouver East	Nickel	✓	✓	✓	340	323	Under	✓
SR 16/36th St. to Olympic Dr. NW - Core HOV	Nickel	Early	Early	✓	8,914	8,901	✓	✓
SR 21, 23, 27, & 272 Guardrail Improvements	Nickel	✓	Early	✓	858	785	Under	✓
I-90 Potato Hill Bridge Bicycle and Pedestrian Bridge	TPA	✓	✓	✓	750	750	✓	✓
I-90/Moses Lake Area - Bridge Clearance	Nickel	✓	Early	✓	8,056	8,005	✓	✓
U.S. 97 Kittitas, Chelan and Okanogan Counties Roadside Safety Improvement	TPA	✓	Early	✓	1,000	1,050	Over[9]	
SR 99/SR 599 to Holden Street - Median Cross Over Protection	TPA	Late	Early	✓	380	380	✓	✓
SR 161/Jovita Blvd. to S. 360th St.- Widen to Five Lanes, Stg 2	Nickel	✓	Early	✓	30,164	28,564	Under	✓
SR 194/Guardrail Improvements	Nickel	✓	✓	✓	1,079	1,135	Over[11]	
SR 202/Jct. 292nd Ave. SE	Nickel	✓	✓	✓	586	584	✓	✓
I-205/Mill Plain SB Off Ramp Improvements	TPA	Early	Early	✓	633	781	Over[12]	

Table and footnotes continue on the following page

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WSDOT Capital Project Delivery Programs

Schedule, Scope and Budget Summary

Fifty-Six Projects Completed as of September 30, 2006

Funded with Nickel and Transportation Partnership (TPA) Accounts
Dollars in Thousand

	% On-Time Advertised	% On-Time Completed	% Within Scope	Current Legislative Expectation (Baseline)	Current Estimated Cost to Complete (WSDOT)	% of Projects On Budget	% of Projects On-Time and Budget
Totals Current Quarter (September 30, 2006)	92%	100%	100%	$54,380	$53,349	67%	67%
7 Nickel Projects	100%	100%	100%	$49,997	$48,297	86%	86%
5 TPA Projects	80%	100%	100%	$4,383	$5,052	40%	40%
Totals Biennium to Date (2005-07)	95%	89%	100%	$193,470	$191,751	89%	78%
20 Nickel Projects	95%	90%	100%	$184,077	$181,753	95%	85%
17 TPA Projects	94%	88%	100%	$9,393	$9,998	82%	71%
Totals Cumulative to Date**	96%	93%	100%	$312,570	$310,199	89%	82%
39 Nickel Projects	97%	95%	100%	$312,045	$300,201	92%	87%
17 TPA Projects	94%	88%	100%	$9,393	$9,998	82%	71%

*As established by the 2005 Legislative Evaluation and Accountability Program (LEAP) committee. However, dollars shown are for all fund types, not just Nickel or Transportation Partnership Account funds.
**Based on cost at Operationally Complete milestone; will be updated based on final contract close-out cost, to be reported in future quarters.
†New Measure: Reflects Draft Cabinet Strategic Action Plan Measure

Source: WSDOT Project Control and Reporting Office

Definitions

On-Time Advertised
The project was advertised within the quarter as planned based on the original Legislative expectation (2003-05 Nickel, 2005-07 TPA).
On-Time Completed
The project was operationally complete within the quarter as planned in the original Legislative expectation (2003-05 Nickel, 2005-07 TPA).
Within Scope
The project was completed within the specific functional intent of a project as last approved by the Legislature.
On-Budget
The project was within +/- five percent of the current Legislative expectation (baseline).
Section 603 of the 2006 Supplemental Budget provides the Director of the Office of Financial Management flexibility to balance Nickel and TPA funded project cost increases and decreases between projects, and to balance cash flow between biennia near biennial lines, as long as the adjustment does not impact the overall delivery of the program and does not involve changing the scope of any funded project.

Project Details:

[1]This project was previously reported on-budget but is now identified as over-budget. After the project was awarded, the construction cost was revised to reflect the lower-than-anticipated bid. However, during excavation for the new lane, a large amount of saturated clay -- unsuitable roadway material -- was found. The cost increase put the project construction total 1.5% over the original allocation but 7% over the revised budget.

[2]Contract bid was slightly higher than historical costs for this type of work.

[3]The noise wall panels, designed per agreement with the neighborhood, required a longer time for approval and procurement than anticipated by the design office.

[4]This project was the second of a two-stage project. The advertisement date was delayed to better accommodate construction work and lessen impacts to the public.

[5]This project combined and advertised as a statewide contract for efficienicy which resulted in a savings.

[6]This project combined and advertised as a statewide contract for efficienicy which resulted in a savings.

[7]The Open to Traffic date was originally planned for March 2006; however, the contractor was not able to complete the final layer of asphalt pavement on time.

[8]Increase due to extensive slope work that was required.

[9]Increase due to materials cost escalation for guardrail items. Due to the rounding of dollar amounts, project costs calculate to be on budget. This project is 5.015% over budget.

[10]Advertisement delayed to complete Shoreline Permitting requirements.

[11]Increase in construction cost due to higher cost for placing crushed surface base coarse material used for guard rail installation.

[12]Increase in construction cost due to higher fuel and asphalt prices.

WSDOT's Capital Project Delivery Programs

Advertisement Record

Forty- Seven Projects Now in Construction as of September 30, 2006

Nickel Program and Transportation Partnership Account (TPA) Projects, Dollars in Thousands

Project Description	Fund Type*	On-Time Advertised	Ad Date	Contractor	Operationally Complete Date	Award Amount
Cumulative to Date Projects Underway						
I-5/Pierce Co. Line to Tukwila I/C - HOV	Nickel	Early	Nov-04	ICON, A Division of CPM	May-07	35,847
I-5/SR 526 to Marine View Drive - HOV Lanes	Nickel	Early	Oct-04	Atkinson	Jun-08	184,993
I-5/41st St Interchange Improvements	TPA	Early	For construction efficiencies, this project was combined with the one above.			
I-5/S 48th to Pacific Avenue - Core HOV	Nickel	✓	Mar-05	Kiewit Pacific	Jun-08	72,869
I-5/Salmon Creek to I-205 - Widening	Nickel	Early	May-03	Hamilton Construction	Oct-06	25,921
SR 7/SR 507 to SR 512 - Safety	Nickel	✓	Jun-05	Scarsella	Apr-07	13,745
SR 9/SR 522 to 228th St. SE - Widening	Nickel	✓	Jan-96	Wilder	Jun-07	17,993
SR 9/228th St. SE to 212th St. SE (SR 524) Widening, Stg 2	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
SR 16/I-5 to Tacoma Narrows Bridge - HOV	Nickel	✓	Mar-04		Jun-07	
• Sprague I/C to Snake Lake	PEF		Oct-00	Mowat	Dec-03	16,301
• SR 16/6th Ave to Jackson Ave - HOV	Nickel		Nov-03	Tri-state	Nov-04	4,040
• SR 16/Union Ave to Jackson Ave - HOV	Nickel		Mar-04	Tri-state	Jun-07	47,295
SR 18/Maple Valley to Issaquah/Hobart Rd.	Nickel	✓	May-03	Atkinson	Nov-06	55,905
SR 24/I-82 to Keys Road - Add Lanes	Nickel	Early	Feb-05	Max J. Kuney	Dec-07	33,964
SR 31/Metaline Falls to Int`l Border	Nickel	✓	Sep-04	M. A. Deatley	Oct-06	10,989
I-90/Eastbound Ramps to SR 18 - Signal	Nickel	✓	Sep-03	KLB	Oct-07	2,599
SR 104/Hood Canal Bridge East Half	TPA	✓	Feb-03	Kiewit Pacific	Jun-09	204,000
SR 202/244th Avenue NE Intersection	Nickel	✓	Feb-05	Tri-State	Oct-06	463
SR 240/I-182 to Richland Y - Add Lanes	Nickel	✓	Dec-04	Icon	Oct-07	30,473
SR 240/Richland Y to Columbia Center I/C - Add Lanes	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
NSC-Francis Avenue to Farwell Road - Construct New Roadway	Nickel	Late[1]	Jan-04		Mar-09	
• NSC-Farwell Road Lowering	Nickel		Jan-04	Max J. Kuney	Jul-05	4,976
• NSC-Gerlach to Wandermere: Grading/CN	Nickel		Nov-04	KLB	Sep-06	9,987
• NSC-Francis Ave to US 2 Structures: REBID	Nickel		May-06	Max J. Kuney	Oct-07	17,236
Biennium to Date (2005-07)						
SR 3/SR 303 I/C (Waaga Way) - New Ramp	Nickel	✓	Aug-05	Scarsella	Sep-07	16,744
I-5/52nd Ave. W. to SR 526 - SB Safety	Nickel	✓	Mar-06	Wilder	Jun-07	5,710
I-5/SR 532 Northbound Interchange Ramps	Nickel	✓	Mar-06	Trimaxx	Nov-06	3,769
I-5/SB Ramps at SR 11/Old Fairhaven Parkway - Add Ramp Lane	Nickel	✓	Feb-06	Wilder	Dec-06	1,320

*As established by the 2005 Legislative Evaluation and Accountability Program (LEAP) committee. However, dollars shown are for all fund types, not just Nickel or Transportation Partnership Account funds

WSDOT's Capital Project Delivery Programs

Advertisement Record

Forty-Seven Projects Now in Construction Phase as of September 30, 2006

Nickel Program and Transportation Partnership Account (TPA) Projects, Dollars in Thousands

Project Description	Fund Type*	On-Time Advertised	Ad Date	Contractor	Operationally Complete Date	Award Amount
SR 9/Nooksack Rd. Vic. to Cherry St.	Nickel	✓	Dec-05	Imco General	Nov-07	8,999
Guardrail Upgrade - Columbia, Garfield and Whitman Counties	Nickel	✓	Oct-05	Frank Gurney	Mar-07	1,846
Guardrail Upgrade - Benton, Franklin & Walla Walla Counties	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
Guardrail Upgrade - Benton, Franklin & Walla Walla Counties	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
SR 24/Vernita Bridge Rail Retrofit	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
Guardrail Upgrade - Benton, Franklin and Walla Walla Counties	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
Guardrail Upgrade - Columbia, Garfield and Whitman Counties	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
Guardrail Upgrade - Columbia, Garfield and Whitman Counties	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
Guardrail Upgrade - Benton, Franklin & Walla Walla Counties	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
Guardrail Update - Columbia, Garfield & Whitman Counties	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
Guardrail Upgrade - Yakima County	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
Guardrail Upgrade - Benton, Franklin & Walla Walla Counties	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
Guardrail Upgrade - Yakima County	Nickel	✓	For construction efficiencies, this project was combined with the one above.			
U.S. 12/Attalia Vic. - Add Lanes	Nickel	✓	Dec-05	Apollo	Dec-07	11,222
SR 16/NW of Tacoma Narrows to SE of Burley/Olalla - Median Cross Over	TPA	Late[2]	May-06	Petersen	Jan-07	3,508
SR 17/Pioneer Way to Stratford Road - Widen to Four Lanes	TPA	✓	May-06	Central Washing-ton Asphalt	Jun-07	14,607
SR 99/S. 284th to S. 272nd St. - HOV	Nickel	✓	Apr-06	SCI Infrastructure	Dec-07	8,615
SR 167/Ellingson Rd. I/C NB Off Ramp	Nickel	✓	Feb-06	Signal Electric	Oct-06	357
SR 167/15th St SW to 15th St NW - HOV	Nickel	✓	Dec-05	Icon	Dec-07	27,849
SR 270/Pullman to Idaho State Line - Widen Roadway and Add Lanes	Nickel	Late[3]	Mar-06	North Central	Oct-07	18,090
SR 509/I-5 Freight & Congestion Relief	TPA	✓	Nov-05	Tri-State	Jun-09	344
SR 516/208th and 209th Ave SE	Nickel	Late[4]	Jan-06	Road	Apr-07	678

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WSDOT's Capital Project Delivery Programs

Advertisement Record

Forty- Seven Projects Now in Construction as of September 30, 2006

Nickel Program and Transportation Partnership Account (TPA) Projects, Dollars in Thousands

Project Description	Fund Type*	On-Time Advertised	Ad Date	Contractor	Operationally Complete Date	Award Amount
SR 522/I-5 to I-405 Multi-modal Project	TPA	Early	Jun-06		Jun-09	
• SR 522 Corridor Improvement, 153 RD Signal & Roadway Widening	Nickel		Jun-06	Tri-state	Nov-07	4,038
SR 543/I-5 to International Bndry	Nickel	Late[5]	Nov-05	Imco General.	Oct-08	28,315
Quarter Ending Septmeber 30, 2006						
SR 122/ Cinebar Road to Jerrells Road-Guardrail Upgrade	Nickel	Early	Jul-06	Petersen	Dec-06	130
Totals current Quarter (September 30, 2006)		100%				130
1 Nickel Projects		100%				130
0 TPA Projects		100%				0
Totals Biennium to Date (2005-07)		86%				156,141
25 Nickel Projects		88%				137,682
4 TPA Projects		75%				18,459
Totals Cumulative to Date (Projects Underway)		89%				959,909
42 Nickel Projects		90%				737,450
6 TPA Projects		83%				222,459

Source: WSDOT Project Control and Reporting Office

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Project Details:

[1]Right-of-Way acquisition delay.

[2]Delayed to avoid construction conflicts with the Nickel Project SR 16/36th Ave. to Olympic within the project limits; For efficiency, this project was combined in a single contract with another median barrier project that had a later ad date.

[3]The advertisement of this project was delayed due to environmental permitting issues and the need for redesign to stay within budget after geological conditions, right-of-way cost increases, and Corps of Engineers mitigation negotiations.

[4]Right-of-way and environmental permitting issues.

[5]Ad date delay due to Right of way acquisition delay.

WSDOT's Capital Project Delivery Programs

Advertisement Schedule and Budget

Forty-One Projects in Delivery Pipeline for October 1, 2006, through March 31, 2007

Nickel and Transportation Partnership Account (TPA) Projects Now Being Advertised for Construction or Planned to be Advertised
Dollars in Thousand

Project Description	Fund Type*	Original Planned Ad Date	Current Planned Ad Date	On Schedule	Current Legislative Expectation (Baseline)	Current Estimated Cost to Complete (WSDOT)
State Highways in Pierce and Thurston Counties - Roadside Safety Imp.	TPA	Nov-06	Nov-06	✓	1,000	1,000
State Highways in Adams & Franklin Counties Roadside Safety Improvements	TPA	Feb-07	Feb-07	✓	1,000	1,000
State Highways in Whitman & South Spokane Co`s Roadside Safety Improv.	TPA	Feb-07	Feb-07	✓	1,000	1,000
U.S. 2/Dryden - Signal	Nickel	Oct-06	Oct-06	✓	461	441
SR 3/Imperial Way to Sunnyslope - Safety	TPA	Nov-06	Dec-06	✓	2,893	3,272
SR 3/SR 106 South Belfair Signal - Safety	TPA	Nov-06	Nov-06	✓	1,059	1,059
I-5/South Seattle Northbound Viaduct	TPA	Feb-07	Feb-07	✓	11,646	11,571
I-5/Southbound Viaduct, South Seattle Vicinity-Special Bridge Repair	TPA	Feb-07	Feb-07	✓	3,991	3,941
I-5/ Rush Road to 13th Street - Add Additional Lanes	Nickel	Jan-07	Jan-07	✓	41,400	50,000
I-5/SR 502 Interchange	Nickel	Nov-06	Nov-06	✓	43,338	53,338
SR 9/108th Street NE (Lauck Road)	Nickel	Jan-07	Jan-07	✓	1,393	1,744
SR 9/Schloman Road to 256th Street E.	Nickel	Nov-06	Dec-06	✓	15,084	15,512
SR 9/252nd St. NE Vic. - Rechannelize	Nickel	Nov-06	Dec-06	✓	808	1,704
SR 9/268th Street Intersection	Nickel	Nov-06	Dec-06	✓	2,303	2,755
U.S. 12/Wildcat Creek to Naches River - Roadside Safety	TPA	Oct-06	Oct-06	✓	507	646
U.S. 12/Yakima - 40th. Avenue Interchange Improvements	TPA	Oct-06	Oct-06	✓	2,170	2,124
SR 14/Columbia River Gorge Guardrail Upgrade	Nickel	Jan-07	Nov-06	Advanced	765	599
SR 20/Ducken Road to Rosario Road	Nickel	Oct-06	Dec-06	✓	6,427	11,145
SR 20/Thompson Road	TPA	Jan-07	Jan-07	✓	1,022	1,059
SR 20/Fredonia to I-5 - Widening[2]	Nickel	Oct-06	Nov-06	✓	83,780	84,066
I-90/EB Ramps to SR 202 - Roundabout	Nickel	Jan-07	Jan-07	✓	940	1,698
I-90/Columbia River Bridge - Bridge Rail Retrofit	Nickel	Jul-06	Oct-06	Delayed[1]	447	486
I-90/Harvard Road Pedestrian Overcrossing	TPA	Nov-06	Nov-06	✓	332	712
SR 165/SR 165 Guardrail Upgrade - Guard Rail	Nickel	Oct-06	Oct-06	✓	870	892
SR 167/HOT Lanes Pilot Project	TPA	Sep-07	Mar-07	Advanced	15,384	16,557
SR 167/I-405 to SE 180th St	TPA	Sep-07	Feb-07	Advanced	50,000	26,980
SR 169/SE 291st Street Vicinity (Formerly SE 288th Street)	TPA	Oct-06	Nov-06	✓	2,519	2,533

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WSDOT's Capital Project Delivery Programs

Advertisement Schedule and Budget

Forty-One Projects in Delivery Pipeline for October 1, 2006, through March 31, 2007

Nickel and Transportation Partnership Account (TPA) Projects Now Being Advertised for Construction or Planned to be Advertised
Dollars in Thousand

Project Description	Fund Type*	Original Planned Ad Date	Current Planned Ad Date	On Schedule	Current Legislative Expectation (Baseline)	Current Estimated Cost to Complete (WSDOT)
SR 169/140th Way SE to SR 900	TPA	Mar-07	Mar-07	✓	2,818	2,818
SR 202/Preston-Fall City Road & SR 203	Nickel	Oct-06	Dec-06	✓	2,893	3,925
SR 260, 263, & 278/Guardrail Improvements	Nickel	Jan-07	Jan-07	✓	1,025	1,025
SR 397/Bridge Rail Retrofit-Columbia River Bridge West of Kennewick	Nickel	Jul-06	Dec-06	Delayed[3]	1,081	1,256
I-405/W Valley Highway to Maple Valley Highway	TPA	Apr-07	Feb-07	Advanced	137,440	161,230
I-405/I-5 to SR 181	TPA	Jan-08	Feb-07	Advanced	30,000	17,697
I-405/112th Ave to I-90	TPA	Jul-07	Oct-06	Advanced	20,000	21,233
I-405/SE 8th to I-90 (South Bellevue)	Nickel	Oct-07	Oct-06	Advanced	187,980	187,915
SR 410/Morse Creek to U.S. 12 - Roadside Safety	TPA	Oct-06	Oct-06	✓	692	542
SR 518/Interchange	TPA	Feb-07	Feb-07	✓	10,618	8,730
SR 515/SE 182nd St. to SE 176th St. Vic.	TPA	Mar-07	Mar-07	✓	1,080	1,019
SR 520/W Lake Sammamish Pkwy. to SR 202 - HOV and Interchange Stg 3	Nickel	Dec-06	Dec-06	✓	102,300	102,300
SR 522/University of Washington/Bothell Cascadia CC Campus South Access	TPA	Oct-06	Dec-06	✓	30,120	37,671
SR 821/Selah to Ellensburg - Roadside Safety	TPA	Oct-06	Oct-06	✓	175	179
Total (October 1, 2006, through March 31, 2007)				**95%**	**$820,761**	**$845,374**
18 Nickel Projects				89%	$493,295	$520,801
23 TPA Projects				100%	$327,466	$325,573

Source: WSDOT Project Control and Reporting Office

*As established by the 2006 Legislative Evaluation and Accountability Program (LEAP) committee. However, dollars shown are for all fund types, not just Nickel or Transportation Partnership Account funds.

Project Details:

[1]This project was combined in the same contract for cost efficiency with another bridge retrofit project , SR 397/Bridge Rail retrofit - Columbia River Bridge West of Kennewick, which was delayed for redesign. See note 3 for SR 397/Bridge Rail Retrofit.

[2]Current project amounts are for stages one and two, stage three is proposed to be moved to future biennia.

[3]The existing bridge rail required development of a unique bridge rail retrofit that would be compatible. In addition, this project was tied to I-90/Columbia River Bridge which provided economy of scale over advertising separately.

WSDOT's Capital Project Delivery Programs

Selected Capital Project Delivery Highlights

Highway Construction Program

Updated Since June 30, 2006

I-5/SR 526 to Marine View Drive - HOV Lanes

This design-build project will widen I-5 for the construction of northbound and southbound HOV lanes between SR 526 and the vicinity of Marine View Drive in the City of Everett. Twenty-three bridges will be widened or replaced, including the 41st Street bridge. Noise walls, retaining walls and a full storm water system retrofit will be designed and constructed.

Girders were placed in late August and early September for the new 41st Street bridge over I-5, which is expected to reopen to traffic in November 2006. The new I-5 ramps are expected to be operationally complete by mid-2007. The project is on schedule and within budget.

***SR 16/36th Avenue to Olympic Drive* and *SR 16/I-5 to Tacoma Narrows Bridge* - Add HOV Lanes**

This $90.5 million Nickel-funded corridor widens SR 16 from the Olympic Drive interchange in Gig Harbor to the Nalley Valley Viaduct in Tacoma. For the greatest efficiency in tracking and management, the corridor was divided into two separate Nickel projects, *SR 16/36th Avenue to Olympic Drive* and *SR 16/I-5 to Tacoma Narrows Bridge - Add HOV Lanes*; it will be constructed under three separate primary contracts with *SR 16/I-5 to Tacoma Narrows Bridge - Add HOV Lanes.*

The first contract, *SR 16/6th Ave. to Jackson Avenue*, was completed November 17, 2004 on budget. The second contract, *SR 16/ 36th Avenue to Olympic Avenue*, was completed on budget on July 25, 2006.

The third contract SR 16/Union Avenue to Jackson Street - HOV, remains under construction and is 90% complete as of September 15, 2006. This last contract is projected to be operationally complete by late January 2007, still several months earlier than the planned Spring 2007 date. Construction to date includes four new bridges, two widened bridges, a tunnel, ten miles of HOV lanes (five miles in each direction), and five miles of multi-use trail between 25th Street in Tacoma and Stone Drive in Gig Harbor.

***I-5, South 48th Street to Pacific Ave* – HOV**

This project prepares I-5 for future HOV lanes from 48th Street to Pacific Avenue in Tacoma. It also improves safety on I-5 by adding northbound collector-distributor lanes for safer traffic merges on and off the freeway from 38th Street and SR 16 to I-705.

The structural earth retaining wall and a significant amount of bridge and concrete paving work along the new section of northbound collector-distributor lanes is complete. Soldier pile and soil nail installation for retaining walls is also complete and work continues on the remaining retaining and noise wall construction. Currently, the focus is to complete the paving of the collector-distributor lanes so that the northbound I-5 traffic can be shifted to these lanes for the next phase of bridge removal. The project is now 50% complete, on budget, and on schedule to meet the Operationally Complete Date of completion in Spring 2008.

SR 7/SR 507 to SR 512 - Safety Improvements

This $16.6 million safety project is located on SR 7 between SR 507 and SR 512 in Pierce County. It is a five-mile safety project which constructs curbs, sidewalks and road approaches along the entire corridor. Other safety improvements include new traffic signals and highway lighting. The contract was awarded to Scarcella Brothers Inc. for $16.6 million. The project is currently under the contract award amount with an estimated construction cost at completion of $15.7 million. The project is 65% complete and on schedule to meet the operationally complete date of March 2007. Progress to date includes the completion of curbs, sidewalks, road approaches, traffic signals, and highway lighting on the north half of the project, from 149th Street to SR 512.

U.S. 395, NSC – Francis Avenue to Farwell Road

This project constructs two lanes of the North Spokane Corridor between Francis Avenue and Farwell Road, and completes the grading between U.S. 2 and Wandermere. In previous *Gray Notebook* reports, this project was divided into four construction contracts. However, to increase the potential for more competitive bidding and to more successfully manage construction risk, the fourth contract has been divided into three independent contracts (for a total of six contracts for this project). The first contract, Farwell Road Lowering, and the second contract, Gerlach to Wandermere Grading, are complete. The third contract, Francis Avenue to U.S. – Structures, is underway. The advertisement dates for the fourth, fifth, and sixth contracts are being finalized and will be provided in the next quarterly update. The entire project is still on schedule for completion in Spring 2009.

New to this Edition

I-5/Southbound Ramps at SR 11/Old Fairhaven Parkway

This project will improve the SR 11/I-5 interchange to increase safety and reduce accidents by widening the southbound I-5 exit and building a left-turn to Old Fairhaven Parkway, installing a new signal and building a new right turn onto the southbound I-5 on-ramp. The project will also install sidewalks through the interchange.

Selected Capital Project Delivery Highlights

The contract was awarded to Wilder Construction in March 2006 and construction activities began in early May. The work is 95% complete. Access to 32nd Street was permanently closed in late July and access to and from Fairhaven Parkway will now be from 30th Street. Crews continue to work on sidewalks and street lighting and are preparing to install a traffic signal at I-5 and Fairhaven. The new traffic signal is scheduled to begin operating in late November.

I-90, Moses Lake Area - Bridge Clearance

This project will replace the existing Potato Hill Bridge to address freight mobility along I-90. It is the last of ten under-height bridges between George and Moses Lake over I-90 to be raised or replaced.

Weaver Construction Company of La Grande, Oregon was awarded the project on January 17th for $2.7 million. Currently, they have completed the structure and have paved the tie-ins to the bridge. Traffic was moved onto the new structure and the project was Operationally Complete on September 15th. Demolition of the existing bridge is finished. The ribbon-cutting ceremony was held on October 26th. Work is scheduled to be completed by the end of November 2006.

U.S. 2, Dryden-Signal

This project will construct a signal and an advance warning system to address collision and accessibility concerns at the intersection of U.S. 2 and Dryden Ave. For efficiency, the project is currently joined with an adjacent paving project in the area and will be advertised in October this year. The signal will be constructed in Summer 2007 in conjunction with the paving project on U.S. 2. The project is on time and under budget.

U.S. 12, Attalia Vicinity - Add Lanes

This project widens U.S. 12 to four lanes from Dodd Road to the Boise Cascade vicinity, and extends four lanes on U.S. 12 from SR 124 to Boise Cascade.

Work began July 28, 2006 on non-critical items such as temporary signing, clearing and grubbing, etc. The eastbound embankment is approximately one-third built. The embankment for the two new westbound lanes spanning the length of the project is now in progress. Bridge work started in September when the contractor began installation of the drilled shafts for Piers 2 & 3 and spread footings for Piers 1 & 4. The girders are also now being fabricated. This project is on budget and on schedule to be complete by the open to traffic date of December 2007.

SR 240/I-182 to Columbia Center Interchange

This project constructs additional lanes on SR 240 between Richland and Kennewick, linking I-182 with the U.S. Department of Energy's Hanford site, the Columbia Center commercial areas, and east Kennewick's industrial zones.

Activities this quarter include continued work on illumination and communication systems in the vicinity of the George Washington Way Interchange, and paving various ramps leading to the City of Richland and SR 240 eastbound. With ground water tables receding, construction of the Superspan structure and wetland mitigation site has resumed. Currently, the westbound portion of the Superspan structure is complete.

I-5, Pierce County Line to Tukwila Interchange HOV - Stage 4

This work will include HOV lanes and a southbound truck climbing lane in the Tukwila vicinity. The completed project will improve traffic flow and transit service reliability. Construction will be in six stages. This is Stage 4 of a series of HOV projects in this corridor that constructs a southbound HOV lane from S. 320th St. to the Pierce County Line, and a northbound HOV lane from the Pierce County Line to S. 272nd St. Pavement and bridge widening construction was recently completed and traffic was shifted towards the median to allow for completion of remaining work

The project cost at completion is expected to be within the total budgeted project cost, and the operationally complete date has been advanced from June 2007 to February 2007.

I-5, Salmon Creek to I-205 – Widening

This project widened two miles of I-5 from NE 99th Street to NE 134th Street, from two lanes in both directions to three lanes plus an additional lane between interchanges. Due to significant water drainage issues at the project site, unplanned soil stabilization work had to be performed, which increased construction costs by $1.2 million. To complete the final paving, WSDOT implemented a full closure of I-5 in both directions. This project was operational complete October 2, 2006.

WSDOT's Capital Project Delivery Programs

"Watch List" Projects - Cost and Schedule Concerns

Watch List Summary

Updated Since June 30, 2006	Project Type	Watch List Issue
SR 20, Quiet Cove Road Vicinity to SR 20 Spur	Highway	Construction Costs
SR 9, Schloman Road to 26th & 268th	Highway	Environmental permiting costs
SR 20, Ducken Road to Rosario Road	Highway	Unique guardrail costs
SR 202, Preston - Fall City Road & SR 203	Highway	Design, right-of-way, and construction costs
SR 116/SR 19 to Indian Island - Bridge Rail	Highway	Material costs
SR 16/ NW of Tacoma Narrows to SE of Burley-Olalla-Median Crossover	Highway	Guardrail materials supply
I-5 SR 502 Interchange	Highway	Right -of-way, environmental permitting, cost increases
I-5, Rush Road to 13th Street	Highway	Right-of-way, construction materials
I-90/EB Ramps to SR 202	Highway	Design, construction materials
SR 503 Gabriel Road Intersection- Add Turn Lane	Highway	Right-of-way
I-5/SR 522, Bothell UW Campus Access	Highway	Design
U.S. 12/SR 124 Burbank Interchange - Improvements	Highway	Right-of-way, environmental permitting
SR 518/ Seatac Airport to I-5/ I-405 Interchange	Highway	Design
SR 167, 15th Street SW to 15th NW (Aka SR 167/ 15th Street SW to South 180th) - HOV	Highway	Environmental permitting
SR 167 HOT Lanes Pilot Project	Highway	Federal standards and funding
PCC Cheney - Coulee City - Pullman Acquistion & Upgrades	Rail	Negotiations with watco companies, inc.
New Creston Livestock Feedmile (Lincoln County)	Rail	Funding availability
Mount Vernon Siding Improvements	Rail	Rail materials and environmental permitting
Stanwood - New Station	Rail	Design
Vancouver Rail Project including 39th St. Bridge	Rail	Design, right-of-way
Construct Four 144 - Car Replacement Auto-Passenger Ferries	Ferries	Contracting
Removed From Watch List		
SR 31, Metaline Falls to International Border	Highway	Increased funding
SR 9/SR 522 to 228th SE - Widening (Stage 1), and SR 9, 228th St SE to 212th ST SE (SR 524) (Stage 2)	Highway	Increased funding
I-205 Mill Plain Exit (112th Connector) - Stage 1	Highway	Construction cost escalation
SR 20, Fredonia to I-5 - Stages 1 and 2 - Add Lanes	Highway	Funding shortfall
SR 24 /I-82 to Keys Road	Highway	Material delivery issues
SR 902, Medical Lake Interchange	Highway	Intergovernmental coordination
Swift Customs Facility Capacity Improvements, Blaine, WA	Rail	Increased funding
Geiger Spur Connection	Rail	Contracting
Dayton Yard Rehabilitation - Port of Columbia County	Rail	Contracting
Cascade and Columbia River Upgrade	Rail	Contracting
Mukilteo Multimodal Terminal	Ferries	Enviormental permitting
Bainbridge Island Trestle Improvement Project (Dock-Widening)	Ferries	Environmental permitting

WSDOT's Capital Project Delivery Programs

"Watch List" Projects - Cost and Schedule Concerns

Highway Construction Program

Updated Since June 30, 2006

SR 20, Quiet Cove Road Vicinity to SR 20 Spur

This project widens SR 20 lanes to 12 feet and the shoulders to four feet. It constructs a new bridge over Meadow Creek to accommodate left-turn lanes and to provide for fish passage. The project also improves the road alignment, closes intersections with sharp angles, and constructs new left and right-turn lanes. To mitigate for project impacts to wetlands, a mitigation site will be built under the Stage 1 construction contract. Stage 1 remains on schedule for advertisement in April 2007.

Last quarter, WSDOT reported the project needed an additional $7.7 million to construct Stage 2. Since then, project costs have been adjusted by $600,000 for inflation and $420,000 for wetland mitigation site monitoring, increasing the Stage 2 construction funding shortfall to $8.7 million.

SR 9, Schloman Road to 256th & 268th

This project realigns two existing curves and widens SR 9 to provide twelve-foot lanes and four-foot shoulders. Slopes will be flattened and other safety features will be improved as needed. In the June 2006 *Gray Notebook* (p. 13), WSDOT reported a project design cost increase due to environmental permitting requirements and construction cost increases due to escalating material costs. WSDOT is working with the Office of Financial Management on the budget shortfall to keep the project on schedule and advertise it in December 2006.

SR 20, Ducken Road to Rosario Road

This project improves existing guard rail and illumination, and constructs a southbound left-turn lane and a northbound right-turn lane at Ducken Road. The project is within Deception Pass State Park limits. The new guardrail will retain many of the character-defining features of the old guardrail, including the log and rock-and-mortar post appearance.

Last quarter, WSDOT reported construction cost increases as a result of higher costs for the unique guardrail, the effort required to avoid underground utilities and drilling into bedrock, and escalating materials costs. WSDOT is requesting additional funding through the Office of Financial Management to keep the project on schedule and advertise it in December 2006.

SR 202, Preston-Fall City Road & SR 203

This project will construct a roundabout at the intersection of SR 202 and SR 203. Last quarter, WSDOT reported design, right-of-way and construction cost increases of $1.0 million. WSDOT is requesting additional funding through the Office of Financial Management to keep the project on schedule to be advertised in December 2006.

SR 116/SR 19 to Indian Island – Bridge Rail

This project improves motorist safety with the installation of a strengthened guardrail system and guardrail end treatments that meets current standards. The estimated cost of the project has increased and it will be delayed one quarter.

The current construction estimate for this project has increased from the budgeted $138,000 to $390,000 due to escalation of material costs greater then the inflation accounted for in the original estimate.

The original advertisement date of March 6, 2006 will need to be delayed to May 14, 2007 to address historic concerns associated with the bridge. The Portage Canal Bridge is designated an historic structure and requires review from the Washington Department of Archaeology & Historic Preservation (DAHP) before any repair to the structure can be accomplished. The plans necessary for review were not completed in time to allow DAHP the necessary 30-day review period. The operationally complete date will also be delayed one quarter from June 2007 to November 2007.

SR 16/NW of Tacoma Narrows to SE of Burley-Olalla - Median Crossover

This project, on SR16 between the Tacoma Narrows Bridge to SW of Burley-Olalla, includes laying cable guardrail and upgrading basic safety items within the project limits such as standard guardrail, guardrail ends, and connections to existing bridges. For better efficiency and to coordinate with a major project within the project limits, this project was combined with *SR 3, Kitsap Way to SR 305* into a single contract. The contract was awarded on budget to Peterson Brothers for $2.0 million. Construction was scheduled to start on August 1, but work has been temporarily suspended due to the short supply of guardrail materials. This lack of guardrail materials has delayed the operationally complete date from September 22, 2006 to April 30, 2007.

I-5 SR 502 Interchange

This project reduces traffic congestion on I-5 between NE 179th Street and NE 219th Street by constructing a new interchange with SR 502 at 219th Street. The new interchange will improve traffic flow and provide a more direct connection between Battle Ground and I-5. Construction cost escalation increased the project by $13 million. Of this increase, $2.5 million is due to high moisture content of the soil at the construction site, requiring stabilization of the soil to make it suitable for the

"Watch List" Projects - Cost and Schedule Concerns

roadbed. The remaining $10.5 million increase is due to cost escalation for construction materials such as higher asphalt, concrete, and steel prices, and the cost to recover archaeological artifacts.

Additionally, the planned project advertisement date in November 2006 may be delayed until the first quarter of 2007 due to right-of-way acquisition and environmental permitting issues. These issues will be further addressed in the next quarterly report; however, the anticipated advertisement delay should not affect the planned construction schedule.

I-5, Rush Road to 13th Street

This project will widen I-5 from two lanes in each direction to three lanes between Rush Road and 13th Street. A new interchange will be constructed at the existing LaBree Road undercrossing to provide direct access to the Port of Chehalis and Industrial park. WSDOT redesigned the interchange last year to reduce the project construction cost by $5 million; however, escalation of construction material and real estate acquisition costs have increased the project cost by $11 million. This increase will be partially funded by $5.2 million in federal earmarks.

WSDOT is requesting additional funding through the Office of Financial Management to keep the project on schedule and advertise it January 2007.

I-90/EB Ramps to SR 202 – Construct Roundabout

This project constructs a two-lane roundabout at the intersection of I-90 and SR 202 in North Bend. The WSDOT project team modified the design to improve traffic circulation through the roundabout in order to avoid impacts to an existing bridge and wetlands, and to avoid purchasing new right-of-way.

The modified design has increased the construction cost by $600,000 over the original estimate due to the need to construct a new retaining wall, construct new storm water drainage features, provide additional temporary erosion control protection during the wet weather months, and provide additional traffic control. Price escalation for asphalt and concrete materials has also contributed to the cost increase. WSDOT is requesting additional funds through the Office of Financial Management to keep the project on schedule and advertise it in January 2007.

SR 503 Gabriel Road Intersection – Add Turn Lane

This project adds a right turn lane from SR 503 onto Gabriel Road, as well as electrical lighting, new signing, and striping to reduce the risk of collisions when motorists are making a right turn.

WSDOT recommends deletion of this project in the 2007 Supplemental Budget because, after further review of the accident history for this intersection, the accident potential does not warrant the cost needed to make further improvements. Escalating right-of-way costs and the need to realign the highway to avoid a potential hazardous material site has significantly increased the construction cost estimate from $550,000 to $1.5 million. With this increased cost and low accident potential, the benefits gained do not warrant further investment of safety improvement funds at this intersection.

I-5/SR 522, Bothell UW Campus Access

In the June 2006 *Gray Notebook* (p. 13), WSDOT reported the delayed advertisement for this project to construct a new south access to the University of Washington Bothell/Cascadia Community College Campus from I-405 and SR 522. The project was delayed until November 2006 to redesign the roadway to a higher elevation to avoid a high groundwater table.

In September 2006, an independent review by a consultant recommended cost adjustments in the construction dewatering, roadway excavation, retaining wall, and storm water control items. As a result, the advertisement has been further delayed from November to December 2006 in order to incorporate the design revisions. The total project cost will increase $7.0 million.

U.S. 12/SR 124 Burbank Interchange – Improvements

This project improves safety on U.S. 12 by replacing two signalized intersections, SR 124 and Humorist Road, with an interchange near SR 124 and an overpass at Humorist Road. WSDOT completed a Cost Risk Assessment in September 2006 which indicates risks to budget and schedule. The total cost of the project could exceed current funding by approximately $14 to $16 million, including additional inflation and escalation costs. The most substantial cost risk is driven by potential changes to the ultimate configuration of the new infrastructure.

Potential delays to the schedule include acquisition of property from the McNary Wildlife Refuge, and the possible need for a higher level of environmental documentation for the project.

SR 518/Seatac Airport to I-5/I-405 Interchange

This project adds a third eastbound lane from the North Airport Expressway to the I-5/I-405 Interchange to reduce traffic congestion and improve traffic flow from SeaTac Airport to I-5 and I-405.

"Watch List" Projects - Cost and Schedule Concerns

The Muckleshoot Indian Tribe has formally requested that WSDOT remove a previously-unidentified fish barrier in an existing culvert under SR 518. In this location, the only option is to remove the fish barrier, replace the culvert, and re-grade the creek. Until WSDOT has adequately addressed the Tribe's comments, this project is delayed and additional funds will be needed for construction. WSDOT is scheduled to meet with the Muckleshoot on November 16, 2006. If negotiations proceed, there may be a formal agreement by December 2006.

SR 167, 15th Street SW to 15th NW - HOV

The project constructs a northbound HOV lane between 15th Street SW and 15th Street NW, and converts an existing southbound general purpose lane into an HOV lane between 15th Street NW and 37th Street SW. This project will also install an Intelligent Transportation System (ITS), including ramp meters, cameras and data stations, as well as construct HOV ramp bypasses, and correct off-ramp tapers at interchanges between 15th Street SW and South 180th Street.

This project is on the Watch List as a result of environmental non-compliance events during construction this quarter. WSDOT is re-emphasizing the necessity of complying with environmental standards. Construction will be temporarily suspended for a weekend in October to put in place the required environmental work to bring the project into compliance with all permit conditions.

There is a cost advancement of $1.2 million for Construction and Preliminary Engineering this biennium. However, the work on this project has progressed faster than anticipated and forecasts indicate that this quick progress will continue.

SR 167 HOT Lanes Pilot Project

A High Occupancy Toll (HOT) lane pilot program, which will allow single-occupancy vehicles to use existing HOV lanes for a fee, will be implemented throughout the SR 167 Corridor to reduce congestion during peak hours. It will provide a test of the pricing concept in the Puget Sound, maximize the efficiency of the highway's capacity, improve traffic flow, and preserve long-term transit reliability. Tolls will be collected electronically. The expected opening date is April 5, 2008.

The project cost has increased $880,000 to a total of $16.3 million. Additional issues need to be resolved to avoid affecting the schedule and budget for the overall project. Some of these potential issues concern federal standards and requirements, available funding, and the work scope on the intended schedule so that the construction phase can proceed as planned. Resolutions are expected during October.

Other Capital Programs - Rail

PCC Cheney – Coulee City – Pullman Acquisition & Upgrades

The 2004 Legislature appropriated funds to purchase the CW Branch of the Palouse-Coulee City Railroad owned by Watco Companies, Inc. In September 2005, the owner withdrew the property from the sale, claiming that the scrap value of the railroad had increased substantially.

Negotiations have resulted in resumed interim operations on the CW line until June 2007. The due date for completing a Memorandum of Understanding with Watco is October 31, 2006 and will define the process by which the purchase will be completed and memorialize the current operating agreement. Joint appraisals for WSDOT and Watco are being conducted to come to an agreed-upon value and should be concluded within the next thirty days.

New Creston Livestock Feedmill (Lincoln County)

The Legislature appropriated $300,000 to WSDOT, that when combined with a Community Economic Revitalization Board (CERB) grant, funds the engineering and construction of a rail spur that will serve new Creston Livestock Feedmill. Lincoln County secured a tenant for a livestock feedmill just west of Creston. The tenant converted the operation to a biodiesel plant when the construction of the spur was delayed. Difficulties with the tenant led the CERB to withdraw grant funding. CERB then later granted an extension to January 2007 for a new funding application based on a change of management at the biodiesel facility.

Preliminary cost estimates are higher than available funding. WSDOT will administer a legislative appropriation of $30,000. Half of the $30,000 has been spent on preliminary engineering. Available funding is $142,500, including the CERB funds, but the preliminary cost estimates have now doubled to $285,000. Spending of the remaining $15,000 will be contingent on additional funds being acquired to cover the $285,000. Spending the remaining $15,000 will be contingent on additional funds being acquired to cover the estimated cost of construction

Mount Vernon Siding Improvements

This project will design and extend the existing siding, a side track that diverts full length freight trains, allowing Amtrak *Cascades* trains to pass them. To extend the siding, the Hickox Road at-grade crossing must be permanently removed and some minor wetlands filled and replaced. Unknown costs for

"Watch List" Projects - Cost and Schedule Concerns

mitigating the Hickox Road closure, wetland mitigation and rail control signals will likely exceed the available funding and puts the scheduled completion date of June 2007 at risk.

In addition, residents and officials from the City of Mount Vernon and Skagit County disagree with the proposed closure of Hickox Road. BNSF Railway will petition the Washington Utilities and Transportation Commission to close the crossing. This process could take four to 12 months.

Stanwood – New Station

This project will design and construct a new passenger platform and other facilities at Stanwood to be served by Amtrak *Cascades* trains. Construction is estimated to be completed by November 2007, a five-month delay.

BNSF Railway has notified WSDOT that an extension to the siding at Stanwood will be required before Amtrak *Cascades* trains can serve the station facility. These improvements to the siding are beyond the scope of a separate project, *Stanwood -Siding Upgrade*, currently in design. The cost of these improvements will be released in February 2007.

Vancouver Rail Project including 39th St. Bridge

This project will construct mainline tracks to allow eastbound and northbound freight trains to bypass the rail yard in Vancouver. A rail siding for stopping freight trains clear of the north-south mainline and a new vehicle overpass will also be constructed. This will free up capacity on the north-south main line and improve on-time performance of the Amtrak *Cascades* trains.

The design of the West 39th Street Bridge has been 30% completed and the estimate and schedule have been revised. The bridge construction advertisement date has been rescheduled from November 2007 to March 2008. The delay is mainly due to a longer-than-anticipated time to acquire the right-of-way. Current cost estimates for the bridge are approximately $7 million higher than anticipated, due to increase in property values, a larger bridge to accommodate a second sidewalk, storm water treatment, and utility relocation. WSDOT will continue working with the City of Vancouver to bring the project costs back in line with the budget.

Other Capital Programs – Ferries

Anacortes Multimodal Terminal

This project will replace the existing terminal. The new terminal will improve safety and access for passengers and vehicles, provide connections with other modes of travel, and increase amenities and services at the terminal. Construction of the third tie-up slip was originally planned for September 2005, then delayed to September, 2008; however, it could go to construction as early as September, 2007 pending resolution of regulatory issues. WSDOT in undergoing discussions of cultural and archaeological issues with the Lummi Nation and Tulalip, Swinomish, Suquamish, and Samish tribes, as well as the State Historic Preservation Officer (SHPO). The Draft Inadvertent Discovery Plan is complete and has been presented to the Tribes for their review.

The project is using the General Contractor Construction Manager (GCCM) delivery method for the terminal building and the associated roadwork construction. The GCCM contractor will assume the role of construction manager, responsibility for the constructability review of the design documents and, as necessary, function as the value engineer. WSDOT has selected the GCCM contractor and executed the pre-construction services contract. The 15% conceptual design is done and estimates the project budget will require approximately $22 million more to cover materials escalation, additional costs associated with the construction delay of the Tie-up Slips project, and City of Anacortes requirements for addressing traffic impacts on SR 20. The 2007-09 agency budget request proposes an additional $22 million in Pre-existing Funds (PEF) for the Project.

The scoping for the utility work, now underway, consists of two major components: a new electrical and telecom system under the holding area and exit lanes, and a capacity upgrade.

Construct Four 144-Car Replacement Auto-Passenger Ferries

This project constructs four 144-auto ferries using a design-build contract (as required by RCW 47.60.810-822). WSDOT issued its request for proposals (RFP) to three pre-qualified shipyards on August 2, 2006, after review by the Attorney General, a Special Assistant Attorney General and a five-member expert review panel. Two shipyards (J.M. Martinac and Todd Pacific) have submitted Notices of Intent to Proceed under the procurement process. (A third pre-qualified shipyard, Nichols Brothers, chose not to file a Notice of Intent to Proceed.) Both shipyards have filed RFP protests with WSDOT. WSDOT will answer these protests in early November. Technical proposals are due from the potential bidders in June 2007. Those potential bidders with acceptable technical proposals will be allowed to bid on the contract. The Department will be required to award the contract to the lowest responsible and responsive bidder. Contract award is now planned for September 2007.

Four diesel generator sets for each of the four ferries have been delivered, and the manufacturing of main diesel engines has started for the propulsion system contract. The manufacturing of reduction gears and other propulsion system components will commence soon.

An increase of 8% ($26 million) in the project budget has been proposed in the 2007-2009 biennium agency request budget to mitigate increasing material and labor prices.

"Watch List" Projects - Cost and Schedule Concerns

Removed From Watch List

HIGHWAY CONSTRUCTION PROGRAM

SR 31, Metaline Falls to International Border

This project constructs an all-weather highway to eliminate truck weight restrictions. As reported in the last *Gray Notebook*, there was a potential impact to the project budget and schedule due to unforeseen conditions at the construction site. WSDOT and the contractor successfully worked through the construction issues without negatively impacting the schedule and with only a 2% ($327,000) increase to the overall project's budget.

SR 9/SR 522 to 228th St SE – Widening (Stage 1), and SR 9, 228th St SE to 212th St SE (SR 524) (Stage 2)

SR 9 will be widened to four or five lanes from SR 522 to 228th Street SE. The westbound on-ramp to SR 522 will be widened to two lanes. A new traffic signal will be installed at the westbound off-ramp to northbound SR 9 and the signals at the eastbound ramps to SR 522 and at 228th Street SE will be upgraded.

In the June 2006 *Gray Notebook* (p. 13), WSDOT reported that right-of-way settlements on parcels in condemnation and the higher cost of site dewatering for retaining wall and retention pond construction would result in a $1.2 million budget overrun. Since then, additional dewatering work and retaining wall construction cost escalation has increased the budget overrun to $3.0 million. This cost increase has been reported in WSDOT's proposed 2007 Supplemental Budget request to the Governor.

The project is currently one month behind schedule due to groundwater and offsite water impacts; however, WSDOT and the contractor are working together to implement changes that will still allow SR 9 to be operationally complete by June 2007.

I-205 Mill Plain Exit (112th Connector) - Stage 1

As reported in the June 2006 *Gray Notebook* (pp. 12-13), this project was delayed two years to coordinate its construction with a new, adjacent TPA-funded project, *I-205/Mill Plain to NE 18th Street (Stage 2)*, and it was noted there might be an associated cost increase. An additional $1.3 million is required to complete Stage 1 and an additional $30 million is needed to construct Stage 2 due to construction cost escalation. The Stage 2 project cost increase has been reported in WSDOT's proposed 2007-2009 budget request to the Governor.

SR 20, Fredonia to I-5 – Stages 1 and 2 - Add Lanes

This project widens SR 20 from two to four lanes from the intersection of SR 536 (Fredonia) to I-5 (Burlington). Improvements to the northbound and southbound I-5 ramps will aid in alleviating congestion.

In the June 2006 *Gray Notebook* (p. 12), WSDOT reported the total cost of this project would exceed current funding by approximately $22 million. Existing funding is adequate for purchase of right-of-way and design of the entire project, however it only funds construction of roadway improvements at the west end (Stage 1) and east end (Stage 2) of the project. As a result of this funding shortfall, it is necessary for construction improvements in the middle section between Higgins Airport Way and Pulver Road to be broken out into a new Stage 3, and delayed to a future biennium in order for the Legislature to address the funding shortfall. The Stage 3 cost increase has been included in WSDOT's proposed 2007-2009 budget request to the Governor.

Stage 1 remains within budget and on schedule for advertisement in November 2006. Stage 2 is on schedule for its January 2008 advertisement date.

SR 24/I-82 to Keys Road

This project widens SR 24 by adding one lane in each direction from I-82 to Riverside Road, improves the interchange, and constructs a new bridge over the Yakima River.

The contractor, Max J. Kuney, has completed the south half of the I-82 interchange bridge. The bridge beams have been placed for the north half of the I-82 bridge. The new Yakima River bridge is nearing completion; all roadway deck is complete and traffic barrier and utility connection work remain. The contractor has constructed the first stage of the final SR 24 alignment. and two lanes of traffic will be using the new Yakima River Bridge by mid-October. Material delivery issues have delayed an early completion of the SR 24 roadway. Final paving and safety features will be completed in the Spring of 2007.

WSDOT is monitoring potential risks to the project budget, and managing the project to minimize additional costs.

SR 902, Medical Lake Interchange

This project will improve traffic flow and safety at the intersection of the I-90 ramp and SR 902. As reported in the previous *Gray Notebook* (p. 14), the project's October 2006 advertisement date was delayed in order to partner with Spokane County. WSDOT is working with Spokane County to determine the needed intersection improvements

"Watch List" Projects - Cost and Schedule Concerns

and have jointly established a new advertisement date in October 2007. The new planned operationally complete date is September 2008

OTHER CAPITAL PROGRAMS - RAIL

Swift Customs Facility Capacity Improvements, Blaine, WA

This project, funded in the 2005 Transportation Partnership package at $3.0 million, will increase rail line capacity at the Swift Customs Facility and will ensure a reliable Amtrak *Cascades* train schedule. State funds will provide $3.0 million that will supplement a $3.0 million federal dedicated fund. The Legislature budgeted an additional $3.0 million from private/local/other funds that have not yet been secured. Scoping issues involving recent traffic modeling may delay the start of construction until April 2007 but will not delay the completion of construction, scheduled for June 2009.

Geiger Spur Connection

The Legislature provided a total of $5.0 million to build a new rail connection to Spokane County's Airway Heights Industrial Park to replace the connection that currently passes through Fairchild Air Force Base.

In July 2006, Watco Companies, Inc. and WSDOT provided written commitments to Spokane County to allow connection with the Palouse-Coulee City CW line.

The 70% design plans were completed in October 2006 and the estimated cost is $6.1 million. A grant agreement is being prepared in which Spokane County will pay all costs over the $5.0 million provided by the Legislature. Due to the delays involving acquisition of the CW line and proceedings with the STB, the completion date is November 2007 (from June 2007).

Dayton Yard Rehabilitation – Port of Columbia County

The Seneca Green Giant asparagus cannery relocated away from Dayton several years ago, and put its plant up for sale. The Port of Columbia County located two prospective replacements to purchase the plant and begin operations. However, rail upgrades were needed for the operations, so the Legislature provided $270,000 to assist with the needed infrastructure. Subsequently the Green Giant property was removed from the market, and the prospective operators lost any incentive to locate in the area. The Port had identified an alternative project that involved donated land from a private company; however the destruction caused by recent forest fires eliminated this possibility. In light of the recent developments, WSDOT is re-evaluating whether the funds should be used on the proposed project.

Cascade and Columbia River Upgrade

This $890,000 project would upgrade the light-duty tracks entering Oroville in Okanogan County to handle larger modern cars. The rail company, Cascade and Columbia River Railroad, refused the loan in February 2006, but began re-evaluating its position during the current quarter based on discussions with WSDOT staff. On September 22, 2006, WSDOT was informed that the rail company could not accept the loan. WSDOT will propose the Legislature remove this project from the Rail Program and WSDOT will remove this project from the Watch List.

OTHER CAPITAL PROGRAMS - FERRIES

Mukilteo Multimodal Terminal

This project relocates the existing Mukilteo Ferry Terminal and constructs a larger, multi-modal terminal facility. This will expand the throughput capacity of the terminal, provide customers with multi-modal travel options, and relieve local congestion and conflicts.

The Federal Transit Administration (FTA) is withholding the Biological Assessment (BA) until after completion of the Public Comment period on the Draft Environmental Impact Statement in March 2007, to delay identifying a Locally Preferred Alternative (LPA) until after the public comment period is complete. This will allow 210 calendar days for the U. S. Fish and Wildlife Service and the National Marine Fisheries Service to complete consultation under the Endangered Species Act.

Affected Tribes and other stakeholders have been informed of cultural resource-related activities in Mukilteo, including archaeological investigations. Preliminary archaeological investigations have been completed. The U.S. Air Force is the current land owner and lead federal agency for the land transfer. To avoid the transfer having an adverse effect on historic properties (by removing them from protection under federal law), the Air Force conveyance documents will provide legal language that will maintain and protect the property. As a result, this allows the transfer to take place by the end of the year. The cultural resources discipline report for the terminal project should be finalized and then sent to the Tribes and the Department of Archaeology and Historic Preservation for review by February 2007.

"Watch List" Projects - Cost and Schedule Concerns

Meanwhile, the design team is re-evaluating pedestrian bridge options to reduce costs, as well as analyzing the feasibility of different storm-water treatment options. The project team evaluated the costs of traffic improvements requested by the City of Mukilteo in connection with the new terminal project and estimates the total cost to raise the traffic improvements to WSDOT standards is $6.3 million. WSDOT has decided not to provide any traffic improvements for the City given that the terminal project does not create any new traffic impacts and, therefore, mitigation is not required. WSDOT, Sound Transit, and Port of Everett leadership are continuing to discuss acquisition of the Tank Farm property.

This project is moving off the Watch List because previous cost increase concerns have been mitigated by acquiring additional federal funding.

for the water supply system for the new terminal building and the Tie-up Slip project. The utility design is expected to be done by end of October 2006.

Bainbridge Island Trestle Improvement Project (Dock-Widening)

This project expands the existing dock to resolve operational deficiencies at the Bainbridge Island Ferry terminal. At this time, the Shorelines Substantial Development Permit application for the project has been withdrawn as recommended by the City of Bainbridge Island's hearing examiner. A new permit application will be submitted pending re-evaluation of the project in the context of the total Bainbridge Island ferry terminal master plan project's environmental review process. Construction of this dock-widening project is delayed for two years.

WSDOT's Capital Project Delivery Programs

Project Delivery Summary Reports

Schedule Milestone Tracking for Nickel Projects

Milestone Results for all Nickel Projects with One or More Milestone Activities

Milestone	Scheduled Milestones to Date	Scheduled Milestones Achieved to Date	Scheduled Milestones not Achieved	Scheduled Milestone Achievement Rate
Project Definition Complete				
Biennium to Date (2005-07)	13	12	1	92%
Cumulative to Date	127	124	3	98%
Begin Preliminary Engineering				
Biennium to Date (2005-07)	24	24	0	100%
Cumulative to Date	136	133	3	98%
Environmental Documentation Complete				
Biennium to Date (2005-07)	43	40	3	93%
Cumulative to Date	100	94	6	94%
Right of Way Certification				
Biennium to Date (2005-07)	18	16	2	89%
Cumulative to Date	43	40	3	93%
Advertisement Date				
Biennium to Date (2005-07)	34	29	5	85%
Cumulative to Date	86	79	7	92%
Operationally Complete				
Biennium to Date (2005-07)	14	13	1	93%
Cumulative to Date	33	32	1	97%

Source: WSDOT Project Control and Reporting Office

Baseline Data: Baseline milestone dates are derived from the original Legilative expectation (2005-2007 budget). Advertise Project and Operationally Complete Milestones are considered on-time if completed within the scheduled baseline calendar quarter. All other milestones are reported as on-time if they are completed within +/- 6 weeks of baseline date.

Milestone Definitions:

Project Definition Complete
Project definition is the preliminary picture of what a project will achieve and generally how it will do so. It includes deficiencies being addressed, the purpose for a project, location, and project information to the best available level. It is not a true project scope (that requires design effort) but it does support the very first preliminary cost estimate.

Begin Preliminary Engineering
A project schedule usually has two general phases, the pre-construction phase and the construction phase. Preconstruction involves design, right of way, and environmental activities. Beginning the preliminary engineering marks the start of the project design and is usually the first capital spending activity in the delivery process.

Environmental Documentation Complete
The National Environmental Protection Act (NEPA) and the State Environmental Protection Act (SEPA) require that an appropriate level of environmental assessment be prepared for almost all WSDOT projects. Depending on the project, these can take the form of an Environmental Impact Statement (EIS) or another document of lesser scale. These assessments end in the issuance of a Record of Decision (ROD) or other summary document. This milestone is the date that WSDOT will have finished and submitted to the appropriate regulatory agencies, the documentation for the ROD and/or issuance of permits.

Right of Way Certification
Often WSDOT projects require the acquisition of right of way or property rights. The Right of Way Certification marks the point in time that right-of-way acquisition requirements are met and the process is complete for advertisement.

Advertisement Date
This is 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.

Operationally Complete
This is the date when the public has free and unobstructed use of the facility. In some cases, the facility will be open, but minor work items may remain to be completed.

WSDOT's Capital Project Delivery Programs

Project Delivery Summary Reports

Schedule Milestone Tracking for Transportation Partnership Account (TPA) Projects

Milestone Results for all TPA Projects with One or More Milestone Activities

Milestone	Scheduled Milestones to Date	Scheduled Milestones Achieved to Date	Scheduled Milestones not Achieved	Scheduled Milestone Achievement Rate
Project Definition Complete				
Biennium to Date (2005-07)	102	80	22	78%
Cumulative to Date	143	118	25	83%
Begin Preliminary Engineering				
Biennium to Date (2005-07)	123	122	1	99%
Cumulative to Date	156	155	1	99%
Environmental Documentation Complete				
Biennium to Date (2005-07)	52	33	19	63%
Cumulative to Date	65	40	25	62%
Right of Way Certification				
Biennium to Date (2005-07)	16	8	8	50%
Cumulative to Date	20	12	8	60%
Advertisement Date				
Biennium to Date (2005-07)	17	15	2	88%
Cumulative to Date	20	17	3	85%
Operationally Complete				
Biennium to Date (2005-07)	5	5	0	100%
Cumulative to Date	5	5	0	100%

Source: WSDOT Project Control and Reporting Office

Baseline Data: Baseline milestone dates are derived from the original Legilative expectation (2005-2007 budget). Advertis Project and Operationally Complete Milestones are considered on-time if completed within the scheduled baseline calendar quarter. All other milestones are reported as on-time if they are completed within +/- 6 weeks of baseline date

Milestone Definitions:

Project Definition Complete
Project definition is the preliminary picture of what a project will achieve and generally how it will do so. It includes deficiencies being addressed, the purpose for a project, location, and project information to the best available level. It is not a true project scope (that requires design effort) but it does support the very first preliminary cost estimate.

Begin Preliminary Engineering
A project schedule usually has two general phases, the pre-construction phase and the construction phase. Preconstruction involves design, right of way, and environmental activities. Beginning the preliminary engineering marks the start of the project design and is usually the first capital spending activity in the delivery process.

Environmental Documentation Complete
The National Environmental Protection Act (NEPA) and the State Environmental Protection Act (SEPA) require that an appropriate level of environmental assessment be prepared for almost all WSDOT projects. Depending on the project, these can take the form of an Environmental Impact Statement (EIS) or another document of lesser scale. These assessments end in the issuance of a Record of Decision (ROD) or other summary document. This milestone is the date that WSDOT will have finished and submitted to the appropriate regulatory agencies, the documentation for the ROD and/or issuance of permits.

Right of Way Certification
Often WSDOT projects require the acquisition of right of way or property rights. The Right of Way Certification marks the point in time that right-of-way acquisition requirements are met and the process is complete for advertisement.

Advertisement Date
This is 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.

Operationally Complete
This is the date when the public has free and unobstructed use of the facility. In some cases, the facility will be open, but minor work items may remain to be completed.

WSDOT's Capital Project Delivery Programs

Paying for the Projects: Financial Information

2003 Transportation Funding Package

2003 Transportation Funding Package Highlights

Deposited into the Transportation 2003 (Nickel) Account (established in 2003)

- 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
- A $20 license plate number retention fee

Revenue Forecast Update

The following information incorporates the September 2006 forecast. 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 issues, the 2005 Legislature moved several preservation projects into the 2013-15 biennium. Both cumulative ten-year totals and individual biennial amounts are shown.

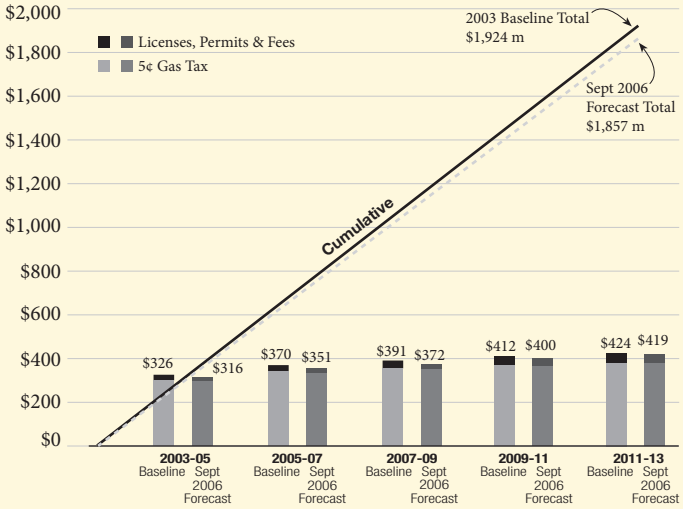
Current forecasted revenues include the most recent actual revenue collection data available as well as updated projections based on new and revised economic variables.

Transportation 2003 (Nickel) Account projections for the gas tax receipts and licenses, permits, and fees are slightly lower than the baseline forecast, causing a minor decrease in the ten-year outlook for the account (-3.6%).

Multimodal Account projections for the vehicle sales tax are slightly higher than the baseline forecast, resulting in a slight increase in the ten-year outlook (+2.1%).

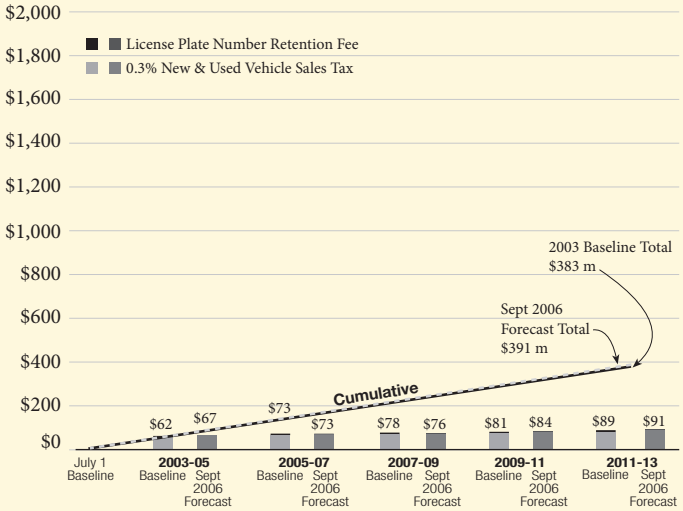
Forecasted revenues are still closely aligned with the legislative baseline projection for both accounts.

Transportation 2003 (Nickel) Account Revenue Forecast
March 2003 Legislative Baseline Compared to the September 2006 Transportation Revenue Forecast Council
Dollars in Millions



Numbers may not add due to rounding.

Multimodal Account (2003 Package) Revenue Forecast
March 2003 Legislative Baseline Compared to the September 2006 Transportation Revenue Forecast Council
Dollars in Millions



Numbers may not add due to rounding.

WSDOT's Capital Project Delivery Programs

Paying for the Projects: Financial Information

Transportation Partnership Program

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
- $30 for cars between 6,000 and 8,000

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 motor homes

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 increased to $75 (previously $20)
- DUI Hearing increased to $200 (previously $100)

Fee increases to various license plate charges

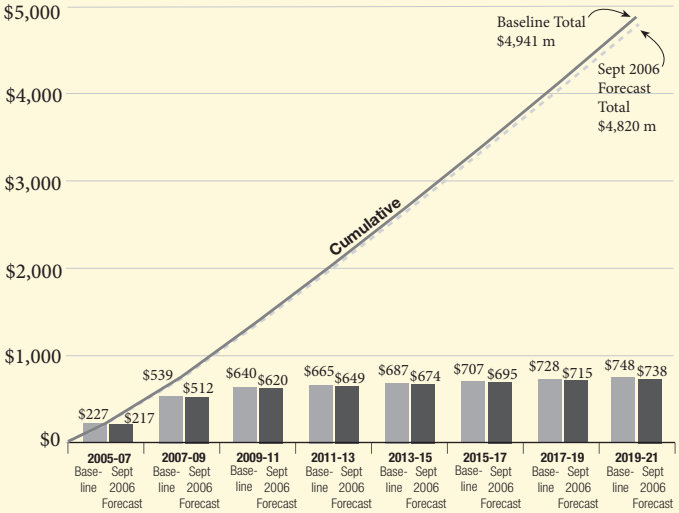
- Reflectorized Plate Fee increased to $2 per plate (previously 50¢)
- Replacement Plates increased to $10 (previously $3)

Revenue Forecast Update

The following information incorporates the September 2006 gas tax forecast. The accompanying chart compares the current 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 September 2006 forecast for gas tax receipts over the 16-year period decreased slightly (-2.5%); however, forecasted revenues are still closely aligned with the legislative baseline projection.

Transportation Partnership Account Gas Tax Revenue Forecast
March 2005 Legislative Baseline Compared to the September 2006 Transportation Revenue Forecast Council
Dollars in Millions



Numbers may not add due to rounding.

WSDOT's Capital Project Delivery Programs

Bond Sale Plans Authorized in the 2003 and 2005 Funding Packages

The 2003 and the 2005 Transportation Funding Packages are dependent on bond financing. Ultimately the gas tax component for both of these packages will be completely leveraged to pay debt service. The 2003 Transportation Funding Package contained two bond authorizations, an authorization of $2.6 billion for motor fuel tax bonds, and an authorization of $349.5 million for State General Obligation (GO) bonds over a 10-year period. The 2005 Transportation Funding Package included a $5.1 billion bond authorization to be issued over a 16-year period.

The proceeds from these gas tax bonds will be used to fund specific highway projects. The proceeds from the state GO bonds will be used to fund rail, ferry terminal, and local road projects. The table to the right displays the bond sales plan for the 2005-2007 biennium.

The current 2005-2007 biennial bond authorization enacted by the 2006 legislative session for the Transportation 2003 (Nickel) Account is $880.0 million and $49.6 million in State General Obligation Bonds for the Multimodal Account. The current bond sale plan for this biennium is anticipated to be $819.2 million for the Nickel Account and $48.5 million for the Multimodal Account. The differences between the appropriated amounts of $880.0 million and $49.6 million, respectively, and the current Bond Sales Plan are attributed to premiums received on prior bond sales and a reduced need of bond proceeds in the Nickel Account down to $860.0 million.

The current 2005-2007 biennial bond authorization enacted by the 2006 legislative session for the 2005 Transportation Partnership Account is $150.0 million. The current bond sale plan is anticipated to be $125.5 million for this biennium. The difference between the appropriated amount of $150.0 million and the Bond Sales Plan is attributed to premiums received on prior bond sales.

The table below shows the current 16-year bond sale plan.

2005-2007 Acutal & Planned Bond Sales

2003 Transportation Funding Package Transportation 2003 (Nickel) Account Bonds

Date of Sale	Assumed Interest Rate	2005-07 Bond Sale Plan	Amount Sold	Actual Interest Cost
August 2005	5.00%	$170,000,000	$170,000,000	4.38%
January 2006	5.00%	185,000,000	185,000,000	4.43%
July 2006	5.00%	160,000,000	160,000,000	4.69%
January 2007 (planned)	5.00%	304,181,000		
Total Bond Sale Plan		**$819,181,000**		
Net Bond Sale Premium		$40,819,000		
Total Bond Proceeds		**$860,000,000**		

2003 Transportation Funding Package Multimodal Transportation Account Bonds (GO Bonds)

Date of Sale	Assumed Interest Rate	2005-07 Bond Sale Plan	Amount Sold	Actual Interest Cost
August 2005	5.00%	$0	$0	N/A
January 2006	5.00%	0	0	N/A
July 2006	5.00%	0	0	N/A
January 2007 (planned)	5.00%	$48,514,000		
Total Bond Sale Plan		$48,514,000		
Net Bond Sale Premium		$1,170,000		
Total Bond Proceeds		**$49,684,000**		

2005 Transportation Funding Package Transportation Partnership Account Bonds

Date of Sale	Assumed Interest Rate	2005-07 Bond Sale Plan	Amount Sold	Actual Interest Cost
August 2005	5.00%	$0	$0	N/A
January 2006	5.00%	70,000,000	70,000,000	4.43%
July 2006	5.00%	0	0	N/A
January 2007 (planned)	5.00%	55,519,000		
Total Bond Sale Plan		**$125,519,000**		
Net Bond Sale Premium		$4,481,000		
Total Bond Proceeds		**$130,000,000**		

16-Year Bond Sale Plan

Motor Vehicle Fuel Tax and Other Transportation General Obligation Bonds

Bonds Sold and 16-Year Bond Sale Proposal *millions of dollars*	2005-07	2007-09	2009-11	2011-13	2013-15	2015-17	2017-19	2019-21	2021-23
Transportation 2003 (Nickel) Account Highway Improvements (I)	819.2	1,059.0	441.8	20.0	0.0	0.0	0.0	0.0	0.0
Multimodal Bonds (GO Bonds) RCW Multimodal Transportation Projects	48.5	124.6	106.5	28.3	0.0	0.0	0.0	0.0	0.0
Transportation Partnership Account Highway Improvements (I)	125.5	885.0	1,895.0	1,455.0	678.0	61.5	0.0	0.0	0.0
Total Bond Sales Required to Support the 2005-07 Budget, the 2007-09 Budget Proposal and 16-Year Plan	$993.2	$2,068.6	$2,443.3	$1,503.3	$678.0	$61.5	$0.0	$0.0	$0.0

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds: Programmatic Reporting

PEF Program Milestone Report

This quarter begins the first report on the progress of Pre-Existing Funds (PEF) projects by programmatic categories. The chart below shows the six programmatic categories that are being reported on and the number of projects associated with each category for this biennium. Additionally, WSDOT continues to report on six PEF projects that were selected due to size and visibility on a quarterly basis (see page 30)

Why is the Pre-Existing Funds Program reported differently than the Nickel and TPA Program?

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, the Pre-Existing Funds (PEF) projects are funded at the program level. Funding is aligned to commitments to address set priorities such as number of miles paved per biennium. Each biennium, new PEF projects are programmed based on prioritized needs and available funds so the list of PEF projects changes each biennium.

Because Nickel and TPA projects were defined and budgeted at the project level from the beginning, milestones and other benchmark data to monitor individual project delivery were established and are available. However, since PEF projects have been historically funded programmatically, this type of data has not been collected and is not currently available. Future programs will collect benchmark project data such as the three milestones.

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Milestone Tracking for Pre-Existing Funds

Number of Projects with these Milestones, Biennium To - Date
Milestone and Expenditure Achievement to Date
Dollars in millions

	Begin Engineering		Advertised for Bids		Operationally Complete		Expenditures	
Programmatic Categories*	**Planned**	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**
Pavement Preservation	146	134	77	73	90	117	$180	$171
Bridges (Preservation/Replacement)	48	39	31	26	21	18	$119	$99
Slope Stabilization	6	11	8	13	8	6	$36	$27
Safety (roadside, rumble strips, median cross-over, etc.)	43	37	30	25	48	49	$72	$63
Environmental Retrofit (fish passage improvement, stormwater runoff)	6	6	8	7	3	7	$12	$12
Other facilities (rest area, weigh stations, etc.)	22	25	16	14	25	24	$278	$198
Totals	271	252	170	158	195	221	$697	$570

Source: WSDOT Project Control and Reporting

*While elements of one or more categories may be included in some of the projects (such as a bridge preservation project that improves safety), every project has been assigned to one primary category for reporting purposes.

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds Program: Programmatic Reporting

Advertisement Record: One Hundred Fifty-Eight Projects Now in Construction as of September 30, 2006

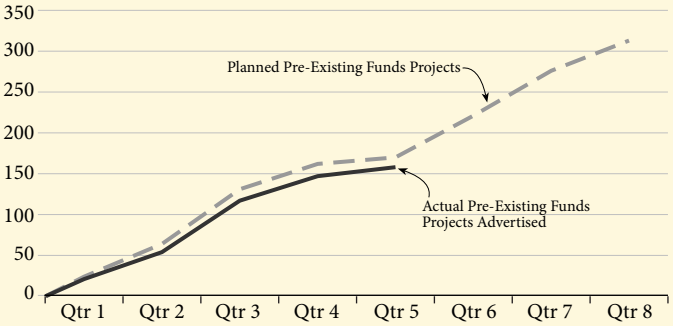
Biennium to Date (2005-07)

The 2005-07 Highway Construction Program includes a commitment to advertise 313 Pre-Existing Funds (PEF) projects. PEF advertisements through the quarter ending September 30, 2006, were 158 of the planned 170, or 93% of the "planned" commitments for the first five quarters. Of the 170 scheduled, 20 were delayed to future quarters of this biennium, 10 were deferred to future biennia, and 1 project was deleted.

Current Quarter (July 1 - September 30, 2006)

For the quarter there were eight planned PEF advertisements. Three of these projects were advertised as scheduled. Two of the planned advertisements were delayed to later in this biennium and three have been deferred to a future biennium. There were two advanced, two emergent, and four delayed projects advertised.

Highway Construction Program Advertisements
Pre-Existing Funds Projects
Planned vs. Actual Number of Projects Advertised
2005-2007 Biennium, Quarter 5 ending September 30, 2006
Project Count

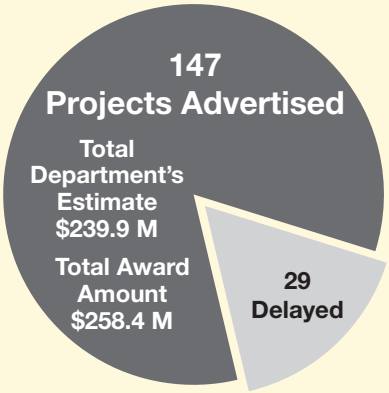


Source for all graphs: WSDOT Project Control and Reporting Office.

The table below summarizes the status of PEF projects advertised during the fifth quarter of the 2005-07 biennium.

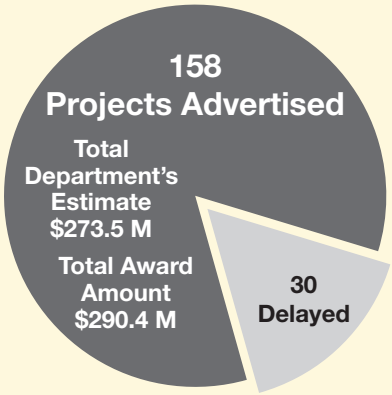
Pre-Existing Funds Projects: A Snapshot of Quarterly Progress and Total Biennial Progress to Date

End of Last Quarter
June 30, 2006



Projects Advertised	Projects Through Last Quarter	This Quarter's Progress	Biennium to Date Total
As Scheduled	117	3	120
Project Ads Early	9	2	11
Project Ads Late	15	4	19
Emergent Projects	6	2	8
Total Advertised	**147**	**11**	**158**
Projects Delayed			
Within the biennium (delayed)	21	2	20
Out of the biennium (deferred)	8	3	10
Total Delayed	**29**	**5**	**30**
Projects Deleted			
Projects Deleted	1	0	1
Total Deleted	**1**	**0**	**1**

End of This Quarter
September 30, 2006



WSDOT's Capital Project Delivery Programs

Pre-Existing Funds Program

Advertisement Record: Projects Scheduled and/or Advertised this Quarter

July 1, 2006 - September 30, 2006

Fourteen PEF projects scheduled to be advertised for construction during the fifth quarter of the 2005-07 biennium

Project Description	On-Time Advertised	Project Description	On-Time Advertised
NC Region Sign Update 2005 - 2007	Early	U.S. 101/5 Miles South of Artic - Unstable Slope	Emergent[5]
Olympic Region Pedestrian Risk 05-07 - Safety	Late[1]	U.S. 101/Evergreen Parkway to Vic Crosby Blvd - Median Crossover	Late[6]
SR 20/Walker Hill Road to Graves Mountain Road - Paving	Late[2]	SR 107/2.5 Miles South of Montesano - Unstable Slope	Emergent[7]
SR 26/Relief Bridge - Scour Repair	✓	SR 206/Deadman Creek #2 Bridge - Scour	✓
SR 28/Crescent Bar to Quincy - Paving	Early	SR 410/Nile Road Vic.-Erosion	Deferred[8]
I-90/Mercer Island LID CCTV Replacement	Delayed[3]	SR 509/City Waterway Bridge - Removal	Deferred[9]
I-90/Mt Baker Tunnel & Mercer Island LID - Power Distribution	✓	SR 509/City Waterway Bridge 509/5	Deferred[10]
I-90/Cle Elum Weigh Station E/B-WIM	Delayed[4]	SR 512/ 108TH St. E to SR 167 - Median Barrier	Late[11]

Source: WSDOT Project Control and Reporting Office

Project Details:

[1]The work will be performed by State Forces and will not be advertised.

[2] The advertisement on this project was delayed. The project was pulled from Ad in May because the engineers' estimate did not reflect asphalt and fuel cost escalation due to higher oil prices. The project was re-advertised in September to reflect the engineers' estimate and also to benefit from the more competitive bidding climate in the fall. This delay resulted in a $400K savings in the total cost of the project.

[3]The work will be performed by State Force and DIS (Department of Information Services). Construction start is delayed 4 months in order to set up equipment and the DIS contract.

[4] The advertisement date was delayed at the request of Washington State Patrol due to funding availability.

[5] Emergent need project was added to address catastrophic roadway failure caused by heavy rainfall.

[6]The advertisement date was delayed . Additional design and environmental review was required to meet the 6:1 slope requirements that were not included in the initial project scope.

[7]Emergent need project was added to address catastrophic roadway failure caused by heavy rainfall.

[8] The construction phase has been deferred to align with the SR 410/ Rattlesnake Creek project.

[9] Project has been delayed to allow the city of Tacoma time to secure funds to rehabilitate the bridge rather than remove it.

[10] Project has been delayed to allow the city of Tacoma time to secure funds to rehabilitate the bridge rather than remove it.

[11] The advertisement on this project was delayed. Further review of median crossing collision data occurring in non standard areas recommended adding additional cable barrier to this project. Additional time was needed to complete the design and environmental review.

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds Program: Individual Reporting

Schedule Milestone Reporting

Six Pre-Existing Funds projects have been selected for individual project reporting on a quarterly basis. These projects have been selected due to the size and visibility of each project. The following table summarizes the three schedule milestones tracked for these six Pre-Existing Funded projects: Begin Preliminary Engineering, Advertisement Date, and Operationally Complete.

Six Individually Tracked Pre-Existing Funds Project Results through September 30, 2006
Dollars in Millions

Project Description	First Leg. Budget	Baseline: Current Leg. Approved	Scheduled Date to Begin Preliminary Engineering		Schedule Date for Advertisement		Schedule Date to be Operationally Complete
			Date	On-Time	Date	On-Time	
SR 28/E. End of the George Sellar Bridge - Construct Bypass	$9.4 (2004)	$9.3 (2006)	Jun 2004	✓	Oct 2009	Late[2]	Sep 2011
SR 539/Horton to Tenmile Road - Widen to Five Lanes	$32.0 (2001-03)	$52.6 (2006)	Oct 1990	✓	Dec 2006	✓	Jun 2010
SR 202/SR 520 to Sahalee Way	$36.9 (2001-03)	$82.1 (2006)	May 1998	✓	Aug 2005	Late[1]	Dec 2008
U.S. 101/Purdy Creek Bridge Replacement	$6.0 (2004)	$11.1 (2006)	Aug 2004	✓	Jan 2008	✓	Jan 2010
U.S. 2/Ebey Is Viaduct and Ebey Sl Br.	$32.1 (2002)	$35.5 (2006)	Dec 1998	✓	Nov 2000	✓	Dec 2006
• U.S. 2/55th Avenue SE Vic to SR 204 Vic - Bridge Rehabilitation			Jul 2006		Apr 2007		Jun 2009
• SR 2/43rd Ave SE Vic to 55th Ave SE Vic - Bridge Rehabilitation			Jan 2009		Aug 2010		Dec 2011
SR 303/Manette Br Bremerton Vic. - Br. Replacement	$25.5 (2002)	$25.8 (2006)	Sep 1996	✓	Mar 2010	Late[3]	Nov 2013

Future Reporting: Current WSDOT Estimate of Cost at Final Completion is the critical number toward which all modern project management is pointed. Today WSDOT engineers and program managers can only back into these values as best as possible without the management information systems that allow schedule and budgets to be used as the basis for value-earned management systems. WSDOT is considering ways to use estimating techniques to approximate these values until new management information systems are installed and project data is loaded.

Baseline Data: Baseline milestone dates are derived from the 2003 Legislative Transportation Budget. Advertisement Date and Operationally Complete milestones are considered on-time if completed within the scheduled baseline calendar quarter. The Begin Preliminary Engineering milestone is reported as on-time if completed within +/- 6 weeks of baseline date.

Milestone Definitions:

Begin Preliminary Engineering
A project schedule usually has two general phases, the pre-construction phase and the construction phase. Preconstruction involves design, right-of-way, and environmental activities. The preliminary engineering marks the start of the project design and is usually the first capital spending activity in the delivery process.

Advertisement Date
This is 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.

Operationally Complete
This is the date when the public has free and unobstructed use of the facility. In some cases, the facility will be open, but minor work items may remain to be completed.

Project Details:

[1]This project was delayed from the original 2005 Legislative Final advertisement date to address several environmental and permit issues.

[2] Construction phase has been delayed to balance the financial plan 07-09 biennium Legislative book.

[3] Construction phase has been delayed to balance the financial plan 07-09 biennium Legislative book.

WSDOT's Capital Project Delivery Programs

Pre-Existing Funds (PEF) Program: Financial Information

Paying for the Projects: Financial Information

WSDOT submitted an expenditure plan to the Legislature for the fifth quarter of the biennium totaling approximately $697 million. As of September 30, 2006, actual expenditures totaled $570 million, a variance of approximately $127 million, or 18%, from the biennium plan. The variance as of the end of the fifth quarter for the Highway Construction Program was divided between the Improvement and Preservation programs.

The Preservation Program planned cash flow was $366 million, and actual expenditures were $318 million. This was $48 million, or 13%, under plan. The under-spending was due to the extension of the selection process for Hood Canal Bridge alternate construction sites, as a result of archaeological discoveries at the originally planned construction site (see p. 42 of the December 31, 2004, Gray Notebook for more information). Additionally, closure of the bridge is delayed until next biennium, which has delayed the need to lease a park-and-ride lot for the west side passenger-only ferry terminal until 2008. Finally, expenditures were delayed on two projects:

- *I-90/Spokane Viaduct Bridge Deck Rutting Repair -- Eastbound*
- *U.S. 101/Simpson Ave Bridge -- Mechanical (due to a shortage of bridge preservation funds in the 2005-07 biennium)*

The Improvement Program planned cash flow was $331 million, and actual expenditures were $252 million. This was approximately $79 million, or 24%, under plan. The under-spending was primarily due to slower than expected expenditures for several projects, including:

- *SR 99/Alaskan Way Viaduct and Seawall - Replacement EIS*
- *SR 518/SeaTac Airport to I-5 - Eastbound Widening*
- *I-82/South Union Gap I/C - Improvements*
- *SR 509/SR 518 Interchange - Interchange Improvements*

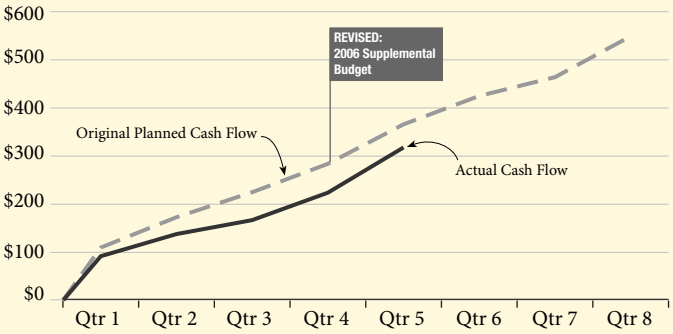
Preservation Program Cash Flow

Pre-Existing Funds

Planned vs. Actual Expenditures

2005-2007 Biennium, Quarter 5 ending September 30, 2006

Dollars in Millions



As of quarter four (April-June 2006), Original Planned Cash Flow values have been updated based on the 2006 Supplemental Budget.

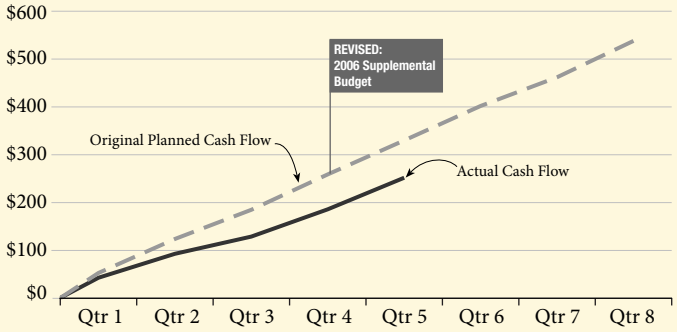
Improvement Program Cash Flow

Pre-Existing Funds

Planned vs. Actual Expenditures

2005-2007 Biennium, Quarter 5 ending September 30, 2006

Dollars in Millions



As of quarter four (April-June 2006), Original Planned Cash Flow values have been updated based on the 2006 Supplemental Budget.

Special Report: Tacoma Narrows Bridge, Quarterly Update

Tacoma Narros Bridge is 81.2% Complete

As of September 30, design-builder Tacoma Narrows Constructors (TNC) has completed 81.2% of construction on the SR 16 Tacoma Narrows Bridge project. TNC transferred the first deck section to the barge on August 3 and lifted it into position on August 7, 2006. The remainder of August saw the lifting of seven deck sections, three into final position. By the end of September, TNC had lifted all 16 deck sections off of the *Swan*. The *Teal*, the second semi-submersible ship carrying 15 deck sections, was moved into the *Swan's* position under the bridge while the *Swan* was sent back to South Korea to load up the last 15 deck sections.

TNC also installed a dolly system at the east anchorage for moving deck section 46 into final position. The dolly system was removed by the end of September. TNC continued to backfill behind the east anchorage, bringing it up to the final roadway level. Completing the finish work of the tower interior concrete was also the focus of TNC this quarter. Lastly, TNC installed the remaining permanent suspender cables used to connect the deck sections to the main cable.

Deck section 46 trapezing into the east anchorage to its final position.

Road and Existing Bridge Retrofit Construction

During the quarter, TNC completed the construction of a retaining wall for the new 24th Street eastbound on-ramp. By the quarter's end, TNC had graded, paved, and opened the new Jackson Avenue eastbound off-ramp. TNC also completed sub grade surfacing for the new eastbound lanes on the Tacoma side. The new lanes were paved and opened at the beginning of October.

Tacoma Narrows Bridge Progress

As of September 30, 2006

Design	99.9%
Construction	81.2%
Total	82.5%

Source: WSDOT Engineering and Regional Operations Devision

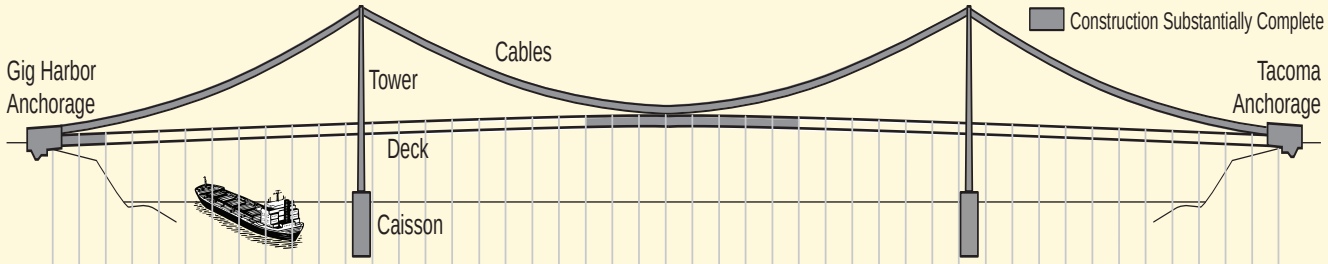
Existing bridge seismic retrofit work progressed steadily. This work included construction on the interior walls of the existing east anchorage, reinforcing support columns, and work on the Tacoma Tower (Pier 5).

Toll Facility, Installation, and Operation

After last quarter's successful launch of the public campaign for WSDOT's electronic tolling system, *Good To Go!*, WSDOT has been actively promoting the program throughout the South Puget Sound. The public awareness campaign includes numerous presentations at local clubs, fairs, and festivals; and placement of brochure displays in over 250 businesses and civic buildings. In addition, WSDOT created new information for the web site, new brochures, and a quarterly progress report. For more information, please visit www.wsdot.wa.gov/goodtogo.

WSDOT also coordinated the first meeting of the Tacoma Narrows Bridge Citizen's Advisory Committee this quarter. The Committee will make recommendations to the Transportation Commission on toll rates and schedules.

Tolling contractor TransCore reached a milestone with the completion of commissioning tests, the second of three major system tests. Commissioning tests gage the performance of the Toll Collection and Accounting System (TCAAS). It is conducted with all subsystems and interfaces fully integrated to verify proper operation of TCAAS as a whole before revenue operations commence.



Deck #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
Ship #	1	1	1	2	2	1	2	2	3	3	3	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	2	2	1	1	1	1
Lift Seq. No.	6	10	13	18	21	4	28	31	35	45	39	36	41	43	33	29	27	24	19	17	14	9	5	1	2	8	12	15	20	23	25	30	34	44	42	37	40	46	38	32	26	22	16	11	7	3

Three cargo ships will deliver a total of 46 deck sections. Ship No. 1 with 16 sections, Ship No. 2, and No. 3 (both with 15 sections). Ships No. 1 and 2 have alread arrive and Ship No. 3 will arrive later this year. The first row (Deck #) of the table indicates the deck blocks - 1 through 46. In the third row (Lift Seq. #), the number tells the order in which the sections will be lifted. Note that the lifting occurs in a non-linear sequence. It may appear to be "out of order" but this sequence is necessary to maintain equal stress on the cables.

Special Report: Hood Canal Bridge, Quarterly Update

Hood Canal Bridge is 27% Complete

When the project is finished, the Hood Canal Bridge will be wider, safer, easier to travel, and more affordable to maintain. As of September 30, 2006, the SR 104 Hood Canal Bridge Project is 27% complete.

Post-Tensioning Work Begins

Completing the top concrete section marked the beginning of the post-tensioning process, which tightens the steel rods and cables within the concrete walls to increase the overall strength of the pontoons. Kiewit-General and WSDOT began post tensioning on August 23, tightening the first of approximately 2,500 steel cables and rods that run through pontoon PA walls, floor, and top. Post-tensioning is a large portion of the work left to be completed before the first cycle of pontoons are ready to be floated from Tacoma to Seattle. Accomplishing post-tensioning within the allotted timeframe and projected cost is critical to the project's overall schedule and budget. Extensive planning was completed and training conducted to make sure this work would be done right

K-G crews smooth concrete during the final top deck pour for Pontoon PA.

Pontoon Construction Work Progresses

Twenty-three feet above ground, the final top deck concrete pour was completed for a new SR 104 bridge pontoon on September 8, 2006. This signaled the half-way point in the first of four pontoon construction cycles (see diagram below). Pontoon construction began in March 2006 and to date is 26% complete.

WSDOT and Kiewit-General (K-G) of Poulsbo will construct 14 new pontoons over the four construction cycles. Another three pontoons will be retrofitted to use as part of the new east-half of the bridge. New anchors will be constructed and floated into place prior to pontoon replacement.

The completed east-half pontoon roadway sections and fully assembled east-half draw span will be floated into place during the bridge closure in May and June 2009.

Anchor Construction Starts

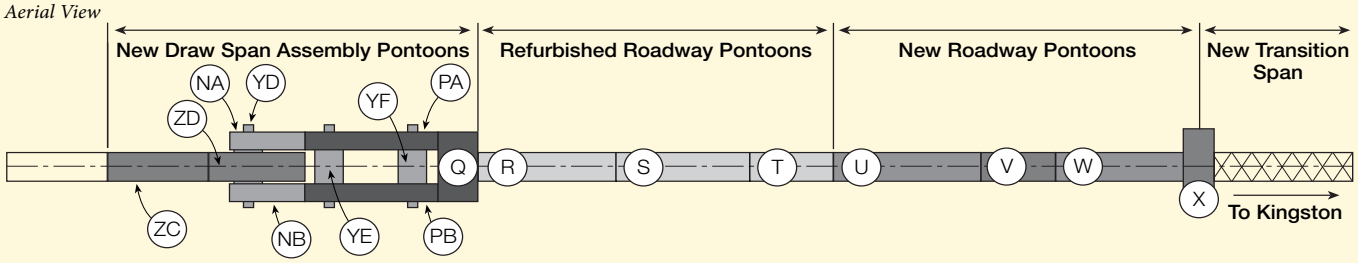
On August 22, the floating dry-dock, *Emerald Sea*, was towed into place at Todd Pacific Shipyards in Seattle. With the dry dock in place, work moved forward quickly on constructing new east-half anchors. This quarter's accomplishments were the first steps toward setting the new east-half anchors on the bottom of Hood Canal by the end of next summer. As of September 30, 2006, anchor construction is 10% complete.

Mitigation Planning for 2009 Closure

On September 15, 2006, WSDOT received the Peninsula Regional Transportation and Planning Organization's (PRTPO) stamp of approval to continue implementing the $10 million federally-funded closure mitigation plan to help drivers get where they need to go during the May-June 2009 Hood Canal Bridge closure. During this quarter, the Hood Canal Bridge Team focused on obtaining necessary permits, coordinating with local transit agencies, designing the water shuttle facilities and park and rides, and communicating the plan to drivers.

Schedule Diagram of Hood Canal Bridge Pontoon Construction Cycles

Aerial View



- To be Built in 1st Cycle (PA, PB, Q). Scheduled Delivery Date: January 2007.
- To be Built in 2nd Cycle (NA, NB, YD, YE, YF). Scheduled Delivery Date: August 2007.
- To be Built in 3rd Cycle (ZC, ZD, V, X). Scheduled Delivery Date: April 2008.
- To be Built in 4th Cycle (U, W). Scheduled Delivery Date: September 2008.
- Retrofitting (R, S, T). Scheduled Delivery Date: April 2008.

Source: WSDOT Hood Canal Bridge Project Office

Cross-Cutting Management Issues

Program Management Information Services

New System for Project Management and Reporting is Under Development

The Statewide Program Management Group (SPMG), a team of transportation consultants, is helping WSDOT to develop a strategic plan for the delivery of the capital construction program. One of the key strategies in SPMG's plan is to develop a new Project Management and Reporting System (PMRS), which is a step towards migrating away from WSDOT's legacy systems supporting project management (see gray box to the right).

The new PMRS system will have multiple benefits, including improved reporting capabilities, accurate and reliable data for decision-making, and increased efficiency, which is essential to delivering WSDOT large capital construction program. PMRS will allow agency staff to use industry-standard project management tools, such as earned value and cost-to-complete.

The PMRS project was approved to proceed on July 13, 2006 by the Washington State Information Services Board (ISB) In August 2006, the Office of Financial Management (OFM), in concert with the Legislative Transportation Committee, approved $4.4 million in funding for the 2005-07 biennium. WSDOT will provide regular progress reports to ISB, OFM and the Legislature over the 37-month life of the project.

Deployment of the PMRS pilot system is expected early in 2008, with full agency-wide implementation scheduled for Fall 2009. WSDOT will develop a Project Management Academy that will educate staff on project management best practices. In addition the department will be developing training for staff to use PMRS.

Update of Critical Systems Replacement

In December 2005, WSDOT completed the Critical Applications Assessment, undertaken at the 2005 Legislature's request. The consulting firm Eclipse Solutions examined 11 core information technology systems that provide WSDOT with both direct support of capital projects and the information necessary for the agency's accountability efforts. The study evaluated the systems from both a technical and business perspective, providing an assessment of how well the systems are fulfilling the agency's business needs.

According to the study, none of the 11 applications meet even 20% of the agency's current and future business and technical requirements. This concern is especially acute as WSDOT delivers its unprecedented $15 billion capital construction program, based on the Nickel and Transportation Partnership funding packages, in addition to the normal project delivery program from Pre-Existing Funds (PEF).

To support the capital construction program, the priority for application replacement has shifted to the Project Management and Reporting System (PMRS) initiative described to the left. PMRS will replace one of the 11 applications identified by the Critical Applications Modernization & Integration Strategy.

Replacements for the other ten systems are not yet funded. However, WSDOT has begun an incremental step on the first phase of the recommended strategy for the Critical Systems Replacement, which was to define and build the technical architecture necessary to support the new systems. Once established, the architecture will support current efforts including the PMRS system and future systems development projects.

For more information on the Eclipse report findings, please see the *Gray Notebook* for the quarter ending March 31, 2006, page 29.

Environmental Documentation, Review, Permitting, and Compliance

The Endangered Species Act (ESA) requires that all projects with federal funds or permits be evaluated for actual and potential effects the project may have on listed endangered and threatened species. Projects that will result in impacts to listed species undergo consultation either informally or formally with one or both of the Services: U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration/National Marine Fisheries Service (NOAA Fisheries). WSDOT projects with no effect on ESA listed species do not undergo consultation with the Services.

Nickel Projects 2005-07 Biennium

Of the 28 Nickel Projects that have not gone to advertisement in the 2005-2007 biennium, 18 have completed ESA review. Nine projects underwent informal consultation with one or both services and the other nine projects did not require consultation. One project that has not gone to advertisement is currently undergoing consultation with both services: *SR 116/SR 19 to Indian Island*. The remaining nine projects (four informal consultations, one formal consultation and four that do not require consultation) are under preparation at this time.

Nickel Projects 2007 and Beyond

WSDOT has completed ESA review on four projects planned for the end of 2007 and beyond. These include: *I-205/Mill Plain Exit Direct Ramp*, *U.S. 2/Peshastin East Interchange*, *SR 900 to I-90 Vicinity Widening and HOV*, and *I-405/SR 520 to SR 522*. A fifth project (*SR 539/Tenmile Road to SR 546 Widening*) has completed informal consultation with NOAA Fisheries and is undergoing informal consultation with USFWS. Another 15 ESA Reviews are on the docket for 2007 and beyond.

Transportation Partnership Account (TPA) Projects

For the 2005-07 biennium, 18 of the 39 projects that have not gone to advertisement have completed ESA Review. One of these required formal consultation with the services (*I-405/W Valley Highway to Maple Valley Highw*ay), one required informal consultation (*SR 542 Boulder Creek Bridge Replacement*) and 16 were completed under programmatic biological assessments (BAs) or no-effect reviews. The remaining 21 projects have either biological assessment under preparation or are awaiting design information to begin preparing for the BA. At this time, there are 95 TPA projects planned for the 2007-09 biennium; seven have completed ESA review.

Pre-Existing Funds (PEF) Projects

At this time, 102 PEF projects have not gone to advertisement for the 2005-07 biennium. Of these projects, 73 have completed ESA review through a programmatic BA or a no-effect review, 14 have BAs under preparation and eight do not have enough information to undergo ESA review. Of the remaining PEF projects, six have completed informal consultation with the services: *SR 153/Methow River Bridge Deck and Rail Repairs* (two projects), *SR 4 Kandoll Road Vicinity to Grays River Bridge Chip Seal*, *Southwest Region Bridge Seismic Retrofit*, *SR 401/U.S. 101 to SR 4 Paving*, and *SR 503 Spur/SR 503 to Skamania County Line Chip Seal*. One project is undergoing formal consultation with USFWS (*U.S. 101/Humptulip River Bridge*) at this time.

Ferry and Rail Projects

Consultation has been completed on the four ferry projects described in the June 30, 2006 *Gray Notebook* (p. 36). At this time, there are six ferry projects that will undergo ESA Review within the next biennium. Five of these will be formal consultations and one will be an informal consultation with both services. There are a total of nine rail projects planned for the next biennium. Three of these have completed ESA review. Four will undergo informal consultation and two will be completed through a no-effect review.

Endangered Species Act (ESA) Compliance Status for All Projects, July - September 2006

Number of Projects

	2005-07 Nickel Projects	2007 and Beyond Nickel Projects	2005-07 TPA Projects	2005-07 PEF Projects	2005-07 Ferry & Rail Projects
Projects under review at the Services[1]	1	1	0	1	0
Biological Assessment underway	5	10	10	5	10
Projects which lack sufficient information to start the Biological Assessment[2]	0	15	7	8	0
WSDOT anticipates consultation will not be required	4	5	4	9	2
Endangered Species Act Review complete[3]	18	5	18	79	7

Source: WSDOT Environmental Services Office and WSDOT Project Control and Reporting

[1]Projects that have completed ESA review include those that did not require consultation (no effect or programmatic) and those requiring consultation (formally or informally) .

[2]This means that WSDOT does not yet have enough information regarding the design of the project to begin a biological assessment

[3]Projects that have completed ESA review include those requiring consultation (formal or informal) with the services and those that did not require consultation (no effect reviews or programmatic biological assessments).

Stormwater Guidance for ESA Consultations

As reported in the March 31, 2006 *Gray Notebook* (p. 37), WSDOT, FHWA, USFWS and NOAA have revised the guidelines for preparing stormwater analyses in Biological Assessments (BA). The guidelines provide direction to biologists on establishing the level of analysis needed to complete ESA consultation based on the potential effects to listed species and habitat from stormwater runoff associated with a project. Because the guidelines have been developed collaboratively, WSDOT expects that delays in consultations on highway projects will be reduced. The guidelines are expected to be revised regularly as further issues are resolved and additional scientific information becomes available.

Noise Impact Research Update

WSDOT is currently working on new acoustics research to benefit ESA consultations and project impact assessments. WSDOT chairs a committee overseeing a national research project to expose various juvenile fish species to sound levels like those generated from pile driving. Results of the project are expected to provide assistance on developing guidance regarding impacts of pile driving on endangered and threatened fish species. Preliminary results of this study are expected this December.

Endangered Species Act Update

A revision to the 1996 designation of critical habitat for the marbled murrelet, a water bird, was proposed on September 12, 2006. Currently, local, state, and tribal conservation and management plans provide protection for the species and its habitat; the proposal recommends that these lands be removed from the federal designation for the murrelet. If approved, the revision will remove 26,908 acres of Washington land from the federal designation, reducing the number of areas that will require consultation on impacts from WSDOT projects. As part of the revision, physical and biological features essential to the conservation of the species will be redefined.

Habitat for the marbled murrelet might be redesignated from "protected" status, reducing the consultation needs of some projects.

FHWA Presents WSDOT Region with Exemplary Ecosystem Initiative Award

The Federal Highway Administration (FHWA) presented WSDOT's with an award for "exceptional environmental stewardship" in the design of the I-90 Snoqualmie Pass East project within the Wenatchee National Forest.

The project crosses a critical north-south corridor for elk, lynx, gray wolf, grizzly bear, and wolverine, and cuts through a 25- to 30-mile area of habitat connecting much larger habitat areas along the mountain range. When the I-90 improvements are completed, wildlife conservation will be integrated with highway safety. The project will improve hydrologic functions, water quality, erosion control, and woody debris redistribution, all goals of the Northwest Forest Plan. In addition, the project will re-connect important old growth and other habitat areas as part of a larger effort to improve ecological conditions in the area. More information on this project is available in the March 31, 2005 *Gray Notebook*, p.p. 54-55.

The FHWA award recognized ongoing efforts among WSDOT and environmental groups to put wildlife protection into project planning. A working group of biologists and hydrologists from WSDOT and State and Federal resource agencies accomplished this task, with input from the Cascades Conservation Partnership, the Alpine Lakes Protection Society, the Mountains-to-Sound Greenway, and the Kongsberger Ski Club. The investment in working with community and environmental groups led to unprecedented support for the project by groups that typically would not favor major highway expansion projects.

Hot Mix Asphalt

WSDOT tracks both the projected and awarded amounts of Hot Mix Asphalt (HMA) for two reasons. First, the agency projects HMA amounts so that asphalt-producing vendors can better anticipate future HMA volumes. This helps these private vendors better manage their production and reduce their costs to deliver the HMA, and ultimately results in more competitive bidding and favorable prices by construction contractors on WSDOT projects. Secondly, WSDOT measures actual tons awarded as an indicator of the agency's estimating accuracy and delivery record.

Actual Hot Mix Asphalt Tons Awarded in 2006 Under Projection by 7% Due to Project Delays

In October 2005, WSDOT forecasted that 1,213,985 tons of Hot Mix Asphalt (HMA) would be awarded in contracts throughout the state by September 2006. The final amount was 1,126,701 tons awarded, 93% of the original forecast. This represents a difference of 87,284 tons. The actual HMA awarded was under projection by 7%, slightly worse than the normal difference in actual and projected HMA tons.

The under-projection was due to three delayed projects accounting for 87,956 tons of HMA, roughly the difference between the HMA tons forecast and the tons awarded (see table below). The projects were delayed due to geotechnical issues and utility relocation. WSDOT plans to advertise these projects within the next year, and they are included in the 2007 HMA award projection.

Major Hot Mix Asphalt Projects Delayed, 2006

Project Location	Fund Source	Contract Tons	Reason for Delay
SR 522 near Bothell	Nickel	47,650	Environmental permitting and geotechnical issues. Project should be advertised in 2007.
SR 20 near Oak Harbor	PEF	23,500	Utility relocation issues. Advertisement delayed until late 2006/early 2007.
I-90 near Cle Elum	PEF	16,806	Project delayed due to emergency contract for slope stabilization in same general vicinity. Project will be advertised in 2007.
Total		**87,956**	

Source: WSDOT Construction Office

Hot Mix Asphalt Pavement Awarded - Projected vs. Actual, 2002-2006

In Tons, October through September of each year[1]

Year	Projected	Actual	% Difference
2002	1,373,465[2]	1,364,021	-1%
2003	1,417,126	1,825,442	+29%[3]
2004	1,324,218	1,299,377	-2%
2005	1,779,826	1,685,394	-5%
2006	1,213,985	1,126,701	-7%

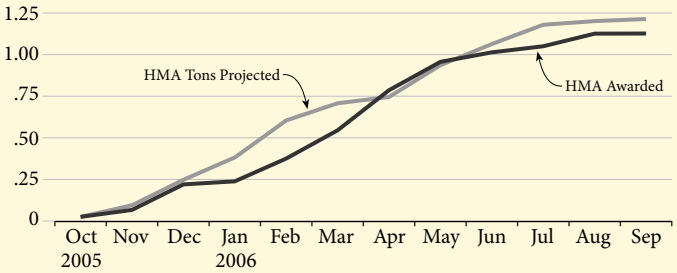
Source: WSDOT Construction Office

[1]Awarded tons are tracked from October through September of each year, providing a better measurement of the work schedule and better planning for the paving industry than the calendar year. Construction projects awarded in the fall typically do not begin work until the next year due to inclement weather conditions.
[2]The projection for 2002 was revised in March 2002 by the Transportation Commission following budget cuts.
[3]The 2003 "Nickel" Transportation Funding Package was passed after the projection was made for 2003. WSDOT subsequently awarded five projects from the Nickel funding package with a combined total of 315,285 tons of HMA.

Hot Mix Asphalt Tons Awarded

October 2005 - September 2006

Tons in Millions



Source: WSDOT Construction Office

Workers place HMA with a spreader box to create a paved walkway at the Iron Goat Interpretive Center.

Crews place HMA with an asphalt paving machine on 1-405 at Totem Lake.

Construction Material Cost Trends

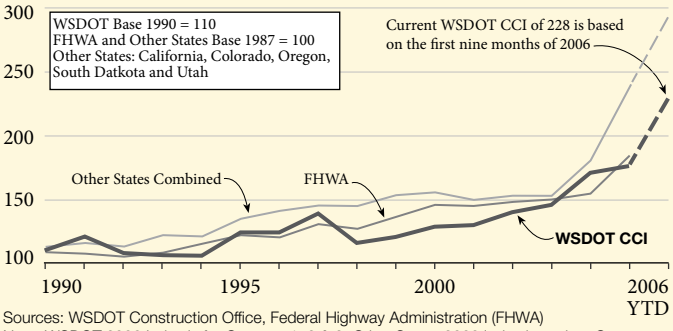
WSDOT prepares its construction cost estimates using historical information about market conditions drawn from recent bids. Like other state transportation departments, WSDOT must extrapolate for the future based on past records, not from a crystal ball of future market conditions. WSDOT accumulates construction cost information and calculates a Construction Cost Index (CCI). The CCI is then compared against the experience of other states. The graph below presents the past 16 years of CCI data for Washington State. This is plotted against the CCI of the Federal Highway Administration (FHWA) and a line representing the combined CCIs of several nearby western states: California, Colorado, Oregon, South Dakota, and Utah.

The average annual growth rate of the CCI from 1990 through 2001 was 1.5% per year. However, since 2001, the average growth rate has been 12% per year. During this period the CCI has been driven up by several factors, including: the increasing worldwide demand for construction materials; rising crude oil prices and other energy supply issues; and recent increases in national and international construction activity.

Construction Cost Index up 30% over 2005

WSDOT's CCI has increased 30% in the first three quarters of 2006 over the annual average for 2005, from 176 to 228. The driving force behind this increase is the rising costs of Hot Mix Asphalt (HMA). Of the seven materials WSDOT tracks in the CCI, HMA comprises almost half the weight of the index (see gray box). HMA prices rose 35% in the first three quarters of 2006 following increased crude oil prices and decreases in liquid asphalt production. (see June 30, 2006 *Gray Notebook*, p. 32 for more information)

Construction Cost Indices
Washington State, FHWA, and Other States



Sources: WSDOT Construction Office, Federal Highway Administration (FHWA)
Note: WSDOT 2006 Index is for Quarters 1, 2 & 3; Other States 2006 Index based on Oregon and Utah 1, 2 & 3 quarter data; 3 quarter data not available for California, Colorado and South Dakota; 2006 data not available for FHWA.
Note: 2003 and 2004 WSDOT CCI data points adjusted to correct for spiking bid prices on structural steel.

WSDOT's CCI is a composite of unit price information from low bids on seven of the most commonly used construction materials. These items reflect a composite cost for a completed item of work and include the costs of labor, equipment, and materials. The following components (weighted as shown) are used to compute the CCI. (For more information, see the September 2005 *Gray Notebook*, p. 45).

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%)

WSDOT Implements New Hot Mix Asphalt Escalation Clause

Currently, when contractors bid on WSDOT projects, they estimate the potential future cost of materials and build that risk into their bid. This results in higher bids from contractors when the construction materials market is volatile, as it is now. This practice also puts contractors at risk to lose money if their bids underestimate future costs. HMA costs are a particular concern: they are currently up 35% from 2005. WSDOT believes that contractors are beginning to lose their ability to manage risk in the face of rising HMA prices and a diminished liquid asphalt supply.

WSDOT, with advice from the Washington Asphalt Paving Association (WAPA), is implementing a Hot Mix Asphalt Escalation Clause on projects statewide. The escalation clause is designed to transfer some of the cost escalation risk from the contractor to the state, therefore reducing the effect of cost uncertainty on contractor's bids. There are two anticipated outcomes. First, WSDOT and WAPA anticipate this will result in contractors submitting lower bids, and ultimately lower overall project costs for the state, because contractors no longer have to inflate their HMA bids out of fear of underestimating future market prices. The second goal is to make contractors less vulnerable to losses due to sudden increases in market prices of HMA.

At a time when HMA prices are rising rapidly, contractors bidding on multi-year projects face the most risk because they must submit bid prices for HMA years before paving will begin. WSDOT's HMA escalation clause affects all multi-year projects that contain HMA. Contracts that contain the clause provide for an upward or downward adjustment in the price WSDOT pays for work on those projects. WSDOT will provide additional payment or receive a credit, depending on whether prices rise or fall. WSDOT implemented the clause in August 2006; a future *Gray Notebook* report will contain an analysis to determine how it has affected contractor's bid prices.

Cross-Cutting Management Issues

Use of Consultants

WSDOT uses consultants to handle workloads that the department does not have the resources or expertise to perform internally. WSDOT uses two different types of consultant agreements: On-Call Tasks Orders and Project-Specific Agreements.

On-Call Task Agreements comprise the majority of the funds spent on consultant contracts. Biannually, WSDOT assesses the types of work services that it consistently uses, such as preliminary engineering, traffic engineering, real estate appraisal and negotiation, land surveying, traffic engineering, and transportation studies. Based on the estimated need, the agency advertises for predetermined categories of work and initiate multiple On-Call Task Order agreements for each category. The regions will determine if work can be completed using one of these On-Call Task Order agreements. Project Specific Agreements, individually advertised by project, are typically used for work that cannot be performed using one of the On-Call agreements described above. For example, WSDOT might use a project specific agreement to design a ferry terminal project or to develop layout plans for an airport.

From April 1, 2006 to September 30, 2006, the net totals of new consultant authorizations were $78,920,587 for on-call task order agreement projects and $13,357,904 for project specific agreement projects. A wide array of projects received funds; however, following the pattern of previous periods, the bulk of new authorizations were directed towards a few specific projects.

On-Call Task Order Consultant Agreements

Fifty-two Nickel projects received consultant authorizations from On-Call Task Order agreements during the period of April 1, 2006 to September 30, 2006. Authorizations totals were $23,026,870 for 46 prime consultant firms and 34 sub-consultant firms. Twenty-nine TPA projects received consultant authorizations from On-Call Task Order agreements during this period. Authorization totals were $7,138,423 for 18 prime consultant firms and 20 sub-consultant firms. The overall statewide On-Call consultant authorizations (excluding Nickel, TPA, and General Engineering Consultants) for the same period were $25,959,827.

Consultant Authorization Amounts for October 1, 2005 – March 31, 2006[1]
Dollars in Millions

	Nickel	TPA	PEF	Total
On-Call Task Order Consultant Agreements (including GEC agreements)	$29.2	$10.5	$39.1	$78.9[1]
Project Specific Agreements/ Supplements	$6.3	$1.0	$6.1	$13.4
Totals	$35.5	$11.5	$45.2	$92.3[1]

Source: WSDOT Consultant Services Office

[1]Numbers do not add exactly to total due to rounding.

General Engineering Consultant Agreements

As discussed in the March 31, 2006 *Gray Notebook* (p. 30), eight high-profile General Engineering Consultant (GEC) projects received consultant authorizations from On-Call Task Order agreements during the period of April 1, 2006 to September 30, 2006. GEC Authorization totals were $22,795,387, which was provided to eight prime consultant firms and 40 sub-consultant firms. The authorized total consisted of Nickel $6,243,019, TPA $3,427,029 and PEF $13,125,339.

Eight General Engineering Consultant Agreements Authorizations, April 1, 2006 - September 30, 2006
Dollars in millions

Project	Prime Consultant	Amount Authorized
Alaskan Way Viaduct & Seawall Replacement Project	Hatch Mott MacDonald	$0.0
I-90 Snoqualmie Pass East – Hyak to Keechelus Dam	URS Corporation	$1.5
Northwest Region Mt. Baker Area	H.W. Lochner, Inc.	$0.8
Northwest Region Mt. Sno-King Area	DMJM Harris, Inc.	$2.2
SR 167 Extension	Carter & Burgess, Inc.	$6.0
SR 167 Valley Freeway Corridor	Perteet, Inc.	$1.4
SR 520 Bridge Replacement and HOV Project	HDR Engineering, Inc.	$5.0
Tacoma/Pierce County HOV Program	CH2M Hill, Inc.	$5.8

Source: WSDOT Consultant Services Office

[1]Hatch Mott MacDonald did not receive any new authorizations (task orders) during this reporting period. This does not mean they did not receive any money (expenditures) during the reporting period. It simply means WSDOT did not authorize additional work during this reporting period.

Cross-Cutting Management Issues

Project Specific Agreements and Supplements

The fourth and fifth quarters of the 2005-07 biennium saw new authorizations for Project Specific Nickel agreements and/or supplements totaling $6,256,695. Six different prime consultants and 12 sub-consultants received authorizations from project specific Nickel agreements. New authorizations for Project Specific TPA agreements and/or supplements were $1,038,113. Two different prime consultants and five sub-consultants received authorizations from project specific TPA agreements. All non-Nickel/TPA project specific consultant authorizations totaled $6,063,096.

Significant Authorizations for On-Call Consultants, April 1, 2005 - September 30, 2006

Dollars in Millions

Project	Fund Type	Consultant	Type of Work Authorized	Total $	Auth. Type
Alaskan Way Viaduct and Seawall Replacement	Nickel	Parsons Brinkerhoff Quade & Douglas, Inc.	Design alternatives videos, visual simulations, traffic flow plans graphic support	$3.4	New
175th Street to Marsh Road Vicinity	TPA	HNTB Corporation	Design documentation, environmental documentation, PS&E, cost estimates	$2.3	New
Hot Lanes Project Stage[2]	TPA	Perteet	Develop RFP for tolling system, PS&E for civil work, communications, marketing plan, implementation	$1.4	New
SR 17 Widening	TPA	David Evans and Associates	Complete environmental assessment	$1.2	Amend
Mukilteo Multimodal Project	Nickel	Moffatt & Nichol Engineers	Risk process, project delivery analysis, inter-agency coordination, WSF project management, plans/design utilities, bridge seat, foundations	$0.9	Amend

Source: WSDOT Consultant Services Office

Significant Authorizations for Project Specific Consultants, April 1, 2005 - September 30, 2006

Dollars in Millions

Project	Fund Type	Consultant	Work Description	Total $	No. of Subs	Amt for Subs	Auth. Type
I-405 General Engineering Consulting	Nickel	HNTB Corp.	Continued work on 11 projects for I-405 corridor plan	$5.5	0	0	Suppl
SR 518 Environmental Assessments	TPA	Parsons Brinkerhoff Quade & Douglas	Schedule management, geotechnical evaluation, Archaeological investigation, Wetland mitigation, surveying	$0.8	1	$0.1	Suppl

Source: WSDOT Consultant Services Office

Definitions:

"Fund Type" is based on the Legislative Leap List.
"New" authorizations represent task orders awarded to the listed consultant.
"Amended" (Amend) authorizations represent additional work by the listed consultant. In the cases listed above, the task order began in a prior period.
"Supplemental" (Suppl) authorizations represent additional scope, time and budget relative to the consultant efforts for project specific agreements listed above.
"Subs" are subcontractors to the prime contractor.

Highway Construction: Quarterly Update

Construction Employment

Nickel Employment Data

This section of the *Beige Pages* tracks the job site employment records on the 2003 Transportation Funding Package (Nickel) projects. The employment figures represent a "snapshot" estimate of the average direct job site employment on each Nickel project during the quarter.

The table below provides the list of Nickel projects with work on them this quarter. Projects listed as operationally complete either 1) still have some residual work (such as landscaping) employing people, or 2) are operationally complete as of this quarter. In design-build projects, one contractor both designs and builds the project.

Some projects will move on and off the list depending on whether there was work in the quarter. If no one worked this quarter, then the project will not be in this report in the *Gray Notebook*.

Construction Employment Article Ending

Construction employment information is not available for the 2005 Transportation Partnership Account (TPA) projects. It is uncertain if WSDOT can obtain this data in the future. Until WSDOT can provide complete employment information for all projects, the department will cease reporting on this measure in future editions of the *Gray Notebook*.

Employment for Nickel Projects, July - Sept. 2006

Project	Contractor	WSDOT Project Engineer	Number of Subcon-tractors	Employment Apr.-June 2006	Employment July- Sept. 2006
Operationally Complete Nickel Projects					
I-5/NE 175th St. to NE 205th St.	Pacific Road & Bridge	Amir Ahmadi	20	15	0
I-5, 2nd Street Bridge Replacement	Mowat	Dave Crisman	33	4	7
SR 527/132nd St SE to 112th SE	KLB	Marlin Lenssen	43	21	4
SR 18/Covington Way to Maple Valley	Terra Dynamics	Derek Case	4	2	7
SR 161/Jovita Blvd. to S 360th St. Stage 2	Tri-State	Messay Shiferaw	28	32	10
SR 202/Jct 292nd Ave SE	Transtech Electric	Marlin Lenssen	8	4	3
I-90/Pines Road to Sullivan Road	AM Landshaper	Darrel McCallum	7	0	6
SR 21, 23 27 and 272, Guardrail	Frank Gurney	Robert Hilmes	3	0	3
SR 16, 36th ST to Olympic Dr. - HOV	Woodworth	Dave Zeigler	14	1	2
I-90, Moses Lake Area - Bridge Clearance	Weaver	Mike Fleming	18	7	11
SR 14/Riverside Dr. and E Camas Slough Bridge - Upgrade Rail	Peterson	Chris Tams	1	0	1
Employment for Ongoing Nickel Projects					
I-5, Pierce Co. Line to Tukwila - HOV	Icon	Stanley Eng	30	83	78
SR 9/228th St SE to 212th St SE (SR 524) - Widen to 5 lanes, Stage 2	Wilder	John Chi	25	18	28
SR 9/SR 522 to 228th S SE - Widening	For construction efficiencies, this project combined with the above				
SR 18, Maple Valley to Issaquah/Hobart Rd..	Atkinson	Derek Case	44	33	34
I-5/S 284th to S 272nd HOV Lanes	Sci Infrastructure	Messay Shiferaw	18	15	15
I-5/S 48th to Pacific Avenue - HOV	Kiewit Pacific	Howard Diep	69	54	68
SR 7/SR 507 to SR 512 - Safety	Scarsella	Troy Cowan	15	15	40
SR 16/I-5 to Tacoma Narrows Bridge	Tri-State	Dave Ziegler	74	85	114
I-5/Salmon Creek to I-205 - Widening	Hamilton	Casey Liles	76	42	34
SR 24/I-82 to Keys Road - Add Lanes	Max J. Kuney	Paul Gonseth	40	73	69

Table continued on next page

Highway Construction: Quarterly Update

Construction Employment

Project	Contractor	WSDOT Project Engineer	Number of Subcon-tractors	Employment April - Jun 2006	Employment July-Sept. 2006
SR 240/I-182 to Richland Y, SR 240/Richland Y to Columbia Center I/C	Icon	Moe Davari	74	43	38
SR 395, NCS - Francis Ave to Farwell Rd.	KLB	Robert Hilmes	23	32	5
I-90, Eastbound off-Ramp to SR 18 Phase 2 - Signal	KLB	Julia Mizuhata	13	13	1
SR 31, Metaline Falls to Int'l Border	M.A. Deatley	Robert Hilmes	24	23	31
I-90/ Argonne Rd. to Sullivan Rd.	Scarsella	Darrel McCallum	32	1	N/A
SR 3, SR 303 Interchange - New Ramps (WAAGA Way)	Scarsella	Ray Arnold	22	21	25
U.S. 12, Region Wide Guardrail Upgrade	Frank Gurney	Paul Gonseth	1	10	2
SR 543, I-5 to Int'l Boundary	IMCO General	Chris Damitio	15	14	36
SR 9, Nooksack Rd. Vic. to Cherry St.	IMCO General	Chris Damitio	31	11	24
SR 20, Troxell Rd. to Cornet Bay Rd.	G.G. Excavation	Dave Crisman	24	14	N/A
SR 167, 15th St. SW to S 180th St. Stage 3	Icon	Stanley Eng	51	52	50
SR 539 Ten-Mile Rd. to SR 546	American	Chris Damitio	3	3	1
SR 520/W Lake Sammamish Pkwy to SR 202	Northwest	Brian Dobbins	10	0	4
U.S. 12/Attalia Vic. - Add lanes	Signal Electric	Will Smith	4	0	14
SR 202/244th Ave NE Intersection	Tri-State	David Lindberg	11	0	4
I-5 SB Ramps at SR 11/Old Fairhaven Pkwy	Wilder	Dave Crisman	20	0	5
SR 167, Ellingson Rd. NB Offramp	Signal Electric	Stanley Eng	7	0	2
I-5, 52nd Ave W to SR 520 - Paving	Wilder	Marlin Lenssen	28	0	37
SR 270, Pullman to Idaho Line - Widen	North Central	Chad Simonson	14	0	19
I-5/SR 532 NB Interchance Ramps	Trimaxx	Amir Ahmadi	16	0	13
U.S. 395/NSC-U.S. 2 to Wandermere and U.S. 2 Lowering	Max J. Kuney	Ken Olson	16	0	4
I-5/Roanoke Vicinity Noise Wall, Stage 2	Wilder	Stanley Eng	17	3	1
Employment for Design-Build Nickel Projects					
SR 9/SR 522 to 228th St. SE - Add Lanes	Wilder	John Chi	25	269	28
I-405/SR 520 to SR 522	Kiewit	Roland Benito	41	31	37
Employment for All Nickel Projects - Totals			**1092**	**1044**	**915**

Source: WSDOT Construction Office and WSDOT Project Control and Reporting

Worker Safety: Quarterly Update

WSDOT Workers: Recordable Injury and Illness Rate

This report discusses three reporting measures: fiscal year-to-date recordable injury rates (see p. 43), number of recordable injuries by region (see p. 45), and recordable injury rates by quarter (see p. 44). Each measurement aims to improve WSDOT's ability to monitor progress and develop innovative strategies to address injury rates.

OSHA Recordable Injury and Illness Rate: Fiscal Year-To-Date

Maintenance & Engineering Workers

For the first quarter of FY 2007, the injury rate for WSDOT Highway, Street, and Bridge Construction workers was 4.4 per 100 workers. This rate is 3.9 less per 100 workers than the previous quarter and 9.9 less than the first quarter FY 2006.

Ferry System

The injury rate for the first quarter of FY 2007 was 5.7 injuries per 100 workers. This is 4.4 less per 100 workers than the previous quarter and 3.3 less than the first quarter FY 2006.

Injuries by Type

The graph at the bottom right shows types of injury totals for WSDOT maintenance, highway engineering, ferry workers, and administrative staff in the first quarter of FY 2007. For all WSDOT employees total number of injuries was 69.

- Maintenance workers incurred 30 injuries, 43% of all WSDOT injuries for the first quarter.
- Highway engineering workers had a total of 12 injuries this quarter, 17% of all WSDOT injuries this quarter.
- WSDOT ferry workers incurred 22 injuries, 32% of all WSDOT injuries for the first quarter of FY 2007
- WSDOT Administrative staff accounted for the remaining five injuries sustained in the first quarter of Fiscal Year 2007, 7% of all WSDOT injuries sustained in the first quarter of Fiscal Year 2007
- Thirty-six of the 69 recordable injuries (52%) in the first quarter were sprains and strains. See page 46 for WSDOT's approach to addressing these injuries.

[1]OSHA 'Recordable Injuries and Illnesses" is a standard measure that includes all related deaths and work related illnesses and injuries which result in death, loss of consciousness, days away from work, days of restricted work, or medical treatment beyond first aid. The U.S. Bureau of Labor Statistics provides the selected 2004 national average benchmark. One worker equals 2,000 hours per year.

[2]WSDOT implemented its new data collection process in January 2006. It is likely that this enhanced focus and process will lead to recordable injury rates which are slightly higher than the 2005 recaptured data. However, WSDOT maintains its goal that all injuries can be prevented (for more information, see the March 31, 2006 *Gray Notebook*, p. 40).

WSDOT's Safety Initiative

On July 10 2006, WSDOT held a safety stand down and rolled out ***Safety Is My Job*** to all employees to highlight new safety expectations, better safety planning, and heightened safety accountability at WSDOT. The new Executive Order established a goal to reduce all OSHA-recordable injuries and illnesses by 30% by the end of FY 2007.

Recordable Highway, Street, and Bridge Construction Worker Injuries & Illnesses: Maintenance & Engineer Workers

Fiscal Year-to-Date
OSHA-Recordable Injury Rate per 100 Workers[1]

	FY 2006[2]	FY 2007
FY Qtr 1	14.3	4.4
FY Qtr 2	9.7	
FY Qtr 3	8.2	
FY Qtr 4	8.3	

2004 BLS Benchmark 6.4 (calendar year)
Source: WSDOT Safety Office

Recordable Inland Water Transportation Worker Injuries & Illnesses Injury Rate: Ferry System Workers

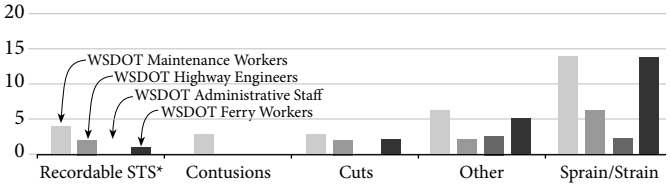
Fiscal Year-to-Date
OSHA-Recordable Injury Rate per 100 Workers[1]

	FY 2006[2]	FY 2007
FY Qtr 1	9.0	5.7
FY Qtr 2	9.3	
FY Qtr 3	9.7	
FY Qtr 4	10.1	

2004 BLS Benchmark.4.9 (calendar year)
Source: WSDOT Safety Office

Number of Work Injuries by Type

July Through September 2006



* An OSHA recordable Standard Threshold Shift (STS)occurs when an employee's hearing test reveals that the employee experienced an STS in one or both ears, and the employee's total hearing is 25 decibels (dB) or more above audiometric zero (averaged at 2,000, 3,000, and 4,000 hertz [Hz]) in the same ear(s) as the STS.
Source: WSDOT Safety Office

Worker Safety: Quarterly Update

WSDOT Targets Sprains and Strains

WSDOT believes in the idea that "all injuries are preventable" and has made a commitment to operations excellence. This includes a firm resolve to understand why injuries occur during operations. The first quarter after the Safety Stand Down initiative (see gray box on previous page) shows the highest injury types were sprains/strains and standard threshold shifts. See graph on page 43 for an explanation of STSs.

Fifty-two percent of all recordable injuries in the first quarter were sprains and strains. To address this issue the agency is aggressively working on mitigation plans to reduce these types of injuries. Plans will identify the scope of the problem, why the incidents are happening, and the specific steps/actions needed to reduce occurrence. Future reports will provide updates on the agency's progress.

The number of injuries, by type of injury (e.g., sprains/strains), is relatively unchanged between the two quarters, when compared to last year. However, due to the recapturing of Calendar Year 2005 data (see *Gray Notebook* March 30, 2006, p. 40) and the cyclical nature of the department's annual audiogram schedule, the number of injuries appears to be significantly inflated.

Number of OSHA-recordable Injuries and Illnesses

The table below reports the total number of injuries, year-to-date in FY 2007 by WSDOT region and is separated into three reporting categories: Maintenance, Engineering, and Administrative.

Highway Maintenance Workers

In the first quarter of FY 2007, highway maintenance workers reported 30 OSHA-recordable injuries. This was 18 less than the preceding quarter and 62 less than the same period in Fiscal Year 2006. There were a total of 441 lost workdays associated with the 30 injuries. The most frequently injured part of the body was the back (20%).

Highway Engineering Workers

In the first quarter of FY 2007, highway engineering workers reported 12 OSHA-recordable injuries. This was a decrease of 17 from the previous quarter and a decrease of 27 from the same period in Fiscal Year 2006. There were a total of 189 lost workdays associated with the 12 injuries. The most frequently injured part of the body was the back, (25%).

Ferry System

In the first quarter of FY 2007, ferry workers reported 22 OSHA-recordable injuries. This was a decrease of 22 compared to the previous quarter and a decrease of 13 from the same period in FY 2006. There were a total of 369 lost workdays associated with the 22 injuries. The most frequently injured part of the body was the back, (27%).

Number of OSHA Recordable Injuries by Quarter: WSDOT Regions and Ferry System

FY 2007(July 2006 - June 2007) Target Goal: 30% Reduction in OSHA-Recordable Injuries

Regions	Maintenance Quarter 1	Engineering Quarter 1	Administration Quarter 1	FY 2006 Total	FY 2007 30% Target Reduction Goal	FY 2007 YTD Total Quarter1
Northwest	10	3	1	81	57	14
North Central	2	0	0	33	23	2
Olympic	3	2	1	54	38	6
Southwest	1	2	0	30	21	3
South Central	9	4	0	33	23	13
Eastern	3	0	1	56	39	4
Headquarters	2	1	2	23	16	5
Subtotal	30	12	5	310	217	47
WSF	22	0	0	156	109	22
WSDOT Total	52	12	5	466	326	69

Source: WSDOT Safety Office & Ferry System

Worker Safety: Quarterly Update

OSHA-Recordable Injury and Illness Rates: Per Quarter

Beginning with the last edition, WSDOT started reporting quarterly recordable injury rates for Highway, Street, and Bridge Construction workers, and for Inland Water Transportation workers. WSDOT will use this OSHA-recordable injury rates to compare measures across quarters. Unlike the cumulative rate presented on page 43, this measure will not be used to compare recordable injury rates nationally. Quarterly information will be used to analyze WSDOT's recordable injury rate trends and to monitor progress towards the goal that all injuries are preventable.

The tables to the right show quarterly recordable injury rates per 100 workers (see the gray box below for calculation used to develop quarterly injury rates). Note: The quarterly rates presented are not comparable to previous *Gray Notebook* editions.

Highway, Street, and Bridge Construction Workers

In the first quarter of FY 2007, the quarterly injury rate for Highway, Street, and Bridge Construction workers was 1.1 injuries and illnesses per 100, a decrease from the previous quarter rate of 2.1.

Ferry System

In the first quarter of FY 2007, the quarterly injury rate for Inland Water Transportation workers was 1.4 per 100 workers. This number decreased from the previous quarter's rate of 2.8.

How WSDOT Calculates Quarterly Injury Rates

WSDOT reports quarterly data for injuries and illnesses by totaling all recordable injuries and illnesses reported in a quarter and multiplying by 50,000 (the normal hours worked in a quarter per 100 workers). This number is then divided by all of the man-hours worked. The resulting number represents the quarterly number of injuries and illnesses per 100 workers (see equation below).

Equation:

$$\frac{(\text{\# of injuries}) \times 50{,}000}{(\text{\# of man-hours worked})} = \text{Quarter Rate per 100 workers}$$

Recordable Highway, Street, and Bridge Construction Worker Injuries & Illness Injury Rate: Maintenance & Engineer Workers

Quarterly OSHA-Recordable Injury Rate per 100 Workers [1]

	FY 2006	FY 2007
FY Qtr 1	3.6	1.1
FY Qtr 2	1.2	
FY Qtr 3	1.3	
FY Qtr 4	2.1	

Source: WSDOT Safety Office

[1]OSHA 'Recordable Injuries and Illnesses" is a standard measure that includes all related deaths and work related illnesses and injuries which result in death, loss of consciousness, days away from work, days of restricted work, or medical treatment beyond first aid. The U.S. Bureau of Labor Statistics provides the selected 2004 national average benchmark. One worker equals 2,000 hours per year.

Recordable Inland Water Transportation Worker Injuries & Illness Injury Rate: Ferry System

Quarterly OSHA-Recordable Injury Rate per 100 Workers [1]

	FY 2006	FY 2007
FY Qtr 1	2.2	1.4
FY Qtr 2	2.4	
FY Qtr 3	2.6	
FY Qtr 4	2.8	

Source: WSDOT Safety Office

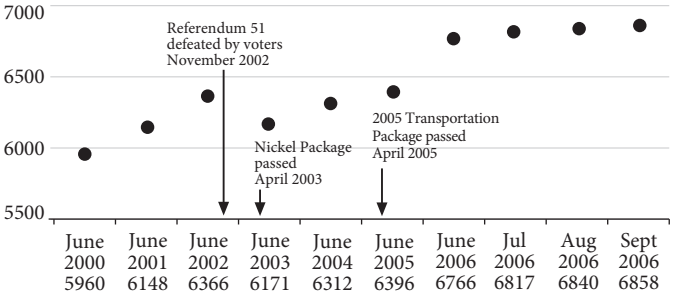
[1]OSHA 'Recordable Injuries and Illnesses" is a standard measure that includes all related deaths and work related illnesses and injuries which result in death, loss of consciousness, days away from work, days of restricted work, or medical treatment beyond first aid. The U.S. Bureau of Labor Statistics provides the selected 2004 national average benchmark. One worker equals 2,000 hours per year.

Workforce Level and Training: Quarterly Update

Workforce Level

One indicator of the agency's workforce size is the current number of permanent full-time employees on staff. The total number of full-time employees does not include permanent part-time, seasonal, or on-call workers. The chart to the right shows the total number of full-time employees at various points since the end of fiscal year 2000, with significant mandates identified. The total number of full-time equivalencies (FTE's) will generally exceed the number of permanent full-time employees due to seasonal and part-time workers being funded from "FTE" allotments. However, the limited compliance progress also reflects the dynamic of agency turnover and the large number of new hires.

Number of Permanent Full-Time Employees at WSDOT



Source: Dept. of Personnel Data Warehouse, HRMS, WSDOT and the Ferry System Payroll.

Required Training: All WSDOT Employees

This quarter 1,932 employees completed training offered by WSDOT, representing a 53% decrease compared to the number of employees trained last quarter. The decrease in the number of employees trained in July, August, and September 2006 reflects the annual work cycle of WSDOT employees in the field (road work and the Ferries) statewide. At the end of the third quarter, an average of 69% of WSDOT workers were in compliance with the training requirements listed below. This represents a 2% increase over the preceeding quarter.

Number of "No Shows" Decreasing

The merged manager and non-manager courses that comprise the mandatory Diversity Modules continued to show a steady percentage increase in compliance by increasing from 53.6% to 57.3%. There was a significant decrease in the number of "no shows" from 17% to 9% for the required Diversity classes conducted. The mandatory Diversity Modules attendance (for Disability Awareness, Sexual Harassment/Discrimination, and Valuing Diversity) and no-shows are manually tracked and reported to the WSDOT Executive Management Team. Notification to the chain of command for "no-show" employees has contributed to the effort made to remind staff of their Diversity training requirements.

WSDOT delivers Diversity training to all employees through an instructor led classroom courses. One significant effort in increasing progress towards reaching the 90% compliance goal achievement for mandatory WSDOT courses was scheduling Diversity Modules in facilities with increased classroom capacity of 100+ participants. The target is Headquarters staff located in Olympia and Tumwater, which have the lowest compliance percentage.

The Washington State Ferries Training Office is funding the initial development of the Discrimination and Sexual Harassment Computer Based Training (CBT) for a limited audience with the intention to expand its availability.

Required Training for all WSDOT Employees
July 2006 - September 2006

Training Courses	Workers Requiring Training	Basic Training Completed to Date	Employees Needing Basic Training	Workers Needing Refresher Training	Completed Training Reporting Quarter	Total in Compliance	% in Compliance	% Change from Previous Quarter
Disability Awareness	7641	3908	3733	NA	548	3908	51%	6%
Ethical Standards	7641	7245	396	973	445	6272	82%	1%
Security Awareness	7641	6183	1458	NA	23	6183	81%	0%
Sexual Harassment/ Discrimination	7641	4934	2707	NA	238	4934	65%	2%
Valuing Diversity	7641	4296	3345	NA	344	4296	56%	3%
Violence that Affects the Workplace	7641	6088	1553	NA	136	6088	80%	1%

Source: WSDOT, Office of Human Resources, Staff Development
As of September 30, 2006

Workforce Level and Training: Quarterly Update

Required Training: Maintenance Workers

Change in Reporting Format

WSDOT's goal is 90% compliance for statutorily required maintenance employee training. Prior reports in the *Gray notebook* have reported only on a sample thirteen of the statutorily required training requirements. From this point forward, the *Gray Notebook* will report on all 25 statutorily required training requirements and the respective compliance figures.

A single worker may require training on multiple courses. The table below identifies regional aggregate compliance percentages. Project workload and maintenance activities directly relate to compliance levels. Managers and trainers balance project delivery and training compliance, assuring that training occurs on a continual basis. As of September 30, 2006, three of the 25 required maintenance worker courses have achieved a 90% compliance rate.

Training Program	Total Training Requirements	Total Training Requirements in Compliance	% in Compliance	Change from Last Quarter (%)	Biennium Average
Blood Bourne Pathogens[1]	568	373	66%	11%	46%
Confined Space Entry	483	376	78%	-1%	75%
Electrical Safety Awareness	278	162	58%	3%	56%
Fire Extinguisher[1]	1364	545	40%	0%	50%
Drivers Training Eversafe	1172	1015	87%	2%	67%
First Aid[2]	1461	1220	84%	0%	83%
Hearing Conservation[1]	1338	1057	79%	6%	78%
Lead Exposure Control[1]	73	26	36%	-2%	17%
Lockout/Tag out	568	442	78%	2%	69%
Personal Protective Equipment	1388	1171	84%	0%	83%
Fall Protection	729	624	86%	1%	84%
Flagging & Traffic Control[2]	1105	1028	93%	3%	91%
Respirator Protection[1]	381	68	18%	0%	15%
Supervisor Return to Work	226	174	77%	-2%	70%
Hazard Communications	1310	1119	85%	-1%	84%
Proper Lifting	1439	1039	72%	1%	69%
Railway Work Certification	15	14	93%	4%	55%
Drug & Alcohol Certification	1188	1081	91%	0%	90%
Drug Free Workplace	348	305	88%	-2%	87%
Forklift	1128	1005	89%	-1%	89%
Hazardous Materials Awareness[1]	820	556	68%	0%	71%
Aerial Lift	178	159	89%	-1%	86%
Bucket Truck	393	332	84%	-2%	81%
Excavation/Trenching/Shoring	402	344	86%	-1%	78%
Emissions Certification[3]	75	36	48%	-22%	68%
Total	**18430**	**14271**	**77%**		**76%**

Source: WSDOT Office of Human Resources, Staff Development

[1]Refresher training required annually
[2]Refresher training required every three years
[3]Refresher training required every five years

Future reports in the *Gray Notebook* will address: statutorily required training course compliance rates, shortfalls of the 90% compliance goal, innovative training efforts, and how WSDOT's region management prioritizes training efforts.

Total Compliance for Required Maintenance Training: All WSDOT Regions

	% in Compliance	Change from Last Quarter	Biennium Average to Date
NWR	70%	0%	69%
NCR	79%	1%	76%
OR	73%	-6%	68%
SWR	92%	2%	92%
SCR	79%	6%	79%
ER	88%	3%	88%
HQ	63%	13%	43%

Source: WSDOT Office of Human Resources, Staff Development

Asset Management: Bridge Assessment Annual Update

Bridge Inventory

WSDOT Bridge Structures as of June 30, 2006	No. of Bridges	Square Feet
Vehicular Bridges greater than 20 feet in length[1]	2,978	43,564,680
Structures Less than 20 Feet in Length	263	n/a
Border Bridges (maintained by Border State)	6	n/a
Culverts greater than 20 feet in length	90	n/a
Pedestrian Structures	57	249,730
Tunnels and Lids	38	739,381
Ferry Terminal Structures[2]	45	248,443
Buildings (I-5 Convention Center)	1	n/a
Railroad Bridges	6	n/a
Total of all Structures	3,484	44,802,234

Source: WSDOT Bridge Office
[1]The Comprehensive Annual Financial Report (CAFR) reports 3,088 which includes culverts and passenger ferry terminals
[2]CAFR reports only the number of Ferry Terminal Structures that carry vehicular traffic only

Bridge Inventory: Changes in 2005

Vehicular Bridges greater than 20 feet in length
The number of vehicular bridges has experienced a net increase from 2,977 to 2,978 since June 2005 as a net result of new bridges being built and older bridges being replaced within the system.

Structures less than 20 feet in length
This number has increased from 261 to 263 since June 2005 due to additional structures that have been added to the State's inventory.

Culverts greater than 20 feet in length
This number has increased from 88 to 90 for the same reason.

Annual Bridge Condition Update

WSDOT reports the condition of WSDOT's bridges to the Office of Financial Management (OFM) in accordance with reporting standards set by the Governmental Accounting Standards Board (GASB). The rating system for bridges follows criteria set for the country as a whole by the Federal Highway Administration (FHWA). The Governor's Draft Cabinet Strategic Action Plan goal is to maintain all bridges statewide at a condition ranking of 97% of good or satisfactory (fair). This measure is based on the data provided by the Comprehensive Annual Financial Report (CAFR), which combines the number of bridges, ferry terminal structures, and culverts. The CAFR for 2006 found that less than three percent of bridges (2.5%) showed a condition rating of "poor". No bridge that is currently rated as "poor" is unsafe for public travel. Bridges determined to be unsafe are closed to traffic.

Bridge Structural Condition Ratings

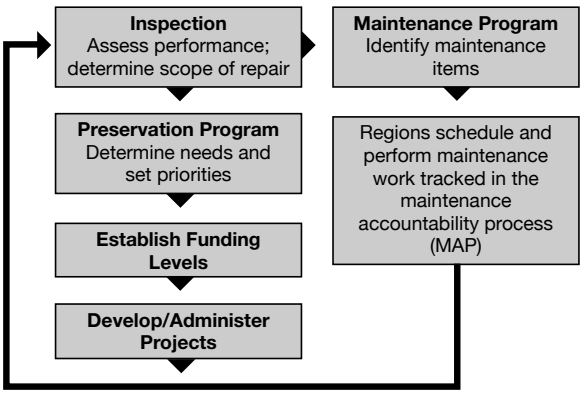
Condition Ratings by Fiscal Year

Category	Description	2000	2001	2002	2003	2004	2005	2006
Good	A range from no problems to some minor deterioration of structural elements.	84%	85%	87%	86%	87%	89%	88%
Fair	All primary structural elements are sound but may have deficiencies such as minor section loss, deterioration, cracking, spalling, or scour.	11%	11%	10%	11%	10%	9%	9%
Poor	Advanced deficiencies such as section loss, deterioration, cracking, spalling, scour, or seriously affected primary structural components. Bridges rated in poor condition may be posted with truck weight restrictions.	5%	4%	3%	3%	3%	2%	3%

Source: WSDOT Bridge Office. Data as of June 30 of each calendar year

WSDOT Preservation Program Overview

Bridge repair needs are identified through the inspection program. Engineers review repair options and determine if the repair can be achieved within the scope of maintenance activities as part of the Management Accountability Process. If the repairs are of a more complex nature and cannot be addressed through maintenance activities, the issue is addressed through the bridge preservation program. The bridge preservation program determines the scope of the project to address the issue, the funding level required to complete the project, and prioritizes projects among others for completion.



Asset Management: Bridge Assessment Annual Update

Bridge Preservation Program Elements

WSDOT's Bridge Preservation Program consists of the following four main program elements:

Inspection – Inspect one-half of all bridges every year.

Replacements and Rehabilitations – Repair bridges with deteriorated bridge elements such as concrete columns or floating bridge anchor cables. Rehabilitate mechanical and electrical operating systems on moveable bridges. Replace bridges as needed.

Preservation – Extend bridge service life by repainting steel structures; also repair and overlay of concrete bridge decks.

Risk reduction – Seismic retrofit of bridges and scour repair of bridge piers in rivers. This work provides a proactive approach to minimizing damage to bridges due to earthquake and higher water events.

Bridge Inspection

WSDOT is responsible for inspecting and determining the condition for all state owned structures that carry vehicles. Approximately one-half of all traffic bridges are inspected each year. Bridge engineers are also responsible for inspecting other structures such as: pedestrian bridges; floating bridge cables; tunnels; ferry terminal structures; and sign bridges. Engineers also organize a bridge inspection response if a bridge has been damaged by a vehicle or vessel.

WSDOT Dive Team Saves Money and Expedites Process

The WSDOT Dive Team performs underwater bridge inspections. Since being formed in 2004, the dive team has completed 71 underwater bridge and structure inspections on the state highways and ferry terminals for a cost of $351,000. The equivalent underwater consultant cost is estimated at $613,000; $262,000 in real savings. Excluding initial equipment purchases, this Team's inspection operations run 40% below the consultant community cost.

The Dive Team also performed other operations this past year including several exploratory dives to locate, examine, and record information on broken floating dolphin anchor chains at Seattle's Colman Dock and the Lopez Island Ferry Terminal.

Bridge Replacements and Rehabilitations

The bridge preservation program includes funding for the replacement and rehabilitation of selected bridges. These bridges have been selected because continued maintenance and preservation strategies to provide safe, continuous movement of people and goods are no longer cost effective. Currently, the Hood Canal Bridge is the only bridge under construction. Planning continues on three bridges that are scheduled to go to contract in 2007: U.S. 97 Columbia River Biggs Rapids and U.S. 2 Ebey Island Viaduct, and SR 542 Boulder Creek.

SR 104 Hood Canal Bridge (near Port Gamble)

The replacement of the aging east half floating portion and widening of the west-half superstructure continues. For more information, please see the story on page 33 or go to http://www.wsdot.wa.gov/projects/sr104hoodcanalbridgeeast/

U.S. 97 Columbia River Biggs Rapids (near Goldendale)

The existing bridge crosses the Columbia River and border between Washington and Oregon. The bridge was constructed in 1962 and has a lightweight concrete deck that has deteriorated and is in need of replacement.

The proposed project will construct a new bridge deck with normal weight concrete, extending the service life 25+ years. Construction is scheduled to begin in Fall 2007. The total project cost is estimated to be $13.3 million with costs shared equally between Oregon and Washington. More information is available at http://www.wsdot.wa.gov/projects/us97/biggs-bridge.

Deteriorated concrete deck to be replaced on U.S. 97 Columbia River Biggs Rapids Bridge.

U.S. 2 Ebey Island Viaduct (near Everett)

This unique structure located between I-5 and SR 204 is nearly a mile and a half in length. The bridge is located on a busy part of the U.S. 2 corridor used by more than 37,000 vehicles per day. Over the past 38 years, water and winter deicing salts have leaked through the roadway joints and roadway joints, causing corrosion and significant section loss in the main steel reinforcing of the precast concrete girders. This steel rebar corrosion also causes the concrete covering to deteriorate and spall off. The proposed project will repair the underside of the concrete girders by removing the spalling concrete, removing rust from exposed reinforcing steel, and patching and applying new carbon fiber sheets to the girders to restore their load carrying capacity. The repair project will be done in two

stages. The engineering phase for the first stage is underway with construction scheduled to begin in Summer 2007. More information is available at http://www.wsdot.wa.gov/Projects/US2/EbeyIslandBridgeRepair.

Concrete girders to be repaired under U.S. 2 Ebey Island Viaduct.

SR 542 Boulder Creek (near Glacier)

The existing bridge was constructed in 1952 and is often closed during flooding of Boulder Creek, when sediment and debris buildup clogs the waterway channel under the bridge. The proposed bridge replacement project will build a longer and taller bridge that allows debris to flow under the bridge. The new bridge will also be wider to accommodate a bike and pedestrian path. The construction of the new bridge is funded through the 2005 Transportation Partnership Funding Package at a cost of $5.2 million. More information is available at http://www.wsdot.wa.gov/Projects/SR542/BoulderCreekBridgeReplacement.

Major Repairs

The major repair portion of the bridge preservation program includes corrective work that cannot be accomplished within typical maintenance programs. This work addresses a specific bridge element in need of repair and is not intended to upgrade all deficiencies to current standards. A prioritized list of major repair needs for bridges is developed each biennium. An unexpected problem may develop on a bridge and need to be repaired as soon as possible; in this case an emergency contract would be used. There are six major bridge repair projects scheduled to go to contract in the 2005-07 biennium.

I-5 East Fork Lewis River Bridge (near Woodland)

This 1936 bridge is insufficient to handle the current amount of truck weight. Annual inspections of the bridge have noted increased cracking in the number of steel stringer connections in the steel truss span. Over the years, the expansion joints and the nearby concrete have deteriorated. This contract will help preserve and prolong the life of the bridge.

Construction on this I-5 bridge repair project began September 5, 2006 and is expected to be complete in 27 working days. Contract crews will replace worn roadway expansion joints and repair fatigue cracks in the steel truss stringers that support the concrete roadway deck. Multiple lane closures will be needed to accomplish the work.

Fatigue cracking on a steel stringer connection on I-5 East Fork Lewis River Bridge.

I-5 McAllister Creek Bridge Column Repair (near Lacey)

This project will repair deteriorated concrete columns on two I-5 bridges over McAllister Creek, the Northbound I-5 main line bridge and the Northbound off ramp bridge. Both bridges were constructed in 1968 and have three columns, each located in McAllister Creek, that are deteriorating. The planned repair project will add steel jackets to the existing columns to restore their structural integrity.

U.S. 101 Mud Bay bridges (near Olympia)

These two U.S. 101 bridges cross over the Puget Sound in an area known as Eld Inlet. These bridges were constructed in 1968 and have 66 concrete piles in the waterway tidal zone. Many of these pilings are deteriorating and are in need of immediate repair before the condition requires imposing a truck weight restriction. The proposed project will build a temporary containment system around each pile and perform a repair by either adding a fiberglass jacket or using carbon fiber to wrap around the piles. The repair project is scheduled to begin construction during Summer 2007.

Concrete pilings on U.S. 101 at Mud Bay Bridge.

SR 153 Methow River Bridges Rail Replacement and Deck Repair (near Methow)
Many of the bridges along SR 153 that were constructed in 1939 over the Methow River. The bridge deck surfaces, rails, and sidewalks that have advanced amounts of deterioration. The bridge surfaces will be repaired and overlaid with Hot Mix Asphalt. Sidewalks on two of the bridges (milepost 11.83 and 14.00) will be repaired and retrofitted with supports.

This project is scheduled to be advertised in October 2006 with construction scheduled to begin the Spring 2007, and completed Fall 2007. More information is available at http://www.wsdot.wa.gov/Regions/NorthCentral/projects/SR153MethowRiverBridge/.

Movable Bridge Repair

Movable bridge repairs include corrective work on electrical and mechanical systems that cannot be accomplished within routine maintenance. A prioritized list of movable bridge repair needs is developed each biennium. There are currently two projects under contract, with one project scheduled for construction in 2007.

SR 529 – Snohomish River Bridges (near Everett)
This project is under contract and has been awarded to Mowat Construction Company. The project will repair corroded steel elements in the draw span tower and add catwalks for maintenance employee access to both bridges. The construction on this project is expected to be completed by March 2007. More information is available at http://www.wsdot.wa.gov/Projects/SR529/SnohomishRiverBridgesRepair/.

U.S. 12, Heron Street Bridge Repair and Seismic Retrofit (near Aberdeen)
This project will rehabilitate the movable swing span of the U.S. 12/Heron Street Bridge, which crosses the Wishkah River in Aberdeen. This repair project will modify the bridge to allow proper seating of the steel swing span during the closing of the bridge. The movable span sags in hot weather during the opening operation, which makes it difficult to close. This project will also install catcher blocks on the east approach span to minimize damage from earthquakes. The project was awarded to Advanced American Construction for $813,000. Work began in early September 2006 and is scheduled for completion by December 2006.

U.S. 101, Simpson Avenue Hoquiam River Bridge Repair (near Hoquiam)
The planned project will rehabilitate the movable Simpson Avenue Bridge. The bridge is aging with deterioration of the mechanical and electrical systems and cracking in the steel stringers. A project is planned for 2007 to perform structural, mechanical, and electrical work. This includes replacing the submarine cable in the waterway channel, upgrading the maintenance catwalks and adding a maintenance turn out, and building a new electrical and control house.

In 2006, a contract was advertised and bids opened in March. The lowest bid was $1.5 million over the Engineer's estimate. WSDOT rejected all bids and will re-advertise in Spring 2007.

Bridge Preservation

Steel Bridge Painting
Protective coatings painted on steel bridge elements are essential to prevent corrosion and loss of capacity to support traffic. Steel bridges typically need to be repainted every 15 to 20 years. WSDOT schedules a bridge to be over coated with new paint when 2-5% of the existing paint has failed. Bridge painting can become a major project because of the size of the steel structures and the complexity of safety, environmental, and containment system requirements (See gray box on p. 83).

There are currently two bridges under contract for painting, SR 99 Duwamish River (east bridge) and SR 433 Columbia River Lewis and Clark Bridge.

SR 99 Duwamish River Bridge (near Seattle)
The Duwamish River Bridge is a moveable draw span, which has the most openings of any state-owned moveable bridge in Washington. The bridge has an open steel grid deck that must be sealed prior to cleaning and painting. Nearly half of the bridge has been completed with the other half scheduled to be completed in Fall 2006.

SR 433 Columbia River Lewis & Clark Bridge (near Longview)
This bridge crosses the Columbia River between Longview, Washington and Rainier, Oregon. The bridge was last painted in 1984. As stipulated in Oregon and Washington's Border Bridges Agreement, construction and maintenance costs for the Lewis and Clark Bridge are shared equally by the two states. WSDOT designed the painting project and will manage its delivery with funding and approval from the Oregon Department of Transportation. The project will be completed Summer 2009.

Bridge Deck Protection

Concrete bridge deck deterioration due to corrosion of reinforcing steel has been the largest single bridge-related problem throughout the country for years. WSDOT has been working since the early 1980's on a systematic program to prevent future

concrete deck deterioration by using epoxy-coated rebar in new bridges and by repairing deterioration and traffic-related wear in existing bridges with new durable protective overlays.

There are two contracts currently under construction and two project scheduled to begin construction in the summer of 2007.

I- 90 Spokane Viaduct (in Spokane)
Heavy traffic with a high percentage of studded tire use has severely rutted the surface of I-90 (up to 1 inch deep) in downtown Spokane. A contract to remove and replace the existing latex modified overlay with a fly-ash modified concrete overlay that will fill up the voids and make the surface more dense. The contract was awarded to Degerstrom – Acme Joint Venture in April 2006 for $8.8 million. This contract will be completed in two stages. During each stage I-90 traffic will be moved to one side of the bridge while the other side is repaired. The first stage to address the east bound side of the bridges was completed in Summer 2006. The second stage to address the westbound side is scheduled for construction in the summer of 2007.

More information is available at www.wsdot.wa.gov/Regions/Eastern/projects/I90/SpokaneViaductBridgeDeck/

U.S. 12 Snake River @ Clarkston
This 1939 movable bridge crosses the Snake River between Clarkston, Washington and Lewiston, Idaho. The existing concrete roadway deck is deteriorating and is in need of repair. A repair contract that will remove the top 1.5 inches of the concrete deck and add a new modified concrete overlay was awarded to Concrete Barrier, Inc. on May 15, 2006 for $1.7 million. The cost of the project is being shared between Idaho and Washington. The contractor began on July 31, 2006 and is expected to be finished in Fall 2006.

More information is available at www.wsdot.wa.gov/Projects/US12/SnakeRiverBridgeDeckRepair/.

SR 231 Spokane River (near Reardan)
This 1949 concrete arch bridge has a concrete bridge deck with severe deterioration. In 2003, a bridge deck chain drag survey found over 27% of the deck had delamination in the deck. Plans and specifications for a repair project to use a hydromilling machine to remove the delaminated concrete and add a new modified concrete overlay has been developed.

The advertisement date for this project is scheduled to occur in Fall 2006, a delay from the original Summer 2006 date. Delaying the advertisement date to the fall allows a higher probability of more bidders looking for work in the 2007 construction season.

I-5 Northbound Viaduct
This mile-long mainline I-5 bridge was built in 1966 as part of the Interstate freeway project through Seattle. The bridge has many failing steel sliding plate expansion joints due to the wheel rutting in the concrete roadway deck. This project is scheduled to go to contract in April 2007 with construction beginning in Summer 2007. This project has a contract cost of approximately $11 million, funded from the 2005 TPA funds.

Risk Reduction

Seismic Retrofit

The purpose of the Seismic Retrofit program is to minimize and avoid catastrophic bridge failures by retrofitting bridges and structures. There are two projects currently under contract and four additional projects scheduled for construction in 2007. Seismic engineering analysis is also being performed on the SR 20 Swinomish Channel bridge to determine what type of retrofit is feasible.

The 2005 Transportation Partnership Program provides $87 million to complete 172 "High" and "Moderate" risk bridges in the Puget Sound vicinity. This work is scheduled to begin July 1, 2007 and be completed in 2015.

Bridges in the Seismic Retrofit Program
Cumulative 1991-2005, 2006

	1991-2005	2006
Completely retrofitted	191	195
Partially retrofitted	162	163
No work done to date	569	547[1]
Under Contract for work	15 (in 2005)	15
Total Bridges in Seismic Retrofit Program	937	920[1]

Source: WSDOT Bridge Office

[1]The number of bridges in the seismic retrofit program decreased in 2006 due to further analysis that determined that some bridges do not warrant a retrofit.

Seismic Bridge Projects Currently in Progress

I-5 – North Seattle Bridges Seismic Retrofit
This project will retrofit seven bridges on I-5 in the North Seattle area. Crews will retrofit the bridges by strengthening 22 concrete columns with steel jackets and adding restrainers on the end of the structures to decrease movement during an earthquake. The contractor began work in April and is sched-

uled to complete the project in Winter 2006. Updated project information is available at www.wsdot.wa.gov/projects/I5/NSeattleBridge_Retrofit.

U.S. 2 Everett Vicinity Bridge Seismic Retrofit
This project will retrofit two sections of the westbound U.S. 2 Ebey Island Viaduct, two bridges on I-5, and a pedestrian bridge on SR 526. Crews will retrofit the concrete bridge columns with steel jackets. The project is scheduled to be completed in October 2006. Updated project information is available at http://www.wsdot.wa.gov/projects/us2/EverettSeismicRetrofit.

SR 20 Swinomish Channel South bridge (near Anacortes)
WSDOT has hired KPFF Consultants to determine the parts of the bridge that are deficient and develop retrofit alternatives. This 1972 bridge was constructed prior to newer bridge seismic code requirements. The bridge has tall concrete piers on foundations with timber piling. Preliminary results indicate that it would be cost-prohibitive to address the seismic deficiencies in the bridge foundations.

Seismic bridge projects scheduled to go to contract in 2007

I-5 Spokane Street Interchange (near Seattle)
This project will retrofit five bridges on I-5 near milepost 163 in the South Seattle area. The bridges are supported on single concrete columns which will be retrofitted by adding steel jackets around the columns. This project is scheduled for advertisement in May 2007.

I-5 Albro Pl. to Corson Ave (near Seattle)
This project will retrofit six bridges on I-5 near milepost 160.7 in the South Seattle area. The bridges have concrete columns which will be retrofitted by adding steel jackets around the columns. This project is scheduled for advertisement in May 2007.

SW Region Bridge Seismic (I-5 / I-205 / U.S. 12)
This project will retrofit four bridges in the Southwest Region. The bridges are supported on single concrete columns. Three of the bridges will be retrofitted by adding steel jackets around the columns. The Twin Canyon bridge will be retrofitted by adding new base isolation bearings under the existing steel girders. This project is scheduled for advertisement June 2007.

Scour Mitigation

Historically, more bridges have collapsed from the scour of bridge foundations than from any other cause. Each biennium a list of bridges requiring scour mitigation action. WSDOT engineers determine the type of scour repair needed for each bridge and coordinate the project details with WSDOT Environmental Office and Biologists. They in turn coordinate with the State Department of Fish and Wildlife and Department of Ecology to get permits to perform any in water work. Most repairs consist of adding large rocks around bridge pier foundations to replace streambed material that has been removed over time.

U.S. 101 Sol Duc River Bridge
A scour repair contract to add rip rap (large rocks) around pier 2 in the Sol Duc River was awarded to Rognlin's Inc. in June 2006 for $193,000. The project also added large woody debris downstream of the bridge that is anchored to steel H-piling as required by the State Fish and Wildlife Agency as mitigation for doing the scour project. The project was completed in September 2006.

U.S. 101 Humptulips River (milepost 109)
This steel truss bridge with steel girder approach spans was built in 1950. Over the years the riprap has deteriorated as some has been washed away. The river under the steel truss span has migrated to the south over the years and is currently trying to form a new path through the south approach span.

A repair project has been designed and will be constructed in two phases. Phase One, completed in September 2006, added riprap around the south truss pier and around the south approach span. Phase Two will complete the work in Summer 2007 by adding additional riprap and large woody debris along with constructing several barbs in the river upstream of the bridge.

Scour Mitigation Project at the U.S. 101 Humptulips Bridge.

Measuring Delay and Congestion: Annual Update

The major factor in congestion growth in Washington State is the growth in traffic demand against a static capacity. Too many people in the growing population want to travel on the same roads at the same time, resulting in the inability of the highway system to carry sufficient vehicles to meet demand. Non-recurring causes of capacity loss, such as vehicle accidents and breakdowns, are also major contributors to uneven traffic flow and reduced traffic throughput.

How Does WSDOT Measure Congestion?

WSDOT's mission is to move the largest number of *people* and largest amount of *freight* as efficiently as possible using current capacity. This is partly served by maximizing the number of *vehicles* that the highway can move through the system. Currently, maximum traffic throughput is achieved on a typical freeway segment in the Central Puget Sound region at about 51 mph (roughly 85% of the posted speed limits). When speeds fall below 70% of posted speed, or about 40 mph, the highway has lost efficiency to the level of significant congestion. Below 35 mph, the road operates in a severely congested manner.

WSDOT's Congestion Measurement Thresholds

Condition	Highway Speed Range	Description
Posted Speeds	52 mph or above (Posted Speed)	Highway is at less than maximum productivity because drivers are at greater than optimal spacing
Maximum Throughput	51 mph-41 mph (about 85%-70% of Posted Speed)	Highway is working at maximum productivity
Congestion	40 mph (below 70% of Posted Speed)	Highway is at less than maximum productivity because drivers are jammed at less than optimal spacing
Severe Congestion	35 mph or below (about 60% of posted speeds)	Highway is well below maximum productivity

Note: Maximum throughput figures are based on current technology and roadway geometrics. Improved vehicle and roadway technology could shift these thresholds upwards.

Report Summary

Critical Commute Routes: On 34 of the 35 commute routes analyzed, travel times increased at peak periods, speeds slowed, peaks became longer, and reliability of travel times worsened. All of these factors have resulted in reduced productivity of the freeway system, which means the system is less successful at meeting the need of people and freight to move around the region at the peak use hours.

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Evening Commutes: Data and analysis indicates evening commutes are generally worse – lasting longer, with lower speeds and less reliable travel times – than morning commutes, possibly because more non-commuting trips are also accessing the highways. Also, peak periods are getting longer. Statewide, total hours of delay have increased but commuters already suffering from congestion have seen even higher increases in delay.

Commute Corridors: For I-5, specifically north from Federal Way and south from Everett, data and analysis indicates generally corridor commuters continue to experience the longest peak period congestion. Meanwhile, in general, more people are using HOV lanes, providing more capacity for use of the general purpose lanes. Usage for all but one HOV lane has gone up.

Measures of Congestion

WSDOT uses several measures to track the effect that congestion has on state highways. For definitions of these measures, see the box on p. 55. Peak Travel Time and 95% Reliable Travel

WSDOT's Congestion Measurement Principles (since 2002):

- Use real-time measurements (rather than modeling) whenever possible.
- Measure congestion due to incidents as distinct from congestion due to inadequate capacity.
- Show whether reducing congestion from incidents will improve travel time reliability.
- Use plain English to describe congestion measures.
- Demonstrate both long-term and short-to-intermediate term results.
- Communicate about possible congestion fixes using an "apples to apples" comparison with the current situation (for example, if the trip takes 20 minutes today, how many minutes shorter will it be if we improve the interchanges?)

Measuring Delay and Congestion: Annual Update

Inventory and Definitions of WSDOT's Congestion Measurement Terms

WSDOT's Congestion Measures

Average Peak Travel Time. The average travel time on a route during the peak travel period.

The 95% Reliable Travel Time. An estimated travel time with 95% certainty. For example, if you travel during peak travel periods five days a week for a four-week period (20 weekdays), using the 95% reliable travel time, you will get to your destination on-time on 19 out of those 20 days.

Vehicle Throughput. A measure of the number of vehicles that can pass through a roadway segment during a given time period, typically measured for one hour.

Lost Throughput Productivity. Percentage of a highway's throughput lost due to traffic congestion.

Delay. When calculating relative delay to compare different routes in the state (for the 3-D map on p. 65), WSDOT uses the average total daily hours of delay per mile based on 85% of the posted speed. When calculating total delay, WSDOT uses annual total vehicle hours of delay.

Percent of days that the speed falls below 35 mph. Percent of Days with Severe Congestion.

Before and After Measures. Before and After analysis of performance of selected highway projects (case studies).

New Measures in This Edition

Duration of Congestion. This period is defined as the period in which average weekday speed on a highway fell below 70% of posted speeds.

Maximum Throughput Travel Time Index (MT^3I) Ratio of Peak Travel Time to Maximum Throughput Travel Time.

Other Noteworthy Terms

Maximum throughput or Maximum productivity. When the highway is carrying the largest number of vehicles possible. This occurs when vehicles are traveling at 70%-85% of the posted speed limit. For freeways, it is ~50 mph.

Induction Loop Detectors. Today's most common technology used to collect real-time data on traffic flow. Embedded in the pavement, these electronic devices measure vehicle count and how long the vehicle occupies the loop - i.e., traffic speed.

Reverse Commute Routes. Traditional commutes have flows toward large population centers (like Seattle) in the morning and away in the evening. The "reverse commute" is the flow running in the opposite direction.

Peak Time. The five-minute period with the highest average travel time.

Peak Travel Periods. The morning (6 a.m. to 9 a.m.) and evening (3 p.m. to 7 p.m.) commute periods.

Time are the measures that interest commuters the most. These measures show the impact that congestion has on travel time and reliability. Overall traffic volume and throughput, while not a concern to individual drivers, show the big picture of how the highway system is handling traffic.

WSDOT Expands Congestion Reporting

This year's report expands the number of corridors WSDOT reports on for congestion. Past reports have focused on the Central Puget Sound as the main feature; however, this report expands the 20 original commute routes to include 15 additional critical commute routes.

In the past two years, the agency has developed congestion data tracking systems in Spokane and Vancouver. (See the September 2005 *Gray Notebook*, p. 71). Spokane data is reported on p. 60; Vancouver data is still in process. Meanwhile, WSDOT is pilot-testing a new technology called Automated License Plate Recognition (ALPR) to gather congestion data on arterial roads (see p. 74). This will help WSDOT provide more accurate information to more highway travelers, as well as the ability to manage the system for more efficiency.

Maximizing the Existing System: WSDOT's Toolbox

WSDOT has multiple efforts in effect to help maximize the efficiency of the existing transportation system. This includes capacity improvements funded by the Nickel and Transportation Partnership Fund projects to fix bottlenecks and chokepoints that currently disrupt traffic flow and cause congestion.

There are also multiple efforts underway to manage the current system as efficiently as possible. These efforts include High Occupancy Vehicle (HOV) lanes (see p. 68), Intelligent Transportation Systems and Transportation Management Centers (see June 2006 *Gray Notebook*, pp. 59-61), and the future High-Occupancy Toll (HOT) lanes pilot project (see September 2005 *Gray Notebook*, p. 80). WSDOT's Incident Response trucks rove major corridors constantly during high-peak traffic times, clearing traffic incidents as quickly as possible (see pp. 75-77). Finally, WSDOT manages several programs to offer commuters alternatives to driving alone as a demand reduction strategy (see pp. 78-81 for more details).

WSDOT is providing an expanded congestion report on its website. To view that, see http://www.wsdot.wa.gov/accountability/congestion/.

Measuring Delay and Congestion: Annual Update

Travel Time Analysis

MORNING: Key Commute Routes: Changes in Travel Time Performance, 2003 to 2005

Route	Route Description	Peak time	Travel Time (in min.) Length (Miles)	Travel Time (in min.) At Posted Speeds	Average Peak Travel Time, Based on Peak Time (in minutes) 2003	Average Peak Travel Time, Based on Peak Time (in minutes) 2005	Average Peak Travel Time, Based on Peak Time (in minutes) Change (%)	95% Reliable Travel Time (in minutes) 2003	95% Reliable Travel Time (in minutes) 2005	95% Reliable Travel Time (in minutes) Change (%)	Ratio of Peak Travel Time to Maximum Through-put Travel Time MT³I 2003	Ratio of Peak Travel Time to Maximum Through-put Travel Time MT³I 2005	Traffic Volume Peak Hour Change (%)	Duration of Peak Period (hours and minutes that average speed falls below 70% of posted speeds)[1] 2003	Duration of Peak Period 2005	Duration of Peak Period change (in minutes)
To Seattle																
I-5	Everett to Seattle	7:30 AM	23.7	24	47	48	2%	70	68	-3%	1.7	1.7	-1%	2:30	2:35	5
I-5	Federal Way to Seattle	7:40 AM	21.8	22	40	44	10%	54	59	9%	1.6	1.7	-1%	2:30	2:45	15
I-90/I-5	Issaquah to Seattle	8:10 AM	15.5	15	23	26	13%	32	38	19%	1.2	1.3	3%	0:10	1:10	60
SR 520/I-5	Redmond to Seattle	8:40 AM	14.8	16	22	24	9%	29	33	14%	1.3	1.4	0%	0:20	1:00	40
I-5	SeaTac to Seattle	7:40 AM	12.9	13	23	25	9%	29	38	31%	1.5	1.6	-1%	2:25	3:15	50
I-405/I-90/I-5	Bellevue to Seattle	8:40 AM	10.7	11	15	16	7%	23	25	9%	1.2	1.3	1%	*	0:20	*
I-405/SR 520/I-5	Bellevue to Seattle	8:40 AM	10.5	11	18	19	6%	24	28	17%	1.4	1.4	-3%	1:15	1:30	15
To Bellevue																
I-5/I-405	Everett to Bellevue	7:25 AM	23.4	23	n/a	52	n/a	n/a	80	n/a	n/a	1.9	-1%	n/a	2:35	n/a
I-405	Bothell to Bellevue	7:30 AM	16.0	16	35	42	20%	61	66	8%	1.9	2.2	-1%	2:25	2:40	15
1-405	Tukwila to Bellevue	7:35 AM	13.5	13	31	39	26%	42	55	31%	2.0	2.5	4%	3:25	3:45	20
I-5/I-90/I-405	Seattle to Bellevue	7:50 AM	10.6	11	16	17	6%	20	26	30%	1.3	1.4	-2%	0:15	1:20	65
I-5/SR 520/I-405	Seattle to Bellevue	7:50 AM	10.1	11	18	23	28%	26	35	35%	1.4	1.8	-2%	2:05	2:40	35
I-90/I-405	Issaquah to Bellevue	7:45 AM	9.5	9	17	19	12%	24	26	8%	1.5	1.7	3%	1:25	2:05	40
SR 520/I-405	Redmond to Bellevue	9:00 AM	7.1	8	10	9	-10%	12	12	0%	1.1	1.0	1%	*	*	*
To Other Locations																
I-5/SR 520	Seattle to Redmond	7:50 AM	14.7	16	24	29	21%	31	40	29%	1.3	1.6	-1%	1:35	2:20	45
SR 167	Auburn to Renton	7:40 AM	9.8	10	16	17	6%	24	26	8%	1.4	1.5	-2%	1:10	2:35	85
I-5/I-90	Seattle to Issaquah	7:45 AM	15.5	16	19	21	11%	23	26	13%	1.0	1.2	5%	*	n/a	*

Source: WSDOT Traffic Operations and Washington State Transportation Center (TRAC) at the University of Washington
Note: An asterisk (*) indicates that speeds did not fall below 70% of posted speed on a route; and n/a means that no information is available for a route.
[1]SR 520 contains a four-mile stretch that has a posted speed limit of 50mph. In that location, duration is measured as beginning at 84% of the posted speed, which is equal to 70% of 60 mph.

Overall MT³I Ratio (average)		
morning commutes	1.25	1.44

WSDOT tracks performance data for 35 important commutes in the Central Puget Sound and two in Spokane. WSDOT reports on Average Travel Time, 95% Reliable Travel Time, traffic volume, the duration of peak period congestion, and the percent of weekdays when average travel speeds fell below 35 mph (see stamp graphs on pp. 63-64). These routes were tracked for changes in traffic conditions from 2003 to 2005. (Note: two commutes are new in 2005 and have no 2003 comparison data).

Overall, congestion conditions worsened for thirty-three commute routes. On one route, *Redmond to Bellevue, SR 520 morning commute*, conditions improved (see discussion on page 59).

Evening Commutes are Longer than Morning

On the 35 commute routes, morning commutes are generally shorter than evening commutes. Evening commutes tend to spread longer; more people are traveling for purposes other than commuting in the evening. By time of day, the magnitude of deterioration for morning peak commutes was less than that

Travel Time Analysis, continued

EVENING: Key Commute Routes: Changes in Travel Time Performance, 2003 to 2005

Route	Route Description	Peak time	Length (Miles)	Travel Time (in minutes) At Posted Speeds	Average Peak Travel Time (in minutes) 2003	2005	Change (%)	95% Reliable Travel Time (in minutes) 2003	2005	Change (%)	Ratio of Peak Travel Time to Maximum Through-put Travel Time MT³I 2003	2005	Traffic Volume Peak Hour Change (%)	Duration of Peak Period (hours and minutes that average speed falls below 70% of posted speeds) 2003	2005	change (in minutes)
From Seattle																
I-5	Seattle to Everett	5:20 PM	23.7	24	42	46	10%	60	68	13%	1.5	1.7	-2%	3:05	3:30	25
I-5	Seattle to Federal Way	5:15 PM	22.1	22	34	37	9%	51	55	8%	1.3	1.4	-2%	1:40	2:05	25
I-5/I-90	Seattle to Issaquah	5:25 PM	15.7	16	22	24	9%	32	36	13%	1.2	1.3	5%	*	0:15	*
I-5/SR 520	Seattle to Redmond	5:25 PM	14.7	16	27	30	11%	37	43	16%	1.5	1.6	0%	2:05	3:15	70
I-5	Seattle to SeaTac	5:15 PM	12.9	13	18	19	6%	22	26	18%	1.2	1.3	-1%	*	*	*
I-5/I-90/I-405	Seattle to Bellevue	5:35 PM	10.6	11	17	18	6%	27	31	15%	1.4	1.4	2%	0:30	0:55	25
I-5/SR 520/I-405	Seattle to Bellevue	5:30 PM	10.1	11	18	21	17%	27	33	22%	1.4	1.6	0%	2:25	3:00	35
From Bellevue																
I-405/I-5	Bellevue to Everett	4:25 PM	23.4	23	n/a	43	n/a	n/a	60	n/a	n/a	1.6	-1%	n/a	3:30	n/a
I-405	Bellevue to Bothell	5:10 PM	16.0	16	28	31	11%	38	44	16%	1.5	1.6	-1%	2:35	3:20	45
I-405	Bellevue to Tukwila	5:20 PM	13.5	13	25	32	28%	31	44	42%	1.6	2.0	0%	4:05	5:35	90
I-405/I-90/I-5	Bellevue to Seattle	5:30 PM	10.7	11	21	26	24%	34	41	21%	1.7	2.1	1%	2:40	3:15	35
I-405/SR 520/I-5	Bellevue to Seattle	5:35 PM	10.5	11	22	28	27%	28	37	32%	1.8	2.3	0%	4:10	4:50	40
I-405/I-90	Bellevue to Issaquah	5:15 PM	9.3	9	15	18	20%	19	23	21%	1.4	1.6	7%	1:55	3:25	90
I-405/SR 520	Bellevue to Redmond	5:15 PM	6.8	8	12	14	17%	17	22	29%	1.3	1.6	-2%	1:45	3:30	105
From Other Locations																
I-5	Everett to Seattle	4:40 PM	23.7	24	36	40	11%	51	56	10%	1.3	1.4	0%	0:30	2:50	140
I-90/I-5	Issaquah to Seattle	5:35 PM	15.5	15	22	26	18%	33	45	36%	1.2	1.4	4%	*	0:45	*
SR 520/I-5	Redmond to Seattle	5:35 PM	14.8	16	29	37	28%	41	61	49%	1.6	2.0	1%	3:10	3:55	45
SR 167	Renton to Auburn	5:25 PM	9.8	10	16	18	13%	27	33	22%	1.4	1.6	-2%	2:50	3:05	15

Source: WSDOT Traffic Operations and Washington State Transportation Center (TRAC) at the University of Washington
Note: An asterisk (*) indicates that speeds did not fall below 70% of posted speed on a route; and n/a means that no information is available for a route.

Overall MT³I Ratio (average)		
evening commutes	1.39	1.58

[1]SR 520 contains a four-mile stretch that has a posted speed limit of 50mph. In that location, duration is measured as beginning at 84% of the posted speed, which is equal to 70% of 60 mph.

of evening peak commutes. Even within the same commute, a morning commute to work appeared less congested than an evening commute home on many routes.

Bellevue-Based Worksite Commutes are Worst

Based on average speeds during peak hours and probability of having severe congestion (speeds of less than 35 mph), congestion intensity for Bellevue-bound morning routes was worse than the commutes to Seattle (except for *Redmond to Bellevue, SR 520 morning commute*, which will be discussed later). By the same token, evening commutes home from Bellevue to most destinations were worse than coming home from Seattle.

The worst two commutes were going home from Bellevue. The worst route was *Bellevue to Tukwila, I-405 evening commute,* with five hours and 35 minutes in congestion duration; for four hours and 10 minutes of that period, average speeds fell below

continued on p. 59

Travel Time Analysis, continued

Below is a graphical representation of the tables from pp. 56-57, showing three of the reliability performance indicators: travel time at posted speeds, average peak travel time, and 95% reliable travel time.

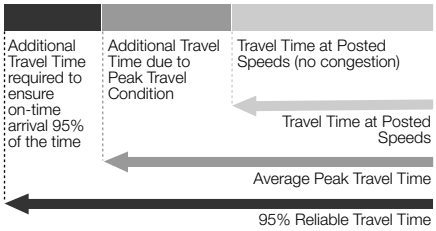
Travel Times at Posted Speeds, Peak Travel Times, and 95% Reliable Travel Time

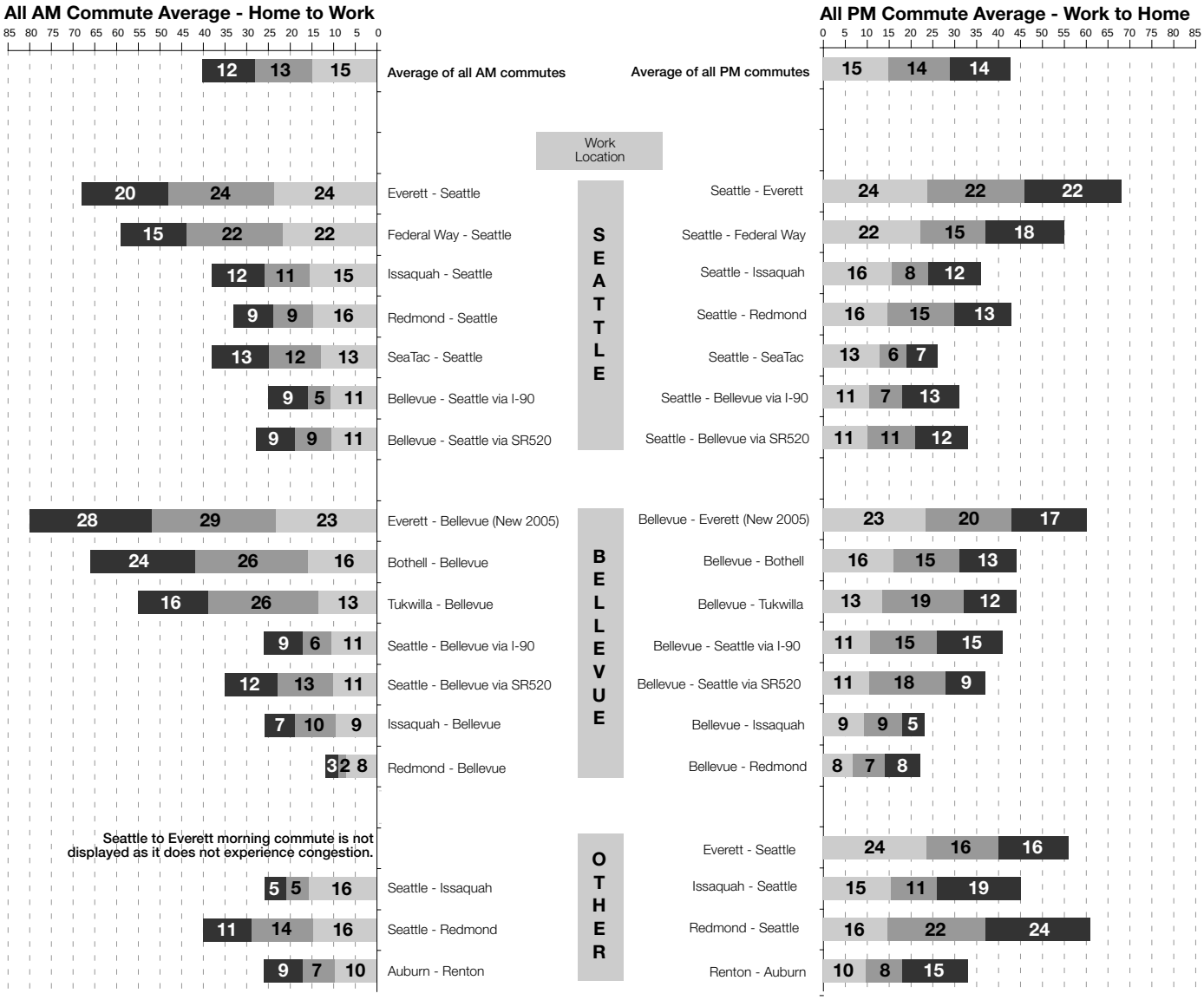
Morning and Afternoon Commutes by Work Location

Central Puget Sound Area, 2005

Travel Time in Minutes

- Travel Time at Posted Speeds with no congestion (in minutes)
- Additional Travel Time due to Peak Travel Condition (in minutes)
- Additional Travel Time required to ensure on-time arrival 95% of the time (in minutes)





Travel Time Analysis, continued

35 mph (severe congestion). Since 2003, the Average Travel Time has increased by seven minutes and 95% Reliable Travel Time by 13 minutes—indicating that traffic conditions have become much less predictable for this route.

The second worst commute was a reverse commute, *Bellevue to Seattle, SR 520 evening commute*. Duration of congestion was four hours and 50 minutes, up 40 minutes from 2003. Another commute that shares the same route, *Redmond to Seattle, SR 520 evening commute*, turned out to be similarly bad, with a 45 minute increase in peak period duration to three hours and 55 minutes.

Morning Commutes to Seattle Worse on I-5 than on I-90 and SR 520

Traveling to Seattle in the morning was worse on I-5, both northbound and southbound, than traveling on I-90 or SR 520 across Lake Washington to Seattle. Although Average Travel Times increased for all routes to Seattle, additional time required due to congestion—mile per mile—was still less when traveling across Lake Washington than on I-5 from Federal Way, SeaTac, or Everett. For commute routes across Lake Washington, average speeds did not fall below 35 mph in 2005, while on I-5 routes, average speeds did go below 35 mph around peak times.

I-5 Commute to Seattle from Federal Way and SeaTac Worse than from Everett

On I-5 to Seattle, commutes from Federal Way and from SeaTac to Seattle were worse than from Everett to Seattle. The lengths of the commute routes from Federal Way to Seattle (22 miles) and from Everett to Seattle (24 miles) are approximately comparable. While duration of congestion was about the same from both Federal Way and from Everett to Seattle (two hours and 45 minutes from Federal Way and two hours and 35 minutes from Everett), the period of severe congestion (below 35 mph) was slightly longer from Federal Way (65 minutes) than from Everett (50 minutes).

I-90 Experiences Comparatively Little Congestion

The I-90 commute routes (Issaquah-Seattle and Bellevue-Seattle) show less congestion relative to other commutes. The only exception to this is *Bellevue to Seattle I-90 evening commute*. On the I-90 routes, although the duration of congestion increased from 2003 to 2005, the magnitude of congestion was better than other commutes across all of the measures: Average Travel Time, 95% Reliable Travel Time, percent of weekdays when average travel speeds fell below 35 mph, and duration of congestion.

Nevertheless, all routes through I-90 must be monitored closely for future onset of congestion since travel volume increased by the greatest margin as compared to other routes in 2005, both during peak hours and for the average daily total volume. The volume increase was greatest for the I-90 commutes to and from Issaquah (6% increase in total daily vehicle volume for Issaquah-Bellevue and 3-4% increase for Issaquah-Seattle). Peak hour volume increased 3%-7% for Issaquah-Seattle and Issaquah-Bellevue commutes. This indicates that more people were traveling on these routes in 2005 than in 2003.

One Commute Showing Improvement

There was only one commute route with improvement in congestion condition, *Redmond to Bellevue, SR 520 morning commute*, where Average Travel Time improved by one minute. This was the only commute route that showed improvement in average peak travel time from 2003 of all the commutes routes. This route may be heavily influenced by local business and commute pattern changes since the morning peak travel time is at 9:00 AM, much later than peak times for the other morning commutes. There may also be more local arterial roads available for alternative commutes or riding bikes to Redmond, since total daily traffic volume decreased by 2%.

Vehicle Volumes Increase Overall, but Drop for Peak Commuting Periods

Two different types of vehicle volume changes from 2003 to 2005 were investigated for each commute route: volume during peak hours and the total daily volume. The most important finding was the peak period vehicle volumes decreased slightly for most of the commutes with deteriorating conditions, while total daily vehicle volumes increased slightly over this two year period.

Comparison of 2003 and 2005 data show that on several freeways in the Central Puget Sound (such as I-5), while delay increased significantly, VMT decreased slightly. This is the first time that the data has shown delay and VMT moving in opposite directions.

This phenomenon is perhaps the result of two intertwined factors at work: increases in population and increases in the number of jobs leading to higher peak period demand and increased delay, while rising gas prices contributed to a decrease in discretionary, non-peak period trips. Since on most of the Central Puget Sound freeways, travel demands in the peak periods have already exceeded their capacities, increased demand in the peak resulted in longer delays but fewer vehicles could get through. Consequently, on a 24 hour basis, delay increased, while VMT decreased.

Travel Time Analysis, continued

A closer examination of I-5 data partially confirmed this hypothesis. The analysis showed that from 2003 to 2005, most of the VMT drop occurred during the off peak times, suggesting a reduction in discretionary travel. Other possible contributing factors include increased construction activities and higher incident rates. It is also likely that the slight drop in VMT on some of the highways was within loop detectors' margin of errors. This phenomenon will be closely watched in the next update to see if it is a temporary event or the start of a new trend.

Public Transportation Affects Volume

Another factor that WSDOT believes is influencing the decrease in vehicle volume during peak commute periods is the use of public transportation. A good example of increased use of public transportation was on the SR 520 commutes across Lake Washington. According to transit ridership data, there was a 21% (298,450 riders) increase for eastbound SR 520 to Bellevue and 19% (279,654 riders) increase for westbound SR 520 to Seattle in weekday ridership over the last decade.[1] On average, there was an increase of approximately 30,000 riders each year during the last 10-year period, many likely switching from their own vehicles to buses.

This effect is seen in this year's report as the decrease in vehicle volume over the SR 520 commutes from 2003 to 2005. The largest peak volume decrease of all commutes was *Bellevue to Seattle, SR 520 morning commute*, down 3%. The reverse commute for the same route, *Seattle to Bellevue, SR 520 morning commute* also had a 2% decrease in peak vehicle volume. Meanwhile, total daily vehicle volume decreased by 1% in the afternoon period on SR 520.

For more information on WSDOT's efforts to support commuter options, please see pp. 78-81.

Key Spokane Commute Routes: 2005 Travel Time Performance

				Travel Time (in minutes)	Average Peak Travel Time	95% Reliable Travel Time	Ratio of Peak Travel Time to Maximum Throughput Travel Time	vehicles per day		Duration of Peak Period (hours and minutes that average speed falls below 70% of posted speeds)		
Route	Route Description	Peak time	Length (Miles)	At Posted Speeds	in minutes	in minutes			change (%)	2003	2005	change (in minutes)
I-90	Argonne Rd. to Division St.	7:50 AM	7.5	7	8	9	1.00	33,733	n/a	*	*	*
I-90	Division St. to Argonne Rd.	5:20 PM	7.5	7	8	11	1.03	36,934	n/a	*	*	*

Source: Spokane Regional Transportation Management Center (a partnership among WSDOT, the Cities of Spokane and Spokane Valley, Spokane County, the Spokane Regional Transportation Council and the Spokane Transit Authority)

Note: This data is gathered from the Performance Measurement System (PeMS), created by Berkeley Transportation Systems. It is a different system than the one used for gathering Puget Sound congestion data. Therefore, a direct comparison of data from the two regions is difficult. Furthermore, the road network in each of the two regions have different characteristics and different capacities, both of which are reflected in the data.
Note: An asterisk (*) indicates that speeds did not fall below 70% of posted speed on a route; and n/a means that no information is available for a route.

Spokane Peak Travel Analysis

Much of the congestion in the Spokane area is incident-related; the average travel times along the corridor are nearly what might be expected with free-flow speeds. Because the corridor is a relatively short segment (7.5 miles), even minor incidents can severely impact expected travel times as there is little opportunity to make up any incurred delay, as shown in the 95% reliable travel times.

[1] Based on unpublished data from King County Metro

Measuring Delay and Congestion: Annual Update

Lost Throughput Productivity

What is Lost Throughput Productivity?

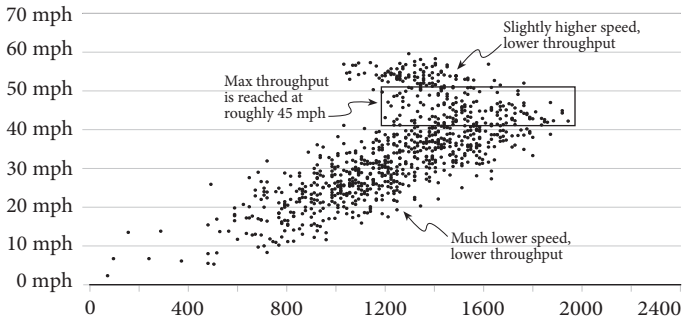
Congestion not only causes delay, it also causes lost productivity for the roadway system. That is, under congested conditions, even though the road is "full" of cars, they are moving so slowly that fewer vehicles actually pass any given point on the road. Typically, the maximum throughput of vehicles on a freeway, about 2,000 vehicles per lane per hour, occurs at speeds of 42-51 mph, or about 70%-85% of the posted speed. The goal is to manage the system to achieve maximum throughput/productivity.

As demand increases, congestion causes a drop in speeds. For a typical freeway, when speed drops to below 42 mph, or about 70% of 60 mph, the productivity of the freeway starts to decline. When congestion causes drivers to lower vehicle speeds to 30 mph, the throughput (volume of flow) on a freeway may fall from 2,000 vehicles per lane per hour to as low as 700.

Relating Speed and Volume

I-405 Northbound at 24th NE, 6-11 AM Weekdays in May 2001

Hourly Volume/Lane



According to the real-time data recorded on some of the most congested freeways in the Central Puget Sound, less than half the existing capacity is effectively used at a time when it is needed the most. When cars are stuck in congestion, the difference between the potential capacity of the roadway and the actual number of cars that the road is serving is called "lost productivity," "lost throughput," or "lost capacity". Whatever the term, congested freeways deliver far fewer benefits to citizens than if the roads could be kept flowing smoothly.

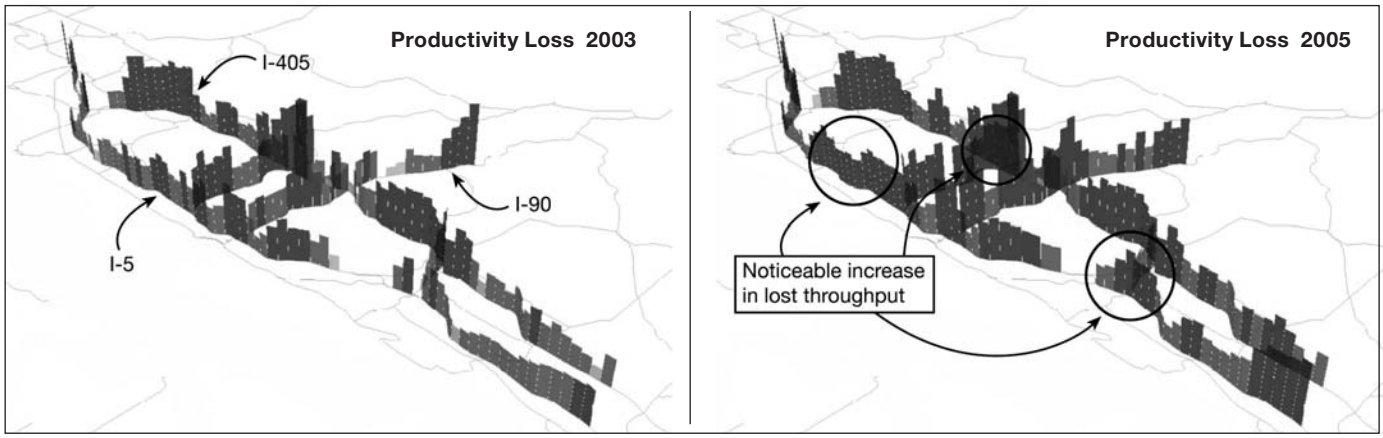
The maps at the bottom of the page provide an overview of average weekday loss of productivity on Central Puget Sound freeways during the most congested periods in 2003 and 2005. Data was gathered through loop detectors embedded in the roadway. The height of the bars in the graphs indicates percentage of throughput loss: the higher the bars, the higher the lost throughput. The highest spikes depicted on the map are located at I-5 at the I-90 interchange and through Downtown Seattle, I-405 in Renton, Downtown Bellevue and through Kirkland. The throughput loss these locations is as high as 50% or more during the most congested period.

As shown on the maps, from 2003 to 2005 there was an overall fall in freeway productivity. Most noticeable losses were on I-90 crossing Lake Washington, I-5 in north Seattle, and near Federal Way. In addition to increased overall traffic volume, the worsening throughput in Federal Way could be attributed to the construction impact of the direct HOV access ramps (see p. 72 for more information).

Analysis of Productivity Loss

The charts on page 63 compare throughput loss between 2003 and 2005 at selected locations on Puget Sound freeways where real-time data were available. The charts show the time period with the worst throughput loss. 100% indicates that the highway is working at maximum productivity. Most of the locations show minor decreases in productivity from 2003 to 2005, reflecting increased travel demand and congestion in the peak period. I-5 at I-90 and I-405 in Renton are among the most congested bottlenecks in the region; these two locations show slightly worse throughput loss than the other locations.

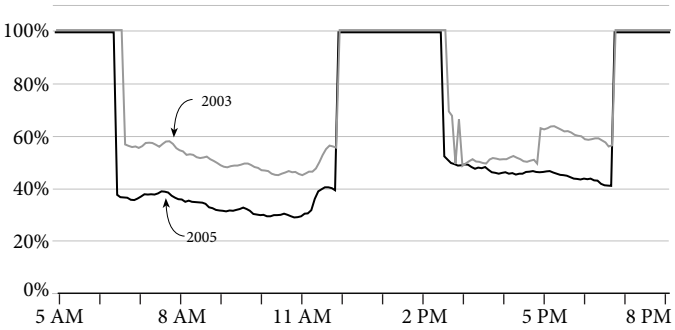
Average Weekday Throughput Loss During Heaviest Congestion in Seattle Area for 2003 and 2005



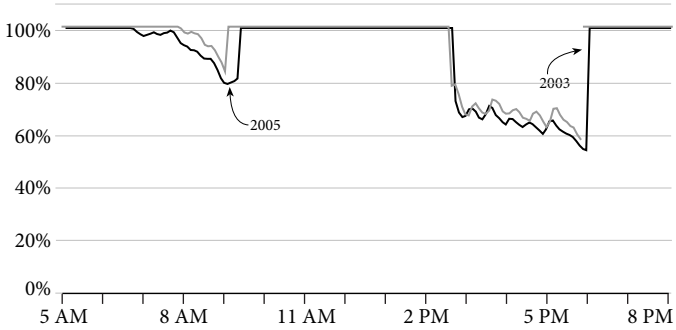
Measuring Delay and Congestion: Annual Update

Productivity Graphs (Lost Throughput)

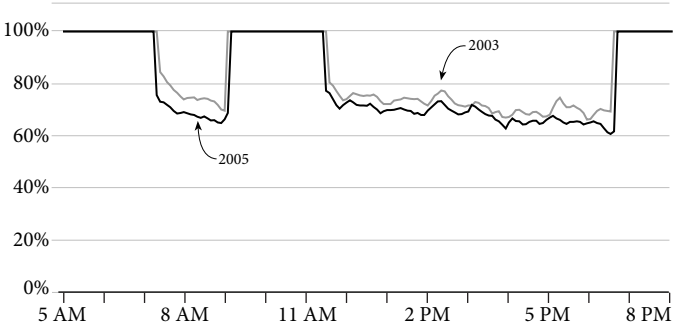
I-5 at I-90



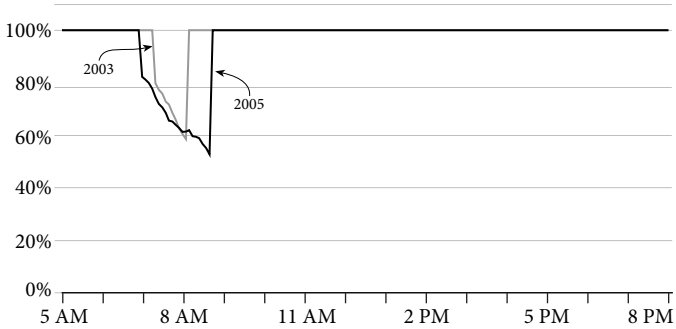
I-5 at S. 188th St. near Sea-Tac



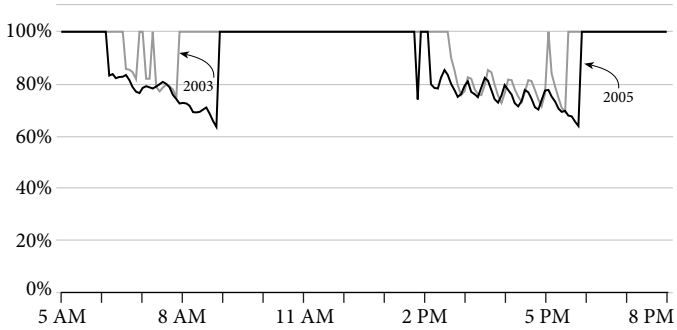
I-5 at NE 103rd St. near Northgate



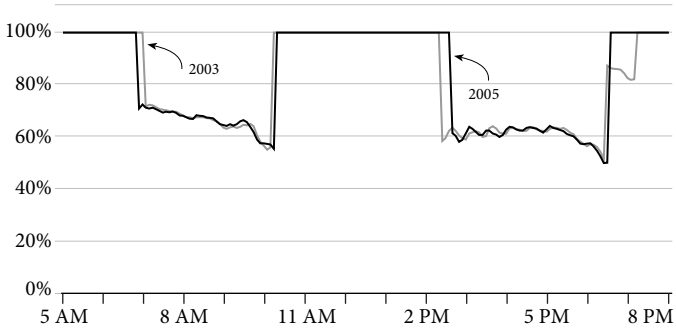
I-90 at SR 900 in Issaquah



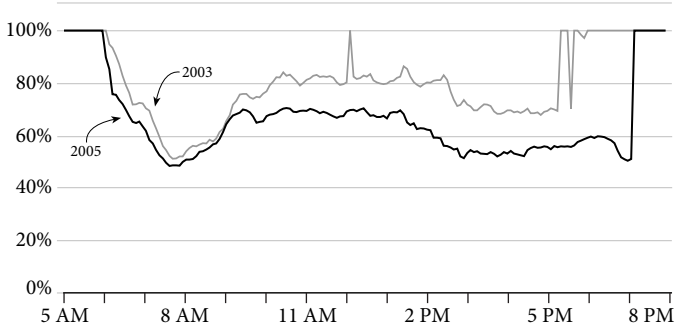
SR 167 at 84th Avenue SE



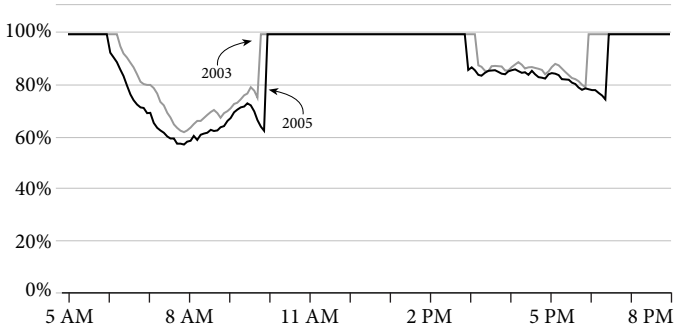
SR 520 Floating Bridge



I-405 at SR 169 in Renton



I-405 at NE 160th St in Kirkland



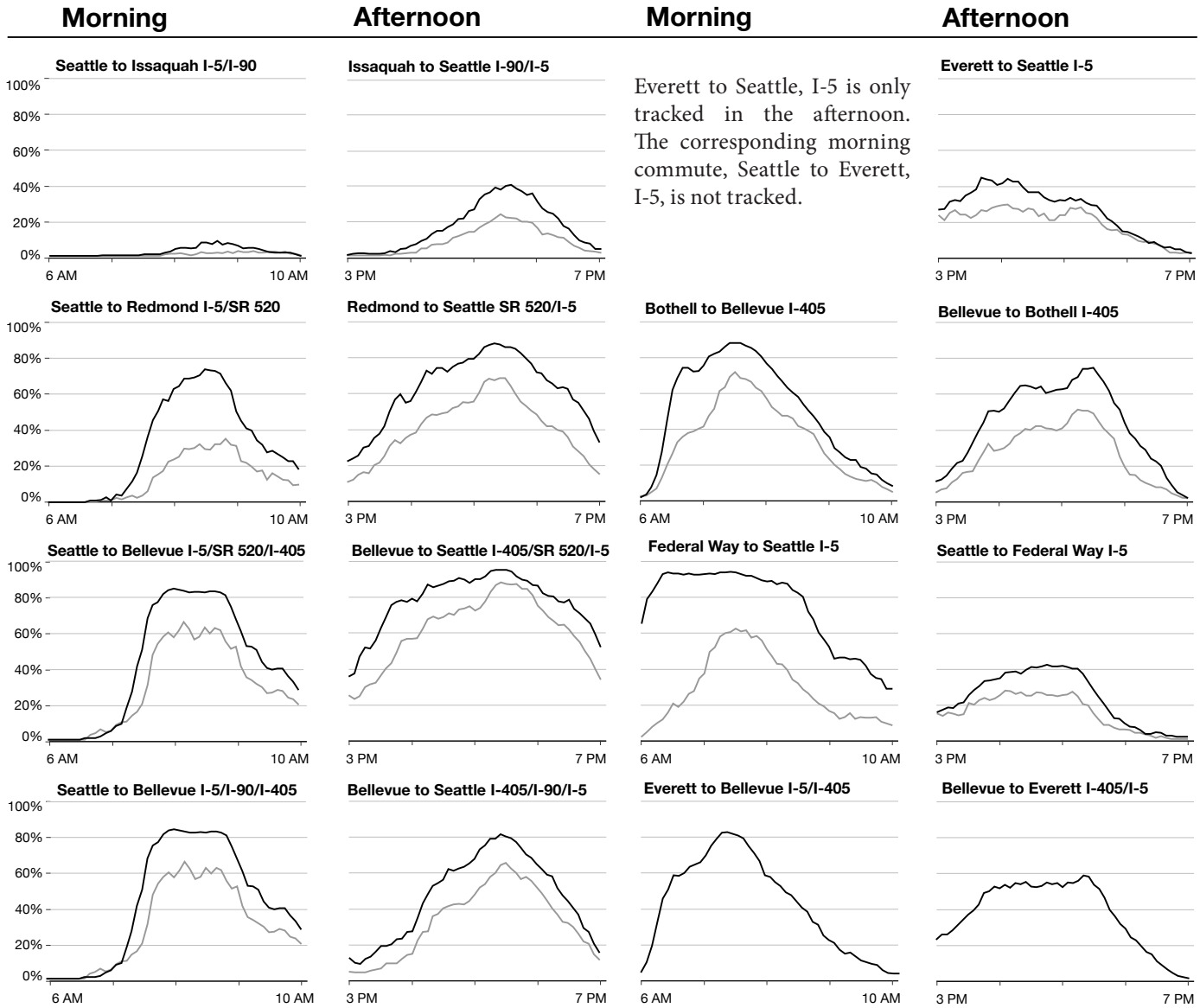
Measuring Delay and Congestion: Annual Update

Percent of Days When Speeds Were Less Than 35 MPH

This page and the next contain "stamp graphs" showing severe congestion on the 35 Central Puget Sound routes tracked by WSDOT for performance reporting. These graphs, comparing 2003 and 2005 data, show the percent of days on each route when traffic speeds fell below 35 mph. For specific information on how to read stamp graphs, see the display on p. 66.

New Commutes for 2003-2005 Updates

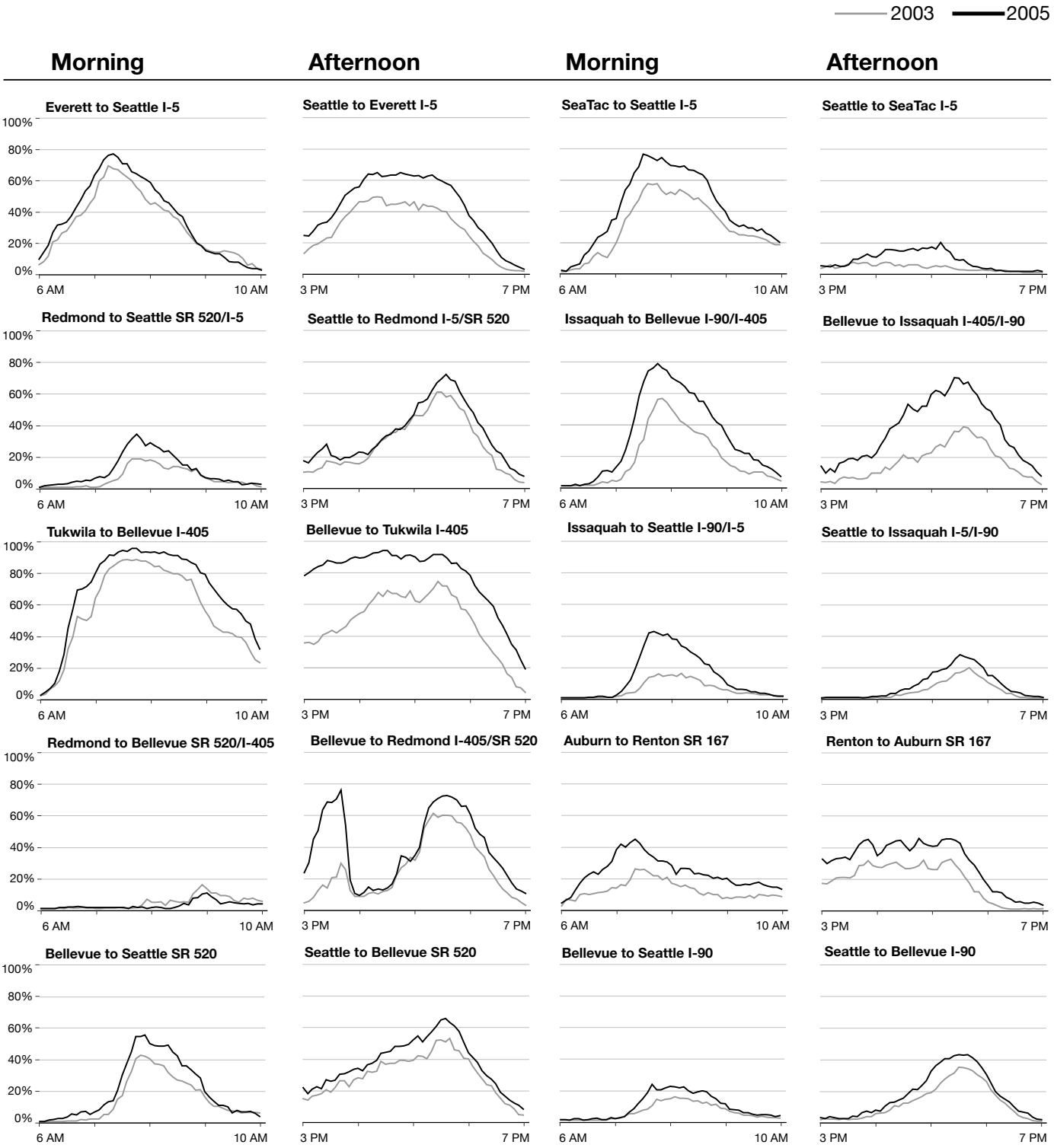
2003 — 2005



Everett to Seattle, I-5 is only tracked in the afternoon. The corresponding morning commute, Seattle to Everett, I-5, is not tracked.

Measuring Delay and Congestion: Annual Update

Percent of Days When Speeds Were Less Than 35 MPH



Measuring Delay and Congestion: Annual Update

Measuring Travel Delay

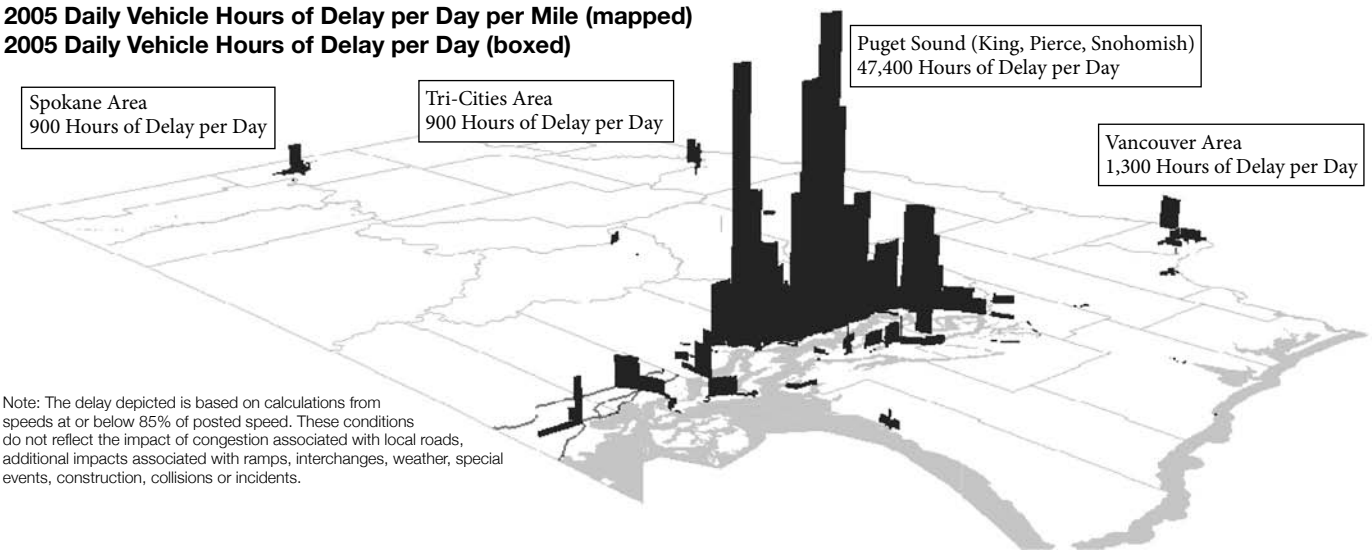
Congestion results in delay. The sum of vehicle delay across an average twenty-four hour day is in WSDOT's view the most basic and easily understood measure for describing congestion. It is the composite of the extent, severity and duration of congestion. Traditionally, delay has been calculated based on the difference between actual travel times and what the travel time would have been if traffic had been free flowing.

From a system efficiency standpoint, however, speeds at which maximum throughput is achieved are a better gauge for delay calculations. It makes more economic sense to measure the actual performance of the system against its maximum productivity than against the less productive (low throughput) condition of freeflow (posted) speeds.

Optimal flow speed (which produces maximum throughput) is not a static number. It varies from facility to facility and from segment to segment depending on conditions such as lane width, slope, shoulder width, pavement condition, traffic composition, presence or lack of a median barrier, etc. It should also be noted that, as cars are equipped with more sophisticated devices and become easier to maneuver, optimal flow speed (maximum throughput) should increase. Currently, optimal flow speed on a typical freeway segment in the Central Puget Sound region is about 50 mph (roughly 85% of the posted speed). For surface arterials, optimal flow speed is even more difficult to determine, as it is heavily influenced by conflicting traffic movements at intersections. Ideally, optimal flow speeds for each highway segment would be determined through comprehensive traffic studies and validated based on field surveys. Due to resources constraints and for simplicity, 85% of posted speed is used as a surrogate for the true optimal flow speed for the purpose of estimating delay.

The table below compares average weekday delay between 2003 and 2005 on all state highways, estimated fromtraffic counts collected on state highways. Statewide delay, relative to posted speed limits and relative to optimal flow speeds, increased by 11% and 21%, respectively. The higher percentage increase relative to optimal flow speeds indicates that many congested highways got even more congested from 2003 to 2005. This is clearly shown in the maps on p. 61.

2005 Daily Vehicle Hours of Delay per Day per Mile (mapped)
2005 Daily Vehicle Hours of Delay per Day (boxed)



Note: The delay depicted is based on calculations from speeds at or below 85% of posted speed. These conditions do not reflect the impact of congestion associated with local roads, additional impacts associated with ramps, interchanges, weather, special events, construction, collisions or incidents.

All State Highways: Average Weekday Delay Comparison (Daily and Annual) and Estimated Cost of Delay on State Highways (Annual), 2003 and 2005

	DAILY Average Vehicle Hours of Delay (Weekdays)			ANNUAL Average Weekday Hours of Vehicle Delay (in thousands)			ANNUAL Cost of Delay on State Highways (in Millions of 2005 dollars)		
Actual Travel Compared to	**2003**	**2005**	**Change**	**2003**	**2005**	**Change**	**2003**	**2005**	**Change**
Optimal Flow Speeds (Approx 51 mph)	82,200	99,400	21%	20,550	24,850	21%	$486	$598	23%
Posted Speeds	156,300	173,800	11%	39,075	43,450	11%	$920	$1,043	13%

Source: WSDOT Urban Planning Office

Measuring Travel Delay, continued

From 2003 to 2005, delay on I-90, SR 167, and I-405 significantly increased. Overall, delay on the five freeways listed in the table on p. 62 increased by more than 20% relative to the posted speed limits and by over 50% relative to the optimal flow speed. On the other hand, with the exception of SR 167, vehicle miles traveled (VMT) during the same time period reduced slightly. Until recently, increased delay typically had gone hand in hand with increased VMT. This is the first time that WSDOT has seen delay go up and VMT go down on the same freeway section. (See analysis on pp. 59-60).

The map on page 65 illustrates the relative delay distribution in Washington State. As it shows, delay is concentrated in the major urban areas, primarily the Central Puget Sound region.

Estimating the Cost of Delay

Congestion, or delay, imposes costs due to travelers' lost time, higher vehicle operating costs from wasted fuel, and other effects of stop-and-go driving. Truckers, shippers, and their customers also bear large costs from traffic delay. It is generally recognized that delay has a variety of direct and indirect impacts. These include increased travel time for personal travel, increased travel time for business travel, increased vehicle operating expense, shipper/recipient productivity loss, indirect (downstream) productivity loss, local income/economy loss of opportunities to attract new businesses, and increased vehicle pollution emissions due to stop and go conditions

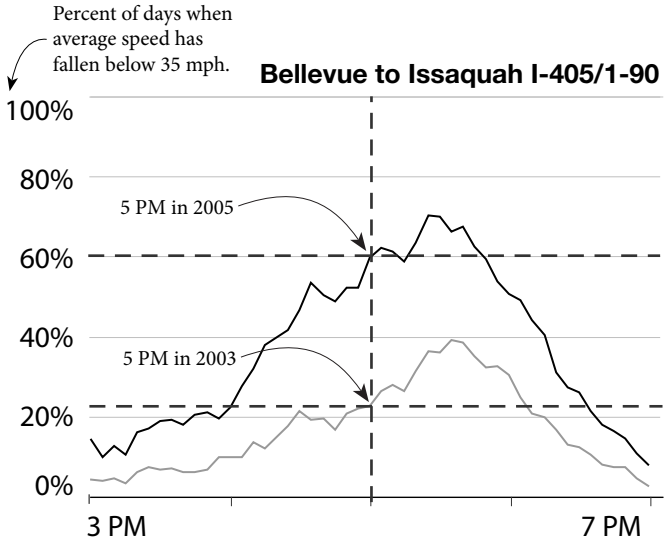
To put a dollar value on all of these impacts is a complicated task. A highly uncertain (even arbitrary) element in assessing the cost of delay are the assumptions used to express the value of time. The same amount of delay for different people, or even for the same people at different times and on different trips, may have a different economic value. For example, delay on a trip to day care to pick up kids could cost several dollars a minute after normal business hours, while the same length of delay on a trip to a store may have little or no economic consequence. For business trips, it is common to assume the value of time to be equivalent to average wage rates. But delay's secondary and long term effects are hard to gauge.

To make the task of quantifying the cost of delay possible, the cost of delay was calculated by applying value of time to the estimated hours of delay incurred to passenger and truck travel plus additional vehicle operating cost (see the September 2004 *Gray Notebook, p. 50)*. The value of time for passenger trips was assumed to be half of the average wage rate. Using the same approach with updated average wage rates, the annual cost of delay or congestion for 2003 and 2005 are estimated and shown in the table on page 65 (the preceding page).

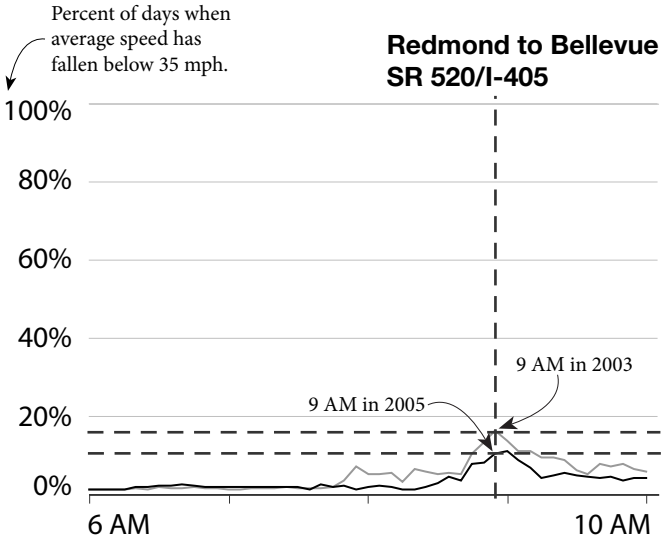
How to Read The Stamp Graphs on Pages 62-64

Percent of Days When Speeds Were Less Than 35 MPH - Twenty Puget Sound Commutes

How frequently (and when) did the average trip speed drop under 35 mph? Comparing 2005 to 2003. See pp. 62-64.



At 5:00 pm in 2003, you had about a 23% chance that traffic would be moving less than 35 mph. In 2005, the situation became worse (black line above the gray line); your chance that traffic would be moving slower than 35 mph was about 60% in 2005.



Near 9 am in 2003, you had about a 16% chance that traffic would be moving less than 35 mph. In 2005, the situation was better (black line below the gray line); your chance that traffic would be moving slower than 35 mph was about 11%.

Measuring Travel Delay, continued

Central Puget Sound Freeways: Average Weekday Delay Comparison 2003 and 2005

State Route	Center Lane Miles	Vehicle Hours of Delay per Day						Vehicle Miles Traveled		
		Relative to 60 mph (posted speed limit)			Relative to approx. 50 mph (max throughput)			2003	2005	Change
		2003	2005	Change	2003	2005	Change			
I-5	369	15,900	17,800	12%	6,800	9,000	32%	8,061,700	7,667,300	-5%
I-90	95	1,300	1,900	46%	250	700	180%	1,590,600	1,606,700	1%
SR 167	41	1,800	2,700	50%	400	1,000	150%	957,300	996,600	4%
I-405	152	9,400	13,200	40%	4,500	7,900	75%	3,660,300	3,647,200	0.4%
SR 520	52	2,500	2,500	0%	1,300	1,500	15%	987,150	982,500	-0.5%
Total	709	30,900	38,100	23%	13,250	20,100	52%	15,257,050	14,900,300	-2%

Source: WSDOT Urban Planning Office

Note: Because both the lengths and widths of these corridors are different, it is not possible to use the delay numbers to rank the corridors.

Freeways Outside of the Central Puget Sound: Average Weekday Delay Comparison 2004 and 2005

State Route	Vicinity (and location)	Canter Lane Miles	Vehicle Hours of Delay per Day						Vehicle Miles Traveled		
			Relative to 60 mph (posted speed limit)			Relative to approx. 50 mph (max throughput)			2004	2005	Change
			2004[1]	2005	Change	2004[1]	2005	Change			
I-5	Martin Way to Thurston/Pierce County Line (Lacey to Nisqually)	5.74	229.46	280.84	22%	17.29	30.83	78%	574,086	584,815	2%
I-205	SR 500 to NE 83rd Street (Vancouver)	2.15	150.36	200.27	33%	73.69	115.02	56%	148,023	152,434	3%
I-5	U.S. 101 to Martin Way (Olympia/ Lacey)	5.14	143.99	175.91	22%	12.91	21.45	66%	617,618	627,116	2%
I-205	Vancouver to SR 500 (Vancouver)	4.30	151.32	173.43	15%	59.33	62.80	6%	407,185	414,680	2%
I-90	Broadway Avenue to SR 27 (Spokane)	3.61	129.32	144.49	12%	54.35	63.52	17%	281,857	284,817	1%

Source: WSDOT Systems Analysis and Program Development Office

[1]2003 data is not available for routes outside of Puget Sound.
Note: Because both the lengths and widths of these corridors are different, it is not possible to use the delay numbers to rank the corridors.

Congestion Report Note: Data Limitations and Challenges

WSDOT's data collection faces some limitations. The data collectors used for these analyses do not provide universal coverage of the system. WSDOT primarily relies on loop detectors, which are embedded in pavement to collect traffic data. WSDOT is attempting to expand its data reach beyond loop-detector locations with new technology. The loop detectors also have limitations; they occasionally fail, and have different levels of accuracy in recording data. This can make it difficult to compare data from area to area or from year to year. The detectors are also affected by construction projects where lanes are shifted from their normal position or pavement is being rehabilitated. While adding additional loop detectors to the system improves precision and completeness for measurement purposes, it can also make year-to-year data comparisons more difficult. Finally, there is no single statewide data warehouse. Much of the data is managed regionally within the metropolitan areas around Seattle, Vancouver, and Spokane, each using a different data system. This makes it difficult for WSDOT to compare data from region to region. WSDOT is working to resolve this issue.

HOV Lane Performance

The Washington State freeway HOV system helps to maximize system productivity and provide reliable travel times and dependability for transit users and carpoolers. Approximately 200 miles of HOV lanes have been constructed in Central Puget Sound since 1970. The HOV lanes allow the highway system to operate more efficiently: they help reduce demand for vehicle throughput by offering an attractive alternative to drive-alone commuting, and multiple-occupancy vehicles help raise *person* throughput. WSDOT tracks two important aspects of HOV lane performance: travel time and reliability benefit to users, and volume of people being moved via HOV lanes as compared to the general purpose lanes.

For this report, WSDOT will compare 2005 data (the most recent data) with data from 2004.

HOV Lane Performance: Reliability

WSDOT and the Puget Sound Regional Council (PSRC) adopted a performance standard for freeway HOV lanes that states 90% of the time, the HOV lane should be able to maintain an average speed of 45 mph or greater during the peak hour of the peak period.[2]

Nine HOV Lanes Fail Reliability Standard Due to Saturated Volumes and Depressed Speeds

The 2005 performance results for the Puget Sound HOV lane system indicate significant portions of the freeway HOV lane system are operating over capacity; the reliability performance of several lanes is deteriorating under increasing vehicle usage during peak periods. Congestion in the HOV lanes has returned to the peak levels seen in 2000, when highway traffic peaked due to the economic boom. Six of the HOV lanes now have high enough traffic volumes that the corridors fail the HOV performance standard in the evening peak period, and four fail the standard in the morning period. In 2004, five corridors failed this standard in the evening peak period and three in the morning peak period. The table to the right illustrates which corridors and directions currently meet or fail the performance standard during the morning peak period and evening peak period.

Speed and reliability of the HOV lanes are continuously monitored and the results are published at http://depts.washington.edu/hov/.

HOV Lane Performance: Person Throughput

The sub-standard speed seen in the HOV lanes is due to the increase in their use. The WSDOT HOV lane monitoring program tracks volume in the HOV and general purpose lanes at 10 locations around the Central Puget Sound area that are representative of freeway use on all major freeway corridors in

Puget Sound Corridors Meeting HOV Lane Reliability Performance Goal

2004 and 2005, Based on Reliability Goal of the HOV Lane Maintaining a Speed of 45 mph for 90% of the Peak Hour[2]

Route	2004		2005	
	A.M.	P.M.	A.M.	P.M.
I-5, SR 522 to 112th St. (NB)	✓	Below	✓	Below
I-5, SR 526 to Northgate Way (SB)	Below	✓	Below	✓
I-405, I-5 Interchange (Tukwila) to NE 8th St. (NB)	Below[1]	✓	Below	✓
I-405, NE 8th St to I-5 Interchange (Tukwila) (SB)	✓	Below	✓	Below
I-90, S Rainier Ave to SR 900 (EB)	✓	✓	✓	✓
I-90, SR 900 to S Rainier Ave (WB)	✓	✓	✓	✓
SR 520, I-405 Interchange to West Lake Sammamish Parkway NE (EB)	✓	✓	✓	✓
SR 520, West Lake Sammamish Parkway NE to 84th Ave NE (WB)	✓	Below	✓	Below
SR 167, 15th St NW to I-405 Interchange (NB)	✓	✓	✓	✓
SR 167, I-405 Interchange to 15th St NW (SB)	✓	✓	✓	✓
I-5, S 320th St to I-90 Interchange (NB)	Below	✓	Below	✓
I-5, I-90 Interchange to S 320th St (SB)	✓	Below	✓	Below
I-405, NE 8th St to I-5 Interchange (Swamp Creek) (NB)	✓	Below[1]	✓	Below
I-405, I-5 Interchange (Swamp Creek) to NE 8th St (SB)	✓	✓	Below[1]	Below[1]

Source: University of Washington Transportation Research Center (TRAC)

Data Notes: TRAC analyzes performance data for all complete segments of HOV lanes that have a loop detector. In some cases, data is not analyzed for the very beginning and ends of the lanes because there are not detectors at the very beginnings and ends of the HOV lanes. NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound
[1]Performance on these corridors was close to the standard; this corridor's failure was borderline.

[2]HOV reliability performance standards are based on the peak hour. Peak hour is the one-hour period during each peak period when average travel time is slowest.

HOV Lane Performance (continued)

the region. Vehicle and person volumes are measured in both directions for both HOV and general purpose lanes at each of these locations.

During the peak travel period in the direction of peak travel, all but one of the Puget Sound freeway HOV lanes gained vehicle volume between 2004 and 2005. Compared to 2004, volume in the HOV lanes at the 10 monitoring locations increased by an average of approximately 130 vehicles during the 3-hour morning peak period and approximately 120 vehicles in the 4-hour evening peak period. Traffic volumes measured in the general purpose lanes at those locations declined by an average of 165 vehicles in the morning peak period and 500 vehicles in the evening peak.

HOV Lanes are Effective at Moving People

HOV lanes are designed to move more people in fewer vehicles, by providing incentives that encourage people to share rides, either in carpools or by using transit. The HOV lane system generally succeeds in attracting large numbers of users, despite consisting of only one lane in each direction on each freeway route. At the 10 monitoring locations, the average HOV lane in the peak traffic direction carries almost 29% of the people on the freeway in the morning and almost 33% in the evening.[1]

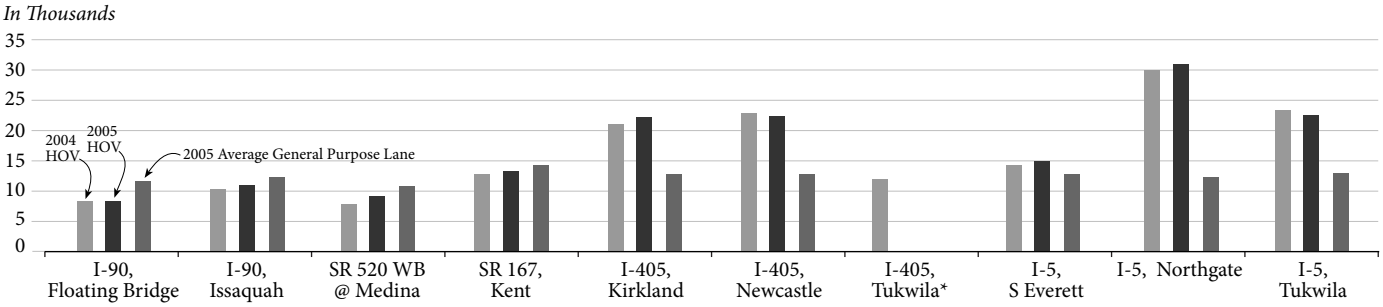
HOV lanes are not equally used throughout the region. The graph below shows how HOV lane use compares to general purpose lane use across the major corridors in the morning. HOV lane use is highest where general purpose lanes are very limited or where excellent transit service encourages use of the HOV lanes. I-5 near Northgate is an example of the person moving capability of comprehensive transit service operating in an HOV lane. In the morning peak period the southbound HOV lanes move over 13,700 people, or 43% of the people on that section of I-5, in only 21% of the vehicles. The HOV lane carries an average of 3.3 people in each vehicle, making it almost three times as effective at moving people as any of the adjacent general purpose lanes.

Not all HOV lanes carry such high percentages of freeway travelers. As noted in the September 2005 *Gray Notebook* report on HOV lanes (p. 66), I-90 and SR 167 both have HOV lanes with lower levels of use. In both cases, the time advantage provided by the HOV lane to travelers on these roadways is smaller than on I-405, I-5, or SR 520 westbound. As a result, less incentive exists to carpool or use transit. However, growing congestion on these roads is resulting in increasing HOV use. In particular, I-90 shows very large growth in HOV traffic. Between 2000 and 2005, traffic volumes on the HOV lane near Issaquah added nearly as many vehicles in the peak periods and peak directions as all of the general purpose lanes combined. While only 4,500 (23%) of the people on the facility at that location currently use the westbound HOV lanes in the morning peak period, that percentage will continue to grow in the future, particularly as more park and ride spaces and bus service are brought to the eastern end of the corridor, allowing more people to easily access convenient transit services.

Four HOV Lanes Are Not Meeting Person Throughput Expectations

On four corridors, HOV lane person throughput is not exceeding general purpose lane person throughput.

2004 HOV Lane and 2005 HOV Lane and General Purpose Lane Person Throughput Comparison
Total of A.M. and P.M. Peak Period Volumes



Note: Volumes are for peak period direction only.
Note: * This 2004 data has no corresponding 2005 data.
Source: University of Washington Transportation Research Center (TRAC)

[1]Person volume data is based on observation samples. At selected locations, observers standing on overpasses or alongside the road count the number of people in each car. Those samples, along with estimated bus ridership data and vanpool ridership data provided by transit agencies, are used to estimate average vehicle occupancies at those locations. The per-vehicle occupancies are then combined with vehicle counts (from the loop detector data) to get person volume estimates.

HOV Lane Performance (continued)

I-90 Floating Bridge HOV/Express Lanes. The two-lane HOV/Express facility is underutilized because it has limited access points, including single-lane connections to I-90 mainline on either end. Also, the HOV lanes through Mercer Island are open to single-occupancy vehicles entering and exiting the highway. Person throughput was roughly steady from 2004 to 2005, but has grown in previous years.

I-90 Issaquah HOV Lanes. The HOV lanes here have lower volumes and lower transit usage throughout peak commute periods compared to some other locations in the network, but as noted above, HOV lane use is growing along the I-90 corridor. Population growth in Issaquah and other rapidly-developing Eastside areas is increasing all volumes along this commute route, and HOV facilities and transit service are expanding in this part of the Eastside.

SR 520 Westbound at Medina. This HOV shoulder lane has an operational constraint: the lane is restricted to three-person HOVs and transit for safety reasons. Despite this, the location compares very favorably to adjacent general purpose lanes during each peak commute hour and provides substantial travel time savings for regional transit bus service.

SR 167 in Kent. HOV lane use is modest for several reasons:

- There is limited bus service, in part due to *Sounder* train service to Seattle that serves the corridor.
- The HOV lane does not save a great deal of time for most travelers in the corridor because the worst congestion on SR 167 is south of the end of the HOV lane.
- A restriping project improved the flow of traffic on the general purpose lanes.

HOV User Survey Preliminary Conclusions

WSDOT distributed 30,000 surveys to freeway HOV lane users in January 2006; 5,700 people responded. The survey was intended to determine the extent to which HOV lanes encourage the choice of shared-ride modes, and to develop data concerning the use of HOV lanes during the mid-day period compared to peak period use.

The survey revealed the existence of HOV lanes likely did influence respondents' decisions to share rides: 15-23% current HOV users would probably switch to driving alone if the HOV lanes were "not available."[1]

[1]WSDOT feels the 15-18% figure might be low due to the way the question was phrased. The question, "If HOV Lanes were not available, what is the thing that you would be most likely to do?", did not differentiate between a short-term or long-term/permanent unavailability of the lanes. Based on other national surveys, it is believed that a higher percentage of shared ride users might switch back to a single-occupant vehicle if the HOV lanes were closed permanently.

Selected HOV User Survey Responses, 2006

	Carpool Riders	Vanpool Riders	Transit Riders
If HOV Lanes were not available, what is the thing you would most likely do?			
Continue to travel the same way	39%	66%	68%
Switch to driving alone	18%	15%	17%
Switch to driving on a different route	19%	4%	3%
Switch to different hours of travel	7%	4%	2%
Switch to transit	5%	2%	n/a
What are the top three reasons you utilize a shared-ride mode?			
Travel time	78%	54%	37%
Convenience	66%	41%	51%
Less stressful	43%	56%	63%
Save money	41%	85%	81%
Environmental impacts	18%	27%	27%

Source: WSDOT, Urban Planning Office

Note: These responses are a combination of responses given for HOV lane users for three different time periods through the day (morning peak, mid-day, and afternoon peak). They are not weighted. These answers represent the top five most common answers to the two questions. A full report with all responses will be available at http://www.wsdot.wa.gov/hov by the end of the year.

About two thirds of carpools (67% of peak period carpools, and 72% of mid-day carpools) are made up of people from the same household. Household carpools would be more likely to drive alone than non-household carpools if the HOV lanes were not available.

Upwards of 85% of bus riders and vanpoolers, and 25% of carpoolers, use employer rideshare incentives.

Although HOV lanes are primarily used for work commuting during the peaks, people also use the lanes for running errands, getting to appointments, and other daily activities. These non-employment-related uses significantly increase during the mid-day.

A full report on the HOV survey results is expected to be available by the end of the year at http://www.wsdot.wa.gov/hov.

Case Study Projects: Minimizing Construction Impacts on Safety and Congestion

I-90 Downtown Spokane Viaduct Bridge Deck

Heavy traffic volumes and high studded tire use caused severe rutting (1/4" to 2") on the surface of I-90 through downtown Spokane. Traffic volumes on this section of the freeway have doubled since the resurfacing was last done in 1985-86. To provide safe operating conditions for the over 90,000 vehicles a day that travel this section of I-90, the Legislature authorized a bridge deck resurfacing project. Work began in May 2006.

WSDOT Coordinated With the Public and Other Agencies

This project required an extensive public relations effort, detailed coordination with the City of Spokane Engineering and Traffic Departments, and in depth planning with Law Enforcement and Emergency Services. These entities helped to cooperatively establish emergency response plans, detour and alternate routes, and construction signal timing plans for approximately 100 signals in downtown Spokane. WSDOT staff conducted over 50 meetings and presentations with participation by the Spokane Chamber of Commerce and the Downtown Spokane Partnership.

Specific Strategies Used to Mitigate Delay During Construction to Address Potential Congestion

Planning the Construction Site to Decrease Congestion Potential

WSDOT modeled the capacity on I-90 during construction and developed recommendations for ramp closures, speeds, and lane widths during the project. At the same time, WSDOT prepared information fact sheets and presentations to explain the approach to the public and other stakeholders. In addition, the construction phasing was carefully planned and executed by WSDOT and the contractor, resulting in a rapid construction process that finished three weeks ahead of the scheduled completion date.

Developing Alternative Routes Into the City of Spokane

WSDOT used an extensive media campaign to encourage commuters to use alternate routes into the City core, leaving capacity on I-90 in the construction zone for through trips. It was essential that normal daily freeway volumes be reduced during construction to alleviate delays and backups. In fact, during the construction, traffic volume on I-90 reduced by approximately 27,000 vehicle trips a day. In addition, WSDOT and Spokane staff modeled the City of Spokane street network and developed a traffic signal timing plan which better accommodated the modified traffic patterns and shifted volumes. These modifications ensured that ramps that were to remain open during construction did not back up onto the freeway, causing congestion and safety concerns, while still providing adequate circulation in the city core.

Managing traffic in the construction zone

Managing traffic flow through the construction zone was also a critical element of the overall construction traffic management plan. Three Washington State Patrol motorcycle troops enforced traffic speed and quickly responded to collisions and disabled vehicles. WSDOT also coordinated extensively with other emergency services to quickly respond to incidents.

Real-Time Traffic Information

WSDOT also worked with the City of Spokane Traffic Department to install five traffic cameras on critical corridors accessing I-90 along the work zone. These cameras provided real time information about problems that occurred on the city street network, allowing the city to make signal timing and signing adjustment to improve traffic flow.

The Results

All of these efforts to manage traffic during the construction had excellent results. No accidents occurred in the work zone, despite reduced lane widths and reduced lane availability (two rather than three lanes each direction). There were no significant delays on I-90, and the city street network remained operational.

Phase Two of this project will begin May 14, 2007. There will be no substantial changes from the approach used in Phase 1. The project is currently on schedule and in budget.

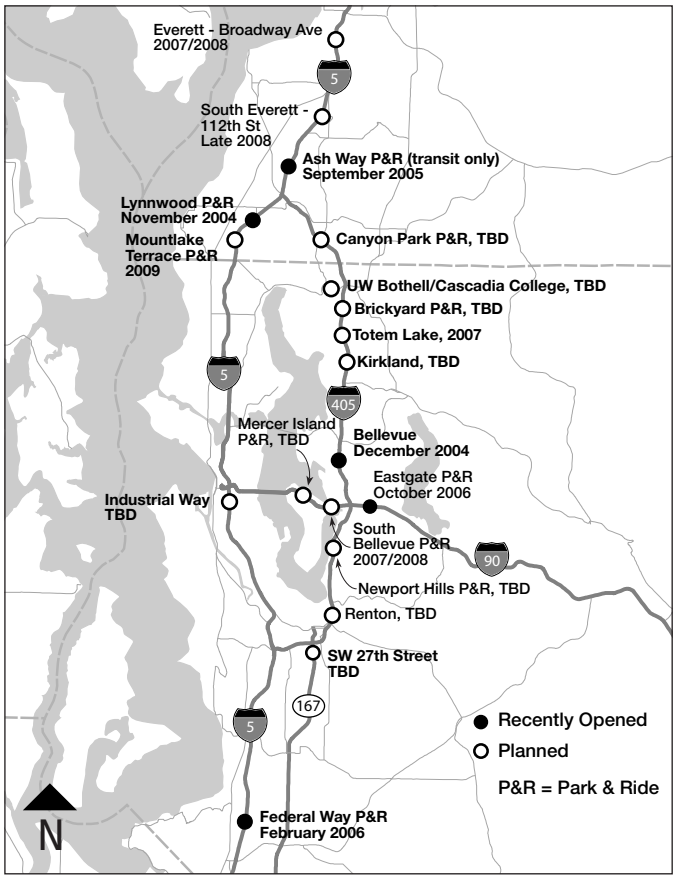
Case Study Projects: HOV Direct Access Ramps

HOV Lane Direct Access Ramps: Five Completed, 14 More are Planned

WSDOT is building many HOV lane direct access ramps throughout the Puget Sound area for Sound Transit. Direct access ramps allow buses, carpools and vanpools to directly access the high occupancy vehicle (HOV) lanes from park and ride lots and local streets. When carpools, vanpools and buses connect directly with HOV lanes, these vehicles no longer have to weave across the general-purpose lanes. Direct access ramps improve safety, reduce congestion, save time, and increase reliability for both HOVs and general-purpose traffic.

Five major HOV lane direct access ramps in the Puget Sound area opened recently. Fourteen more direct access ramps are planned. The map below shows where WSDOT is implementing direct access projects.

HOV Direct Access Ramps in the Central Puget Sound Region, Current and Planned



Preliminary performance evaluations have been completed for the Lynnwood, Bellevue, Federal Way, and Ash Way projects. Substantial travel time savings have been achieved at both Lynnwood (four to eight minute savings) and Ash Way (two to six minutes), resulting in revised, improved Sound Transit and Community Transit bus schedules. At the Bellevue Downtown ramp, only modest time savings of between one and two minutes for each bus route have so far been achieved. However, in Bellevue, as many as 83 buses in each peak period are no longer required to weave across I-405's general purpose lanes. Preliminary time savings data is not yet available for the Federal Way S. 317th St. access ramp and the Eastgate Transit 142nd Pl SE access ramp, both of which have been opened within the past year. The table below lists each ramp's transit and total daily volumes and time savings.

Direct Access Ramps Vehicle Volume and Time Savings for HOV Users After Implementation

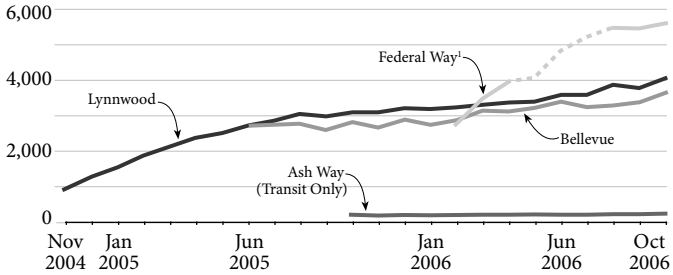
Direct Access Ramp Location	Transit Daily Volume	Total Daily Volume	Time Savings
Lynnwood	212	4100	4-8 minutes
Bellevue	292	3700	1-2 minutes
Ash Way[1]	127	200	2-6 minutes
Federal Way	233	5600	n/a

Source: TRAC and WSDOT Northwest Region Office

[1]The Ash Way Direct Access Ramp is for transit (buses) only.

The graph below shows the rapid growth of the use of direct access ramps upon their opening. Currently, the Lynnwood and Bellevue direct access ramps carry nearly 4,000 vehicles per day each and the Federal Way ramps lead with over 5,600 vehicles per day. The Ash Way ramps, which are restricted to transit vehicles, carry approximately 200 vehicles per day.

Direct Access Ramp Volumes
November 2004 - October 2006



Source: WSDOT, Northwest Region
[1]From May 2006 to September 2006, WSDOT did not have data for one of the four direct access ramp lanes in Federal Way due to a bad loop detector. During that time, WSDOT interpolated the fourth ramp's volume based on previous data from when the loop detector there was working. The line is dashed for that period since it shows estimated and not actual data.

Measuring Delay and Congestion: Annual Update

Understanding the Relationship Between Congestion and Safety

Is there a correlation between highway congestion and traffic collisions? WSDOT plotted fatal and disabling collisions for the entire length of I-5 by hour on the graph below, then added congestion data by time of day (in the black areas).

Fatal and Disabling Collisions and Congestion

Based on this sample data, congestion does not appear to be a major factor in serious collisions. Further analysis is warranted.

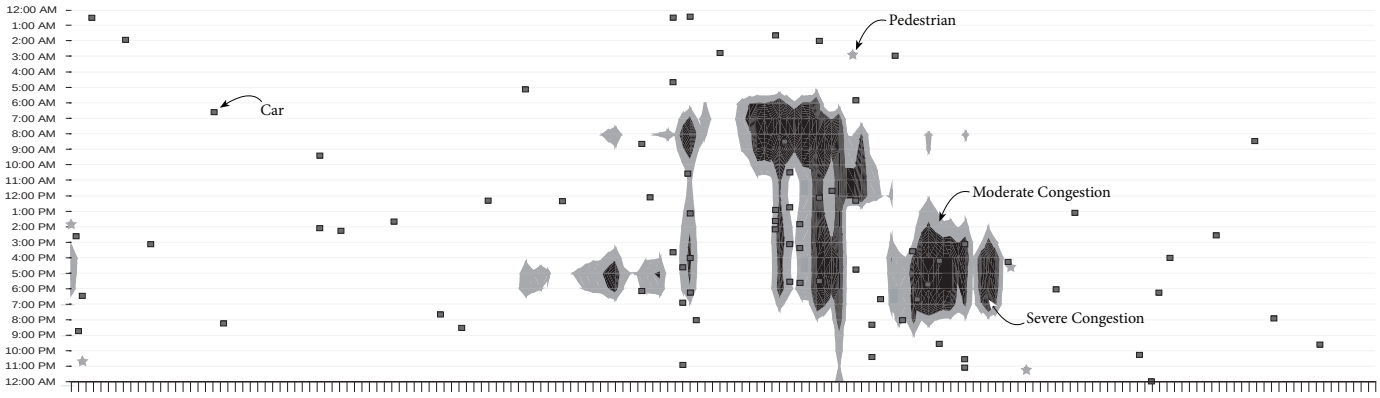
Rear-End Collisions and Congestion

Rear-end collisions on the other hand correlate with congestion. There appears to be a definite link between rear-end collisions and congestion. For more information on highway safety, see pp. 82-85.

WSDOT will continue to study available data in order to determine congestion and traffic collision relationships and their implications.

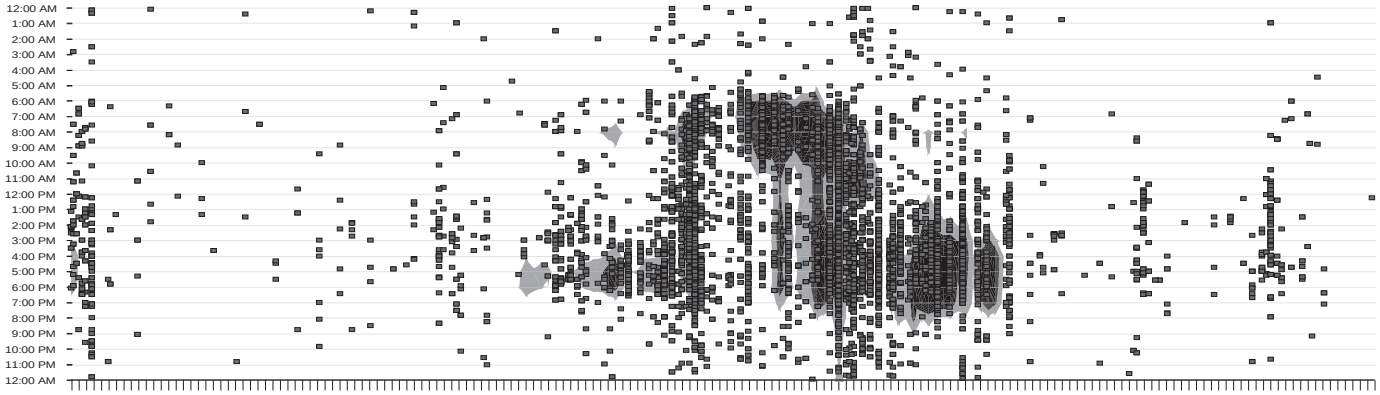
Northbound Interstate 5: 2005 Fatal and Disabling Collisions and Congestion Occurances

Collisions (squares and stars) and Congestion (shaded areas) by Time of Day and Location

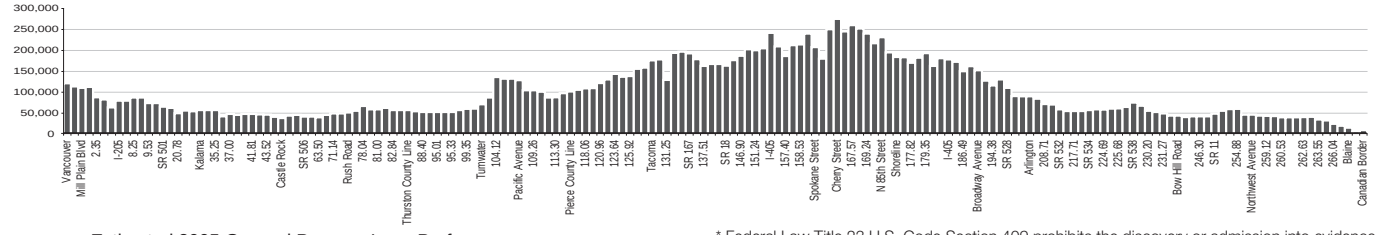


Northbound Interstate 5: 2005 Rear End Collisions and Congestion Occurances

Collisions (squares) and Congestion (shaded areas) by Time of Day and Location



2005 Annual Average Daily Traffic, Hours of Delay by Milepost (correlates with graphs above)



Estimated 2005 General Purpose Lane Performance

* Federal Law Title 23 U.S. Code Section 409 prohibits the discovery or admission into evidence of this data in Federal or State Court proceedings or consideration in any action for damages.

Traffic Data Collection for Arterial Highways

WSDOT has a well-established data-collection system on major Central Puget Sound region highways. This system gathers historical travel time, delay, and traffic volume information, along with real-time traffic data for travelers. Much of the data is collected from magnetic "loop detectors" embedded in the pavement. Unfortunately, similar travel time data is not collected by WSDOT for the arterial highways, which are equally crucial elements of the state highway system. Data for the arterial system could be used for real-time travel information on WSDOT's web traffic flow map, real-time traffic management, and highway performance reporting.

New Technology Can Provide Arterial Data

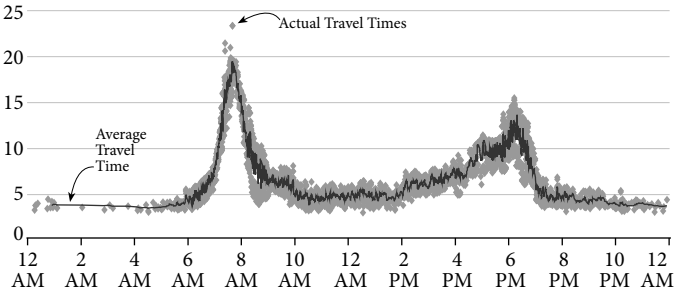
In response to operational issues in gathering data on the arterial system, WSDOT is currently piloting a test of Automated License Plate Recognition (ALPR) technology. (See the gray box to the right for more information on ALPR). ALPR provides WSDOT with low-cost, flexible data collection on arterial highways as well as freeway segments that do not yet have loops. For instance, ALPR could be installed on mountain passes to provide winter travelers real-time information.

Based on this initial pilot test, WSDOT is developing a plan to install the system on other critical freeway and highway segments. The expansion of this program is not fully funded at this time, but candidate routes include SR 9, SR 18, SR 99, US 2, and I-5 north of Everett. An additional benefit of the ALPR data collection is the ability to gather performance data on arterials improved by Nickel and TPA projects.

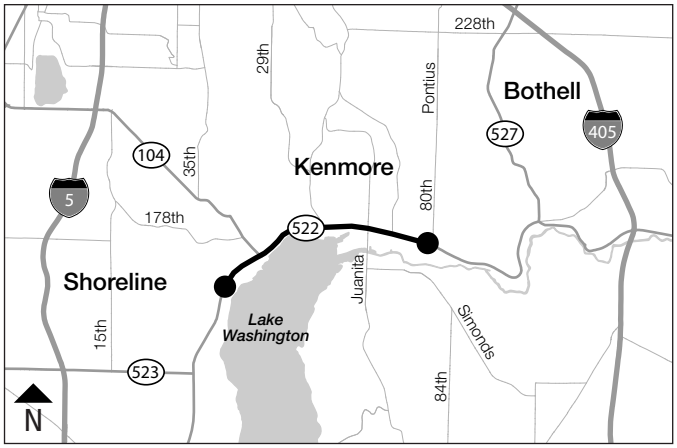
SR 522 (Westbound) Travel Times, October 2006

80th St. to 170th Ave., 2.37 miles

Minutes of Travel Time by Time of Day, Actual and Average Travel Times



Source: WSDOT, Northwest Region



How Does ALPR Technology Address Data-Gathering Problems on Arterial Highways?

Arterial highways are roadways with traffic signals which carry large volumes of traffic in and between urban areas that include access to local development. Arterials pose a unique challenge for loop detectors: traffic signals and closely-spaced access points interrupt traffic flow along an arterial corridor, making it very difficult for loops to measure travel time as they do for the freeway system. WSDOT's current approach for measuring arterial highway performance is to conduct "floating car" studies, in which engineers drive the corridor and capture the time it takes to get from one point to another. This method is time-consuming and provides a very limited measurement of how the arterial highway is performing.

Automated License Plate Recognition (ALPR) is used for reading license plates, primarily for security purposes. The technology uses a pixel recognition program to convert a snapshot image of a license plate to text. (Data is discarded after the system gathers the needed travel time data.) In this instance, ALPR is being used to collect real-time travel data on routes despite the constant interruption of traffic flow that foil data-gathering by loops. In WSDOT's test, each pixilated license plate image is automatically converted to a unique time-stamped code to maintain privacy; this is the only information retained. The time-stamps of an image captured at multiple locations can then be converted to a travel time for the arterial road.

The initial test of this system is being conducted on SR 522 between NE 170th and 80th Ave (see the map above). It has been active since October 2006 and has provided continuous and useful travel time information along this two-mile highway segment (see the graph to the left).

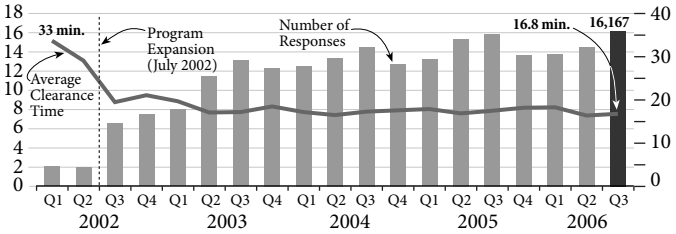
Incident Response: Quarterly Update

Overall Trend

During the third quarter of 2006, the WSDOT Incident Response (IR) Program responded to 16,167 incidents, an 11% increase from the previous quarter (14,505 responses). The increase in the number of responses and incidents is due to summertime peak travel activities. It is similar to the summer peak in 2005 (15,881 in quarter 3 of 2005). The third quarter of 2006 was a 1.8% increase over the same quarter in 2005.

Number of Responses and Overall Average Clearance Time

January 2002 - September 2006
Number in Thousands



Source: WSDOT Incident Response Tracking System.

Note: Program-wide data is available since January 2002. Prior to Q3 of 2003, number of responses by IRT are shown. From Q3-2003, responses by Registered Tow Truck Operators and WSP Cadets have been reported in the total.

Despite the increase in the number of responses, the average clearance time for all incidents remained at 17 minutes, the same level as the second quarter of 2006.

Fatality and Injury Collisions

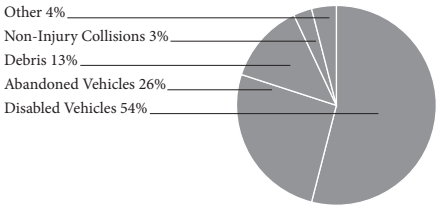
The number of responses to fatality collisions decreased to 46 responses in the third quarter of 2006, versus 58 responses in the third quarter 2005. The number of responses to injury collisions also had a noticeable increase compared to the number in the third quarter 2005 (404 responses to injury collisions in quarter 3 of 2005 versus 474 in quarter 3 of 2006). The number of non-injury collisions remained unchanged.

Increase in Incidents Involving Fire

Brush and car fires normally increase during summer months. During the third quarter of 2006, there were 135 fire-related incident responses compared to last year's summer peak level of 98 responses. The number of responses to fires was the second highest since beginning of the program in 2002. The largest number of fire responses had occurred in the third quarter of 2003, with 152 responses.

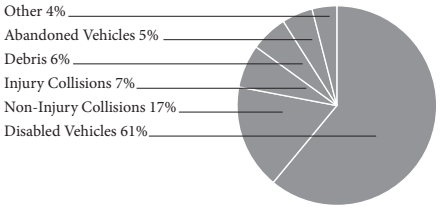
Incidents Lasting Less Than 15 Minutes (9,617)

Injury Collisions were less than 1% (not shown). There were 19 Fires and 1 Hazardous Materials incidents in addition to or as a result of above incidents.



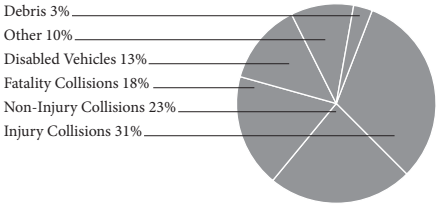
Incidents Lasting 15 to 90 Minutes (5,370)

There were 77 Fires and 17 Hazardous Materials incidents in addition to or as a result of above incidents.



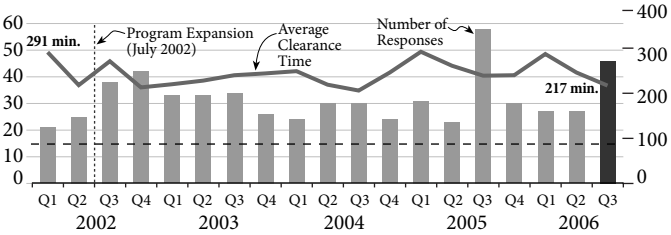
Incidents Lasting 90 Minutes and Longer (240)

There were 20 Fires and 4 Hazardous Materials incidents in addition to or as a result of above incidents.



IR Responses to Fatality Collisions

January 2002 - September 2006



Source: WSDOT Incident Response Tracking System.

Incident Response Types

Total Incident Responses = 16,167
1,810 Collisions (11%)
13,417 Non-Collisions (83%)
940 Unable-to-Locate (6%)

Primary Reason	July	August	September
Fatality Collisions	17	16	13
Injury Collisions	139	167	168
Non-injury Collisions	338	464	488
Disabled Vehicles	2,578	3,028	2,861
Debris	473	559	555
Other	210	201	184
Supplemental Reason[1]	**July**	**August**	**September**
Fire	51	47	37
Hazardous Materials	10	6	7
Other Contacts	210	204	191

Source: WSDOT Incident Response Tracking System
[1]Supplemental Reasons are in addition to or as a result of Primary Incident Types

Incident Response: Quarterly Update

Service Actions Taken for Non-Collisions[1]

	July	August	September
Traffic Control	506	664	637
Provided Fuel	361	386	384
Changed Flat Tire	345	373	352
Minor Repair	207	272	234
Pushed Vehicle	208	247	245
Towed Vehicle	59	56	51
Cleared Debris	475	546	527
Other Actions	1,444	1,781	1,604

Source: WSDOT Incident Response Tracking System
[1]Most common services actions only exclude various miscellaneous actions taken. Multiple action may be taken for each response.

Major Blocking Incidents Have Serious Effects on Congestion and Highway Safety

When travel lanes are blocked, an incident becomes extremely hazardous to traffic and congestion begins to build immediately. Blocking incidents tend to be more serious, and take longer to clear. Incident management (early detection, swift response, and removal of blockage from travel lanes) is critical both for highway safety and traffic operations to prevent congestion. The pie charts on the bottom right show that blocking incidents were over-represented (67%) in major incidents (lasting 90 minutes or longer). Only 22% of incidents cleared within 90 minutes were blocking travel lanes during the last 12-month period (October 2005 – September 2006). The majority of major incidents (81%) involved collisions. Nineteen percent were non-collisions, such as disabled vehicles, debris, spills of hazardous materials, and fire.

Average Clearance Time

WSDOT monitors total clearance time of each incident responded to by the IR Program. The total clearance time for an incident is measured from the start time through removal of blockage to the shoulder, cleaning or clearing of debris, until the last response unit drives away from the scene. Among all major incidents that had lasted 90 minutes and longer, average clearance time for major blocking incidents was longer than that of non-blocking major incidents (186 minutes for blocking versus 170 minutes for non-blocking). Longer clearance times prolong the period of time when motorists are exposed to hazardous roadway conditions and cause increased congestion on the roadway.

Cabinet Performance Measures and Goal

Due to the serious impact of blocking incidents on congestion and highway safety, major blocking incidents and the duration of lane blockages will be monitored for operational performance measures on the heaviest congested areas. These areas include Central Puget Sound and the I-5 corridor from Oregon to the Canadian Border. The cabinet strategic plan goal is to reduce the average duration of blocking incidents lasting 90 minutes and longer by 5% for these selected key highway segments.

The performance outcome will be reported directly to the Governor and her Cabinet.

Selected key highway segments include:

- I-90 to North Bend
- I-405
- SR 18 to I-90
- SR 16 to vicinity of Purdy
- SR 520
- SR 512
- I-205
- I-5 (Vancouver to Canadian Border)

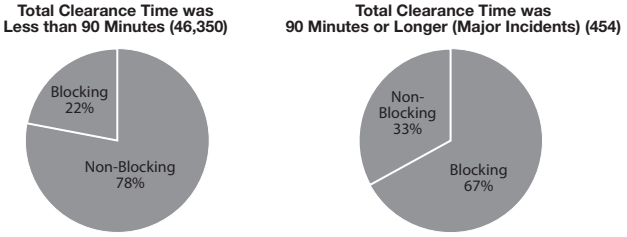
Selection of Data Source for Cabinet Strategic Action Plan

Most of the key routes selected for Cabinet Goal performance monitoring are already covered by the WSDOT IR Program for roving patrol; however, the IR Program's focus is generally daytime during peak commute hours. Outside regular roving patrol hours, IR units must be called out to respond to major incidents. Therefore, the Cabinet Strategic Action Plan will use both the Washington State Patrol's (WSP) Computer

Responses to Incidents by WSDOT-Incident Response Program

Total Clearance Time Under or Over 90 Minutes*
Blocking or Non-Blocking Travel Lanes

12-Month Period: October 2005 - September 2006



Source: WSDOT-Incident Tracking System (Traffic Operations).
* Total Clearance Time is the length of incidents from the start time until incident was cleared both from travel lanes and shoulder when the last response unit drives away from the scene; thus, the Total Clearance Time includes Duration of Incidents Blocking Lanes AND the time spent on shoulders for final removal/cleanup operations. Location of blockage for Blocking Incidents had to be travel lanes on mainline; therefore, blockage on ramp area was not considered as Blocking Incidents.

Incident Response: Quarterly Update

Aided Dispatch (CAD) System and the WSDOT Incident Response Tracking System (WITS) in order to capture all incidents, regardless of whether or not WSDOT's IR program responded to them. The map to the right shows the Cabinet Goal's critical monitoring routes in relation to the current IR core coverage zones.

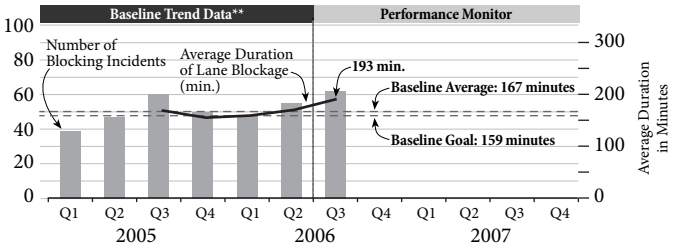
For the baseline trend data (2005-2006), a portion of the data (January – September, 2006) are taken from both the WSP-CAD System and the WSDOT-WITS System. Prior to January 2006, WSDOT-WITS is the source of baseline data.

Cabinet Performance Measures for Incident Management

On Selected Key Highway Segments*

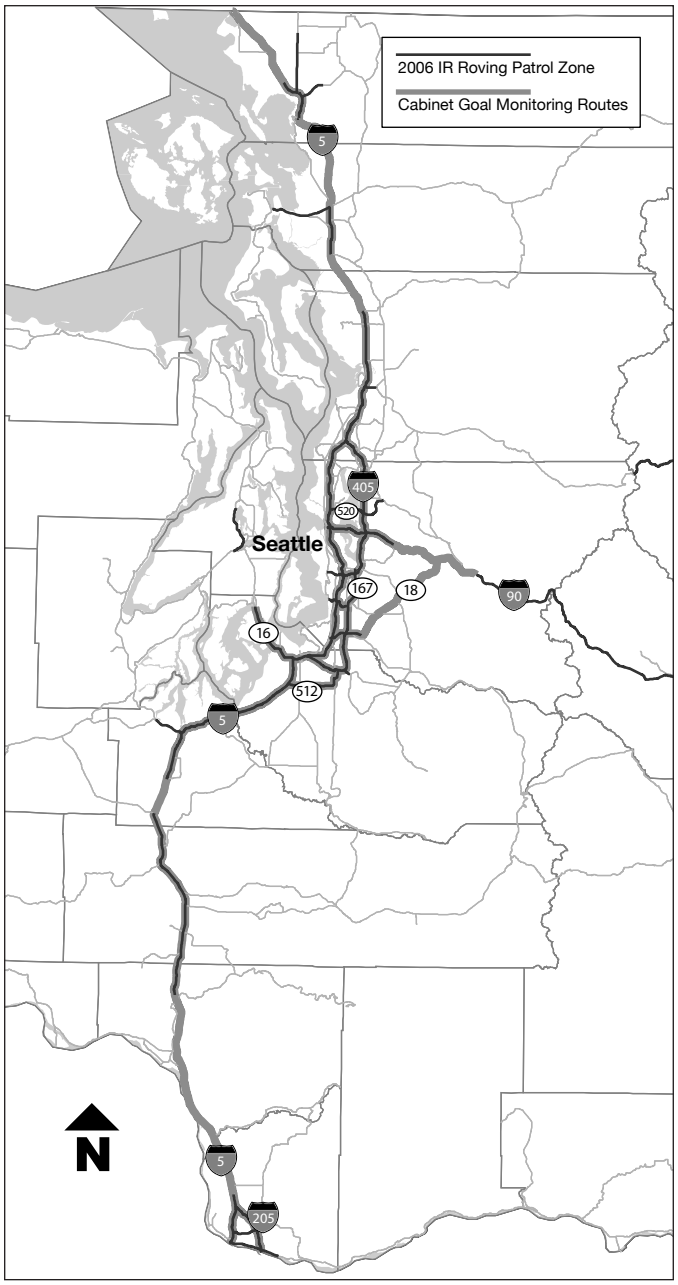
January 2005 - September 2006 (Baseline Trend)

Number of Blocking Incidents



* *Selected Key Highway Segments*--I-5 (Oregon to Canadian Border), I-90 to North Bend, I-405, SR 18 to I-90, SR 16 to Purdy, SR 167, SR 520, SR 512, and I-205.

** *Baseline Data Source:* 2005--WSDOT Incident Response Tracking System; 2006--WSP-Computer Aided Dispatch System.



Commute Options: Annual Update

Commute Options Programs Reducing Demand of the System

During peak travel periods around the state, demand for the highway system frequently exceeds capacity. This causes congestion for travelers and dramatically decreases the efficiency of the system. (For more information about system efficiency, see the discussion on page 54)

Using strategies that increase the carrying capacity of the system, such as greater use of high-occupancy vehicles, shifting trips out of rush hours, and eliminating the need for multiple trips, helps the state get the most out of its transportation investments. WSDOT invests in and promotes a variety of strategies such as carpools, vanpools, buses, bicycling, walking, compressed work hours, or working from home (telecommuting).

This edition of the *Gray Notebook* contains updates of programs that WSDOT's manages to help improve commute options for travelers:

- Commute Trip Reduction Program
- Vanpool Grant Program
- Trip Reduction Performance Program
- Construction Mitigation
- Park and Ride Lots

Participation in Commuter Trip Reduction Program Increases

Washington State's Commute Trip Reduction program works with major employers in the state's ten most populous counties to reduce the number of employees that drive alone. About 500,000 employees at nearly 1,100 worksites in the state have access to CTR programs.

The drive-alone rate at worksites participating in CTR decreased from 70.8% in 1993, to 65.7% in 2005. This contributed to Washington's overall drive-alone commute rate declining slightly from 1990 to 2000 (one of only two states where the percentage dropped). In 2005, the rate at CTR worksites remained below the state's overall rate by about eight percentage points. Statewide, employees commuting to CTR worksites made over 20,000 fewer vehicle trips each weekday morning in 2005 compared to the start of the program in 1991.

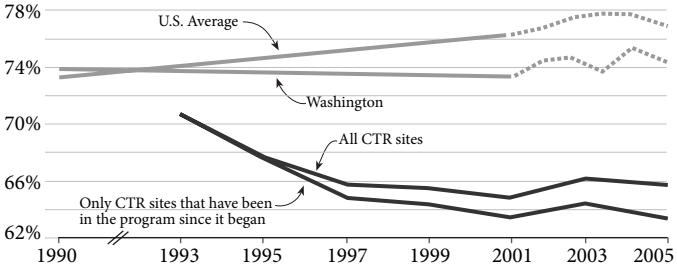
On March 29, 2006, Governor Gregoire signed the CTR Efficiency Act (Engrossed Substitute House Bill 6566). The most significant changes to the program include:

- The new CTR law shifts the program to focus on those urban growth areas with the most congested state highways. This change focuses the program on the areas of the state that will deliver a high return on state and private investment

Drive Alone Comparison

CTR Worksites, Washington state, and the United States, 1990 to 2005

Percentage of Commute Trips Taken by Driving Alone



Sources: U.S. Census Bureau for Washington and U.S. average, WSDOT CTR Survey Database for CTR sites. Census data for 1990 and 2000 are from the decennial census; data for 2001 through 2005 (the dotted lines) are from the American Community Survey.

- The new CTR law establishes a state CTR planning framework that will better integrate CTR with local, regional, and state transportation and land use planning and investment. Local jurisdictions will establish trip reduction goals and implement strategies that are based on an evaluation of local, regional, and state needs and best fit the complexities of that particular area.
- The new CTR law provides state support for local jurisdictions to establish Growth and Transportation Efficiency Centers (GTECs) where they may implement customized trip reduction programs and transportation-efficient land use policies that go beyond the requirements of the base CTR program.

Implementing the CTR Efficiency Act will require updating state CTR guidelines into rules, updating local plans and policies, and creating regional plans. WSDOT is working with affected cities and counties, regional transportation planning organizations, major employers, transit agencies, and the CTR Board to implement the changes. The next Commute Options annual update in the *Gray Notebook* will describe the progress of the implementation process.

Vanpool Grant Program Update

As of August 31, 2006, Washington had 2,117 vanpools operating statewide, representing the largest public vanpool program and fleet in the nation. Washington transit systems operate more than 40% of the public vanpools in the United States. The Legislature recognized that the vanpool program increased the effectiveness of commute options programs and provided an additional $3.9 million to purchase more than 150 new vans in 2006 as part of the vanpool grant program.

The goal of the vanpool grant program is to double the number of operating vanpools from 1,588 in July 2003 to 3,186 by the end

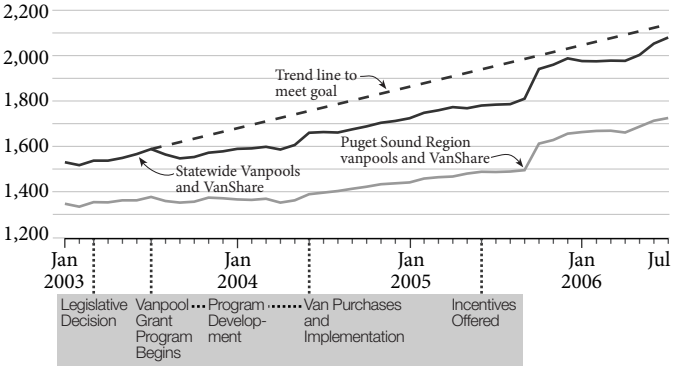
Commute Options: Annual Update

of June 2013. The Legislature originally funded the program at $4 million for the 2003–05 biennium, and provided a total of $8.9 million for the 2005-07 biennium.

The statewide program focuses on congested corridors and areas where opportunities for providing roadway capacity are limited or expensive. State funds are provided for public transit agencies and can be used only for capital costs associated with putting new vans on the road and for incentives for employers to increase employee vanpool use.

Public Vanpools Operating in Washington

January 2003 to July 2006



Year	Number of Operating Vanpools	Annual Percent Change
June 2003	1,513	NA
June 2004	1,598	5.6%
June 2005	1,694	6.0%
June 2006	1,926	13.7%

Source: WSDOT Vanpool Database

The chart and graph above shows that the increase in the number of commuters using the Vanpool Program is on track with the ten year program goal to double the number of vanpools by June 2013. Between June 2005 and June 2006 the number of vanpools on the road in Washington State increased by nearly 13.7% to 1,926. The number of vanpool trips increased by 27% statewide between June 2003 and June 2006.

Trip Reduction Performance Program Update

The Legislature created a trip reduction performance program in 2003 to encourage entrepreneurs, private companies, transit systems, cities, non-profit organizations, developers, and property managers to provide services for employees that result in fewer vehicle trips arriving at worksites.

For the 2003-05 biennium, the 29 completed projects reduced 5,141 daily commute vehicle trips, exceeding the program's projections of 3,645 reduced trips by 41%. The two top performing projects were from Spokane County and the City of Redmond.

WSDOT selected 17 projects to receive over $1.3 million in funding through the 2005-07 biennium. Combined, these projects propose to remove a total of 3,831 daily commute vehicle trips from Washington's highway system. The projects provide services and incentives to get people out of their cars and onto buses, trains, vanpools, and other commute alternatives.

To see descriptions of these projects, visit http://www.wsdot.wa.gov/tdm/program_summaries/trpp_projects_2005-2007.cfm.

Construction Mitigation

As a result of the 2003 Nickel Package and 2005 Transportation Partnership Package, WSDOT is delivering integrated demand management programs and services designed to help maintain traffic flow consistent with pre-construction conditions, starting with the I-405 projects. To accomplish this objective, WSDOT is using four primary strategies:

- Maintain roadway capacity with bus service, HOV (vanpool and carpool) utilization, and enhanced incident response.
- Divert single-occupant vehicle (SOV) trips with Park and Ride enhancements, including new sites, expansion of current facilities, and alternative staging locations.
- Engage and inform the public through delivering enhanced real-time information.
- Target outreach to specific geographic and trip markets to ensure the most people have the right knowledge about construction impacts.

In June 2006, WSDOT has implemented a plan for the Kirkland Phase I Project designed to affect approximately 1600 daily trips during a two-year construction period. Data from transit agencies, traffic recorders, and our real-time information pages are currently being collected for review of the plan's effectiveness. Those results will be used to make adjustments and help inform the next project plans.

Commute Options: Annual Update

A quarterly review of the mitigation performance related to construction impacts and transit ridership is built into the program. The overall effectiveness of Kirkland Phase I first year mitigation efforts will be reported in Fall 2007.

Pre-project data is being collected in advance of the 112th Ave. SE to SE 8th St. widening (Bellevue) and I-5 to SR 169 widening (Renton) projects. Preliminary mitigation programs for these two projects are under discussion with transit agencies and jurisdictions. Implementation of the projects is expected to begin in 2007.

The 2005-07 Regional Mobility Grant program, which aids local governments in funding projects that enhance the efficiency of regional corridors, is funding eight park and ride-related projects that are currently under construction (see table below).

Park and Ride Assessment- Interim Report

At Park and Ride lots serving key highway corridors, demand for spaces often exceeds availability, constraining the efficiency of the transportation system. The occupancy at some of the most popular lots sometimes meets or even exceeds 100% of capacity. The unreliability of finding spaces discourages expanded use of vanpools and transit.

Lots are built, owned, and operated by multiple agencies and jurisdictions. Of the roughly 300 park and ride lots in the state, WSDOT is currently an owner/operator, owner/landlord, contractor, or lessee for approximately 150 lots. A state role is critical in developing partnerships to expand capacity and to locate the lots where they provide the best system benefits.

2005-2007 Regional Mobility Grant Program – Park and Ride Projects

Project Name/Agency	Grant Request	Proposed Annual Vehicle Trips Reductions	Actual Spaces To Be Added By Grant
W. Richland Transit Ctr. Park & Ride Expansion/City of W. Richland	$134,100	25,653	23
99th Street Park & Ride /Clark County and C-Tran	$600,000	317,200	610
Mountlake Terrace I-5 Commuter Parking (I-5 at 236th Street SW)/ Community Transit	$1,740,262	246,000	492
Martin Way P&R Lot Renovation and Expansion/Intercity Transit	$1,259,360	73,320	151
North I-405 Transit Access Project - Brickyard Park and Ride Expansion Phase 1/KingCounty Metro	$2,000,000	52,000	100
Pierce Transit Peninsula Park and Ride Project/Pierce Transit	$2,000,000	378,600	450
Salmon Falls Park & Ride/ Skamania County	$295,000	13,000	50
Columbia Park Trail Park & Ride Lot Expansion	$300,000	185,120	104

Source: WSDOT Office of Transit Mobility

Commute Options: Annual Update

The Legislature charged WSDOT with developing a policy on Park and Ride facilities as part of the overall strategic public transportation plan. WSDOT plans to create the policy within the next year and clarify the role of WSDOT in supporting park and ride facilities. Current collected utilization figures are a measure of activity in the lots (e.g. how many parking spaces are used), and do not yet reflect how the facilities are used and by whom in relation to the overall transportation system. WSDOT's Park and Ride facility policy development, due in September 2007, will include a performance measure applicable across transit agencies and facilities. In the interim, data from the Puget Sound Regional Council's *Puget Sound Trends* is included to report on Park and Ride utilization in King, Pierce, and Snohomish Counties.

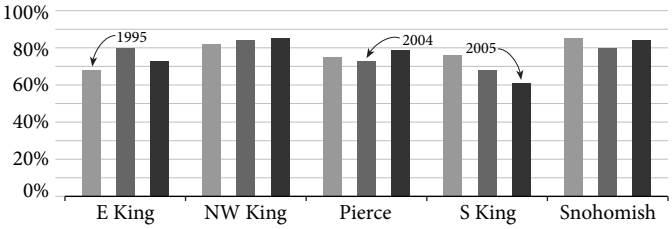
Park and Ride Lots Utilization Rates

In 1995, there were approximately 16,358 parking spaces available at major park and ride lots in the three-county region. Between 1995 and 2005, the supply of parking stalls increased to approximately 24,695 spaces. Northwest King County lots had the highest average utilization rates for 2004 and 2005, with 84.5% utilization between the two years. Snohomish County had an 84% countywide occupancy rate for 2005. Pierce County experienced the largest jump in utilization with a 6% increase between 2004 and 2005. South King County and East King County experienced a drop in utilization from 2004 to 2005, both dropping by 7%.

Data reported in this edition of the *Gray Notebook* was collected from the Puget Sound Regional Council. All park and ride lots with 250 or more parking stalls in the three-county central Puget Sound area are included, regardless of which entity owns and operates the lot. WSDOT will report performance information specific for WSDOT-owned lots.

Park and Ride Lot Utilization 1995, 2004, and 2005

Percent of Capacity Used



Source: Puget Sound Regional Commission, ***Puget Sound Trends***, July 2006.
Data Note: 1995 Baseline Year

Park and Ride Lot Capacity 1995, 2004, and 2005

	East King County	NW King County	South King County	Pierce County	Snohomish County
1995	5,455	1,371	5,385	971	3,168
2004	5,229	1,926	6,204	4,168	4,766
2005	6,383	1,926	7,125	4,164	5,097

Source: Puget Sound Regional Council, ***Puget Sound Trends***, July 2006.
Data Note: 1995 Baseline Year

Highway Safety: Quarterly Update

Motorcycle Safety

Motorcycle Fatalities and Injuries

More Washington State residents are driving motorcycles now than in any time in history. From fiscal year 1997 to 2005, motorcycle registrations increased 74%, from 94,081 to 163,304. At the same time, the number of fatalities and serious injuries has also risen in Washington. While motorcycle fatalities account for only 11.4% of all state traffic fatalities, they have increased sharply in the past two years, from 57 in 2003 to 74 in 2005 (see the chart to the right).

Motorcycle Safety Task Force

In response to a Government Management, Accountability, & Performance (GMAP) forum which revealed a sharp increase in the number of fatal motorcycle collisions in Washington State, the Governor's Office encouraged the formation of a special task force. This task force, under the leadership of the Department of Licensing, was formed to assess the factors that led to increases in fatalities and injuries, and also to develop a set of recommendations to counter this trend. The task force included members of motorcycle rider groups, a motorcycle dealer with stores in Tacoma and Olympia, current motorcycle safety instructors, state agency representatives, public safety agencies, WSDOT, and the Department of Health. The primary goal of the task force was to determine the main causes for motorcycle collisions, and provide recommendations to reduce fatalities and serious injuries.

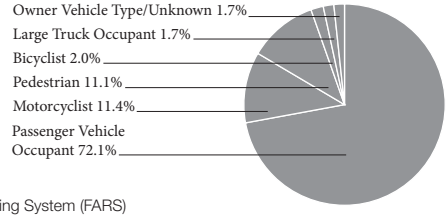
Data reviewed by the task force indicated that:

- The vast majority of fatalities occur during daylight hours, in dry weather.
- More than 80% of fatalities occur between the months of April and September, prime months for motorcycling.
- Half of fatal crashes had no other vehicle was involved other than the crashed motorcycle. When alcohol is involved, two-thirds of fatal crashes are single vehicle occurrences.
- Lane error, speeding, alcohol, and inattention were the most common contributing factors to motorcycle fatalities, based on law enforcement reports.
- A third of fatalities were motorcyclists who did not have a valid motorcycle endorsement.
- Fatalities for riders between the ages of 41 and 60 have increased 250% over the past five years, while the population of this age group has increased about 10% for the same time period.

Washington State Motorcycle Fatalities by Year
1990*-2005

Source: Motorcycle Rider Safety Task Force
Note: *Helmet Law was reinstated in 1990

2005 Washington State Traffic Fatalities by Mode



Source: Fatality Analysis Reporting System (FARS)

The task force concluded there are multiple contributions to motorcycle crashes that result in fatalities or serious injuries; most factors are within the control of the rider. In 2004, 86% of the fatalities had not taken the state's training course. Based on the reviewed data, recommendations developed by the task force include suggestions to improve driver behavior and skills. Efforts to reduce fatalities and serious injuries among motorcycle drivers are under consideration. Future editions of the *Gray Notebook* will report on the motorcycle safety recommendations and efforts.

Highway Safety: Quarterly Update

Highway Speeds

Driving Speeds - 85th Percentile Driving Speed by Quarter

Each year, WSDOT gathers data for typical driving speeds on state highways. The data is collected at 49 sites across the state on a sample basis. Many factors influence year-to-year driving trends including driver attitudes, enforcement patterns, and traffic volumes.

Since 2000, the average speed and 85th percentiles observed have been relatively the same, season to season, with slight variations. The 85th percentile speed is defined as the speed at or below which 85 of 100 vehicles are traveling. This is a design speed used for engineering studies to assist in setting posted speed limits. Speed limits may be set below the 85th Percentile due to high accident areas, geometrics of the road, urban or rural locations, volume of traffic, and/or cross movement traffic.

Prior to January 1, 2006, speed data was collected by sampling driving speeds on three days per quarter. Starting on January 1, 2006, data has been collected for all vehicles traveling on the roadways that are measured. Future editions of the *Gray Notebook* will include the new data collection method.

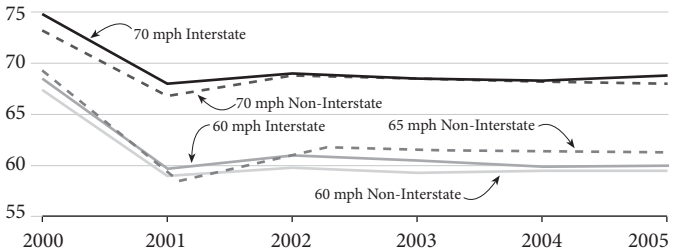
Average Annual Speeds

	2000	2001	2002	2003	2004	2005
70 mph zones						
Interstate	74.8	68.0	69.0	68.5	68.3	68.8
Non-Interstate	73.2	66.8	68.8	68.5	68.2	68.0
65 mph zones[1]	69.3	58.5	61.8	61.5	61.4	61.3
60 mph zones						
Interstate	68.5	59.7	61.0	60.5	59.9	60.0
Non-Interstate	67.4	59.0	59.8	59.3	59.5	59.5

Source: WSDOT Transportation Data Office
[1]All 65 mph zones are non-interstate.

Average Annual Speeds by Highway Posted Speed
2000-2005

Miles per Hour



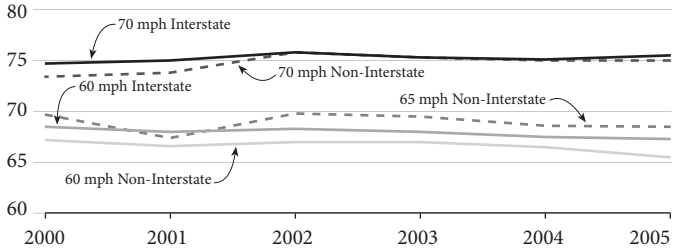
85th Percentile Speed

	2000	2001	2002	2003	2004	2005
70 mph zones						
Interstate	74.7	75.0	75.8	75.3	75.1	75.5
Non-Interstate	73.4	73.8	75.8	75.3	75.0	75.0
65 mph zones[1]	69.7	67.4	69.8	69.5	68.6	68.5
60 mph zones						
Interstate	68.5	68.0	68.3	68.0	67.5	67.3
Non-Interstate	67.2	66.6	67.0	67.0	66.5	65.5

Source: WSDOT Transportation Data Office
[1]All 65 mph zones are non-interstate.

85th Percentiles by Highway Posted Speed
2000-2005

Miles per Hour



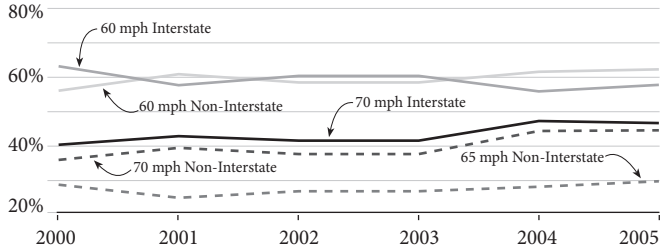
Percent of Vehicles Traveling At or Above Posted Speed

	2000	2001	2002	2003	2004	2005
70 mph zones						
Interstate	40.4	42.9	41.6	41.6	47.3	46.7
Non-Interstate	36.0	39.5	37.7	37.7	44.4	44.6
65 mph zones[1]	28.8	25.0	26.9	26.9	28.2	29.8
60 mph zones						
Interstate	63.2	57.7	60.4	60.4	55.9	57.8
Non-Interstate	56.1	60.9	58.5	58.5	61.6	62.3

Source: WSDOT Transportation Data Office
[1]All 65 mph zones are non-interstate.

Vehicles Traveling At or Above Highway Posted Speed
2000-2005

Percent of Vehicles



Highway Safety: Quarterly Update

Safety Pilot Projects Focus on Speeding

Joint Program to Reduce Speeding

In April 2005, during a Government Management Accountability and Performance (GMAP) session, Governor Gregoire tasked the Washington Traffic Safety Commission (WTSC), WSDOT, and the Washington State Patrol (WSP) with reducing the number of speeding related collisions.

"Slow Down or Pay Up"

Following several months of planning, a new project began in early October 2006 to address the issue of speeding related collisions. The project is being coordinated by WTSC and WSP, and includes the participation of WSDOT and local law enforcement agencies. The focus of the project will be on speed law enforcement and awareness, and is titled "Slow Down or Pay Up". The speed law is different than the speed limit and is enforced when a driver is either exceeding the posted speed limit or exceeding a reasonably safe speed for road conditions. As part of the project, extra enforcement patrols will take place in Pierce and Snohomish Counties over the next several months. In Pierce County, the enforcement zone encompasses Highway 161 on the east, Highway 7 on the west, 176th St. E. on the south, and Highway 512 on the north. Thirty-nine road signs were installed throughout the Pierce County enforcement area as an extra reminder for motorists to abide by the speeding law. Similar signs will be installed in the Snohomish County enforcement zone, which includes sections of Highways 2, 9, 92, 204, 405, 524, 527, 528 and 531, as well as several county roads. These signs will be in place for the next two years.

The WTSC provided more than $200,000 to fund extra speed enforcement patrols which place up to 20 extra officers per shift (6 a.m. to 2 p.m. and noon to 8 p.m. weekdays and 8 a.m. to 4 p.m. weekends) on the roadways in the enforcement zone. Officers from the Bonney Lake, Dupont, Eatonville, Fife, Lakewood, Puyallup, Ruston, Sumner, and Tacoma Police Departments, along with the Pierce County Sheriff's Office and the Washington State Patrol, are participating in this pilot project focusing on speeding. The first wave of enforcement for the "Slow Down or Pay Up" project officially launched with the extra patrols in Pierce County on Thursday, October 5, 2006.

"2 Dots 2 Safety"

At the annual Joint Operations Policy Statement (JOPS) meeting in October 2005, the Washington State Patrol (WSP) and WSDOT agreed to pilot a program aimed at reducing rear-end collisions by educating motorists on safe driving distances. Following models succesful in other states and countries, the agencies created a program called "2 Dots 2 Safety." The program has been used in Europe as well as Pennsylvania, Minnesota, Maryland, and Michigan. The program involved painting 60 large white dots on the pavement 160 feet apart (the safe driving distance between cars), and installing signs that tell drivers to keep a minimum of two dots between automobiles.

Safety Program Added to Congestion

WSDOT began the test program on a two-mile stretch of northbound I-5 in north Thurston County on Friday, August 11, 2006. Motorists traveling in the area over the weekend found themselves in long backups as drivers struggled to figure out what the signs meant, and how to gauge the dots and their following distances. High traffic volumes added to the congestion, resulting in seven-mile backups at some points. The following Monday morning, after both agencies received several phone calls and emails from constituents, WSDOT engineers and WSP officials opted to pull the plug on the program. Crews immediately removed and covered signs, and two weeks later removed the dots from the roadway.

Lessons Learned from 2 Dots 2 Safety

Through this experience, WSDOT and WSP learned the 2 Dots 2 Safety Program only works when traffic is moving at the speed limit. Both agencies will continue to evaluate the program and consider strategies to improve it. Discussion items include:

- More information gathering with other states.
- Spend more time educating the public.
- Better messaging on signs, i.e., add "at 60 mph".
- Better internal education for State Patrol staff.
- Selecting a location that does not experience recurrent congestion.
- Reevaluation of the size and design of roadway markings.
- Identify more external partners.

Vehicles following one another too closely continues to be a safety concern that needs to be addressed to reduce rear-end collisions. Committee members from each agency will continue to assess the program, and look for more appropriate areas in the state for implementation.

Highway Safety: Quarterly Update

Corridor Safety Program Update

The Corridor Safety Program is a community-based program jointly ran by WSDOT and the Washington Traffic Safety Commission. The program is designed to reduce collisions using low-cost, quick solutions that focus on education, enforcement, and engineering. To date, 23 Corridor Safety Projects have been completed around the state, with several others underway.

Case Study: SR 904 in Cheney

A good example is the recently completed project on SR 904 in Cheney. SR 904 serves as the main street for the City of Cheney and also functions as the city's connection to I-90 and Spokane. This area was experiencing a high number of severe collisions, and the steering committee for the Corridor made improvements in several areas along an eight-mile segment of this highway.

Community Input Produces Safety Improvements

- The Cheney Police Department, Spokane County Sheriff's Office, and Washington State Patrol coordinated many emphasis patrols on SR 904, specifically targeting speeding, aggressive driving, and impaired driving – the major causes of collisions on the road.
- The Spokane Regional Health District, Eastern Washington University (EWU), and the Washington Traffic Safety Commission deployed a driver education campaign specifically targeting the citizens of Cheney as well as students at EWU.
- The City of Cheney, Spokane County, and WSDOT implemented several engineering improvements along the roadway. These improvements included adding turn pockets and improving illumination at key intersections, installing centerline and shoulder rumble strips along several miles of the highway, and restricting passing on the two-lane highway for several miles.
- Corridor Safety funds were combined with a Hazard Elimination and Safety grant to accomplish the engineering improvements.

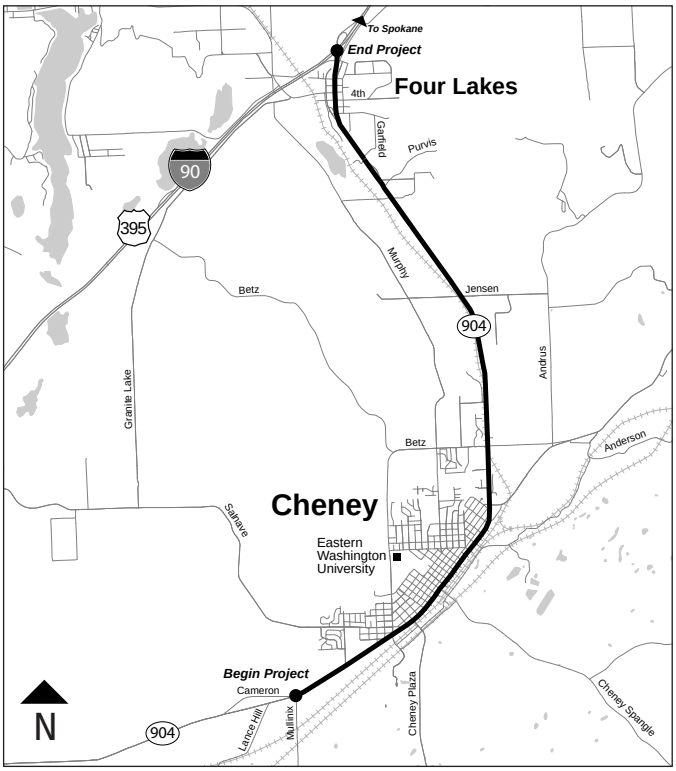
Results

In the two years after the project began:

- total collisions were reduced by 21%
- alcohol-related collisions were reduced by 36%
- fatal and disabling injury collisions were reduced by 70%.

Program Results

Overall, the Corridor Safety Program has shown a 6% decrease in total collisions, a 19% decrease in alcohol-related collisions, and a 33% decrease in fatal and disabling injury collisions. These improvements in roadway safety also translate into dollar benefits to Washington citizens easily amounting to more than $4.3 million per year for a typical project. Before highway safety corridor improvements were put in place, societal costs from collisions taking place at these corridors amounted to $16.8 million per year for a typical project. As a direct result of the completion of highway safety corridor projects, a 26% reduction in societal costs to $12.5 million per year per project was achieved.

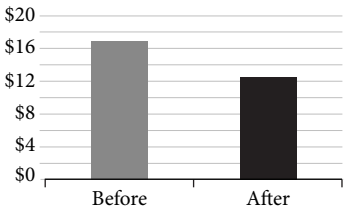


The following corridors are currently active in the program:

- Vantage & Kittitas Highways in Kittitas County
- U.S. 101 in Clallam County
- SR 291 in Spokane & Spokane County
- SR 7 in Pierce County
- SR 20 in Skagit County
- Rainier Ave in Seattle
- Mill Plain Blvd in Vancouver

Corridor Safety Program Before and After Summary: Average Societal Costs of Collisions

Dollars in Millions



Highway Maintenance: Annual Update

Roadside Debris "Best Practices" Update

Highway Litter

Removing highway litter is not only a matter of beauty, it is also a matter of safety. In 2004, the American Automobile Association (AAA) Foundation found that approximately 25,000 accidents involve road debris in North America each year – nearly 100 of them fatal.

In Washington State, WSDOT, the Washington State Patrol (WSP), the Department of Ecology, and citizen volunteers from the Adopt-a-Highway program all work together to maintain litter-free highways. The WSP has primary responsibility to enforce litter laws on state highways. In 2005, the Patrol issued 3,636 citations for littering on state highways. (See table below.)

Total Litter Related Violations Issued by Washington State Patrol
2004-05

Type of Violation	2004 Number of Violations by Type	2005 Number of Violations by Type	2005 Percent of Violations by Type
Failure to secure load	1,276	1,375	37.8%
Debris escape	797	849	23.3%
Uncovered load	160	145	4.0%
Debris thrown	501	444	12.2%
Debris lighted (cigarettes)	905	823	22.6%
Total	3,639	3,636	99.9%[1]

Source: Washington State Patrol

[1]Numbers do not add to 100% due to rounding.

Meanwhile, WSDOT is responsible for removal of the litter. Prior to Fiscal Year (FY) 2005, the amount of roadside litter removed from highways was estimated using expenditure data and landfill disposal fees. To improve accuracy, maintenance personnel now use timesheets to track the specific amount (in cubic yards) of roadside litter removed and disposed.

In FY 2005, WSDOT recorded over 41,000 cubic yards of litter collected. In FY 2006, almost 23,000 cubic yards of litter was collected.

Until recently, the amount of roadside litter did not seem to vary significantly from year-to-year, so the large difference between the 2005 and 2006 numbers is puzzling. WSDOT believes that the difference is primarily due to reporting errors as the staff began learning how to use the new system. This information will be monitored in the future to ensure maximum accuracy.

WSDOT's New Roadkill-Composting System

As part of maintaining clean and healthy highways, WSDOT maintenance personnel remove roadkill carcasses from roads for disposal. Unfortunately, proper and cost-effective disposal of larger carcasses is difficult. Approximately 3,000 deer die each year from motor vehicle collisions on Washington highways, which is about 13% of all roadkill. Usually, deer carcasses are buried, however odors and scavengers create a nuisance and potential public safety hazard at these sites.

Maintenance managers in the Colville and Goldendale areas face a particularly high volume of deerkill. These areas, which together pick up about 850 deer carcasses every year, are using an innovative technique known as carcass composting.

Carcass composting, which has been used successfully in other states, works very much like a home composting bin. A bin, which is about 10 feet wide by 30 feet long, is constructed with large concrete blocks or barriers on an asphalt surface. Next, a layering technique is used to start the process, alternating layers of carcasses with woodchips or leaf compost. Mother nature takes over and microbes begin decomposing the carcasses. The pile is monitored for temperature (the key indicator of composting activity), turned a couple of times, and the process is complete in about 90 days. As of today, the pilot projects are working well. In Colville, about 120 carcasses have been composted, with no odors and near-complete decomposition within 40 days.

This new technique decreases public health and nuisance issues created by the old system of burying carcasses. Per WSDOT's "good neighbor" policy, carcass compost bins are being located in pit sites a fair distance from well-populated areas. When managed properly, carcass composting bins are not problematic in terms of odors or scavengers. Maintenance managers will be evaluating the operation of these initial carcass compost bins for use in other parts of the state.

Empty deer composting bins (10 ft x 30 ft) at the Colville composting site.

Highway and Bridge Maintenance Best Practices Updates

I-5 Nighttime Maintenance Closure Success

On the night of September 9, 2006, WSDOT closed three lanes of I-5 between Tacoma and Lakewood while 53 WSDOT employees performed routine maintenance and repairs on nearly eight miles of freeway. The overnight closure allowed WSDOT to complete multiple projects, save money, and minimize impacts to traffic. By combining these maintenance activities instead of performing them separately, WSDOT saved $12,511 and 76.5 hours of road closure time, and prevented inconvenience to the public from eight additional future roadway closures. Further, the closure was completed 1.5 hours ahead of schedule.

During the 11-and-a-half-hour closure, maintenance crews repaired potholes, bridge joints, freeway signs, and lighting. Crews also swept the left roadway shoulder, replaced a median wall, and completed several routine inspections. Washington State Patrol troopers helped manage traffic in the work zone to keep work crews safe, handing out 15 tickets for speeding (double fines in a work zone).

I-5 Nighttime Closure Statistics
September 9-10, 2006

	Multiple Closures (What Could Have Happened)	One Closure (What Actually Happened)	Savings
Dollars Spent, WSDOT and WSP	$23,107	$10,596	$12,511[1]
Hours of Closure on the Highway	88 hours	11.5 hours	76.5 hours

Source: WSDOT Maintenance Office

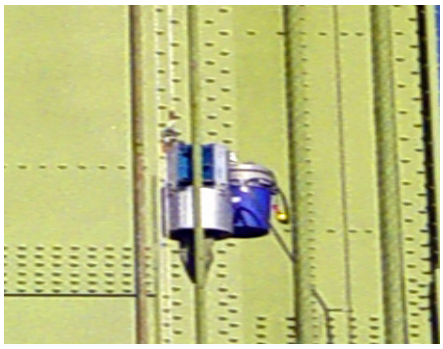
[1]Does not include vehicle delay cost-savings

New Money-Saving Suspender Cable Painting Method Developed

The Problem:
Multiple coats of old paint on The Tacoma Narrows Bridge's famous green suspender cables had degraded too much to apply a new coat over the top. The normal industry method for removing cable paint, to enclose a work area with plastic tarps and have heavily-protected workers use metal needle blasters to remove the old paint, would be a long, costly, and potentially dangerous process, especially since some of the paint contained lead. The bridge's maintenance crew rolled up their sleeves to develop an innovative and cost-effective solution.

The Solution:
The maintenance crew came up with a specialized cable-painting-stripping device, about the size of a five-gallon bucket, that has a small vacuum cleaner attached to its side. Small cables and pulleys attached to the device raise and lower it over the entire length of the cable. Specially-designed fittings remove the old paint and prepare the cable for re-painting. Removed paint is captured by the attached vacuum cleaner. All of this is accomplished with maintenance personnel operating the device from a work platform on the side of the bridge deck.

The Benefits:
With 153,000 feet of suspender lines to strip and re-paint, WSDOT is saving time… and big bucks. Using the current industry process, maintenance personnel can remove paint at the rate of 20 feet of suspender cable per hour; using this innovative process, paint removal can speed along at the rate of 17 feet per minute. The cost? $1.6 million for the entire job, a savings of $3.6 million.



The paint-stripping device in action on a cable of the Tacoma Narrows Bridge (see gray box above).

Travel Information: Quarterly Update

5-1-1 Usage

The 5-1-1 system allows WSDOT to gauge the importance of various traffic issues and it also provides vital information on where the areas of concern are for Washington drivers. Since its inception, the 5-1-1 system has become vital in providing useful and "real time" information on how WSDOT can better serve the drivers of this state.

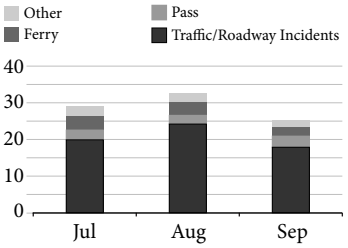
The total number of calls to the 5-1-1 Travel Information System was 126,500 during the third quarter of 2006 (July-September). This is approximately a 13% decrease from the same quarter last year when 145,864 calls were made. When the system is accessed, most callers (70%) are repeat users. During the third quarter, 51% of calls came from repeat users accessing the 5-1-1 system within 30 days. Nineteen percent of callers called 5-1-1 during the last 30-day period. New callers comprised 29% of calls. Cell phones callers made about 60% of the calls to the 5-1-1 system.

Type of Information Requested

During the third quarter, the most requested 5-1-1 information by category was for Traffic and Roadway Incidents (71%), followed by requests for Ferry information (11%). Only 9% of the calls was for mountain pass information. Requests for mountain pass information is expected to increase in the winter months (from around November through the end of March each year).

Types of Information Requested to 5-1-1 Travel Information*

July - September 2006
In Thousands

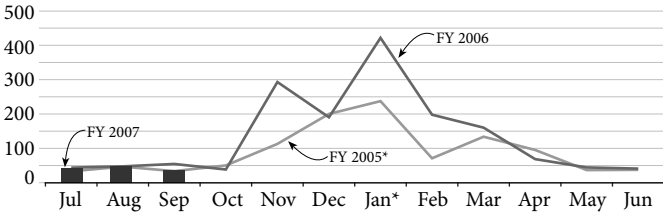


Source: *5-1-1 iNi (Interactive Northwest Inc.) Activity Summary-Combined Report*. (available since July 2006),

* Total number of information types will not add up to the total number of calls to 5-1-1 because more than one type of information may be requested in one call, or one caller may hang up without selecting a category.

Total Calls to Travel Information*

(5-1-1, 1-800-695-ROAD, 206-DOT-HWY)
3-Year Trend: FY 2005-FY2007
In Thousands



Source: BCMS (software that counts the 5-1-1 calls) , Traffic Office.

* Starting January 2005, 1-800-ROAD and 206-DOT-HWY numbers connect directly to 5-1-1, and the call counts are reported in 5-1-1 call total.

WSDOT Web Site: Increase in the Number of Page Views

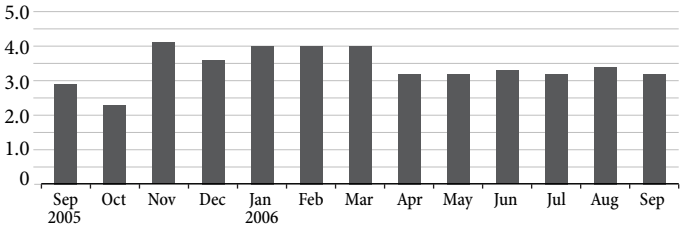
In the third quarter of 2006 WSDOT's website averaged 3.3 million daily page views. The volume of daily page views was 5.4% higher than the third quarter last year. The number of daily page views during this period of time is typically less than other times of the year such as the winter months when citizens depend on travel information because of bad weather (see the chart below).

The page view metric that has been used in the *Gray Notebook* will be difficult to continue due to changes in technology that make the traditional method for calculating website usage more difficult and less accurate. With users upgrading more often to newer browsers because of security concerns it opens the possibilities to use newer technologies.

One example of this technology allows content on a web page to refresh without the entire page refreshing. This type of Web page coding requires significantly less bandwidth allowing for less data being sent. Because the page view metric relies on the entire page refreshing, this advancement in technology, as well as other advancements, are forcing the agency to re-think and plan for how WSDOT can continue to track website usage growth and compare it to historical data trends. The *Gray Notebook* will address this issue and ensure that there is a consistent means of measuring website usage, as well as report on performance measures other than website usage to report on this medium for providing information.

Website Usage

Average Daily Page Views: September 2005 to September 2006
In Millions



Source: WSDOT Communication Office

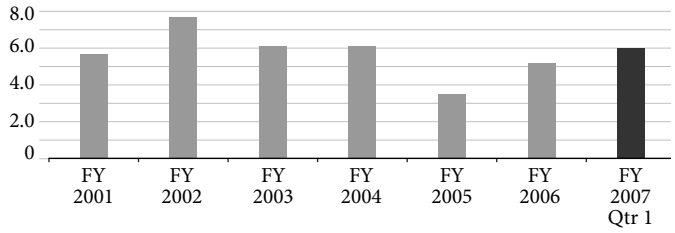
Note: A page view is counted each time a visitor views a webpage on WSDOT's website. Each time a page is refreshed in a user's browser, a page view is recorded. Pages are comprised of numerous files. Every image in a page is a separate file. When visitors look at a page, they may see numerous images, graphics, pictures, etc., generating multiple hits by a user. For example, a page with 10 pictures will generate 11 hits (10 pictures and one for the html file). This is the reason WSDOT tracks page views and not hits.

Washington State Ferries: Quarterly Report

Customer Feedback

In the first quarter of Fiscal Year (FY) 2007, WSDOT's Ferry System completed 43,247 trips with a ridership of 7.3 million. 436 complaints were filed which equates to 6.0 complaints per 100,000 customers, a 54% increase from the same period last year but a 4% decrease from the preceding quarter.

Total Number of Complaints per 100,000 Customers

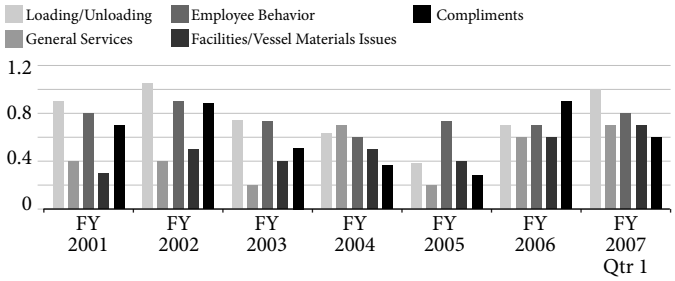


Source: WSDOT Ferry System

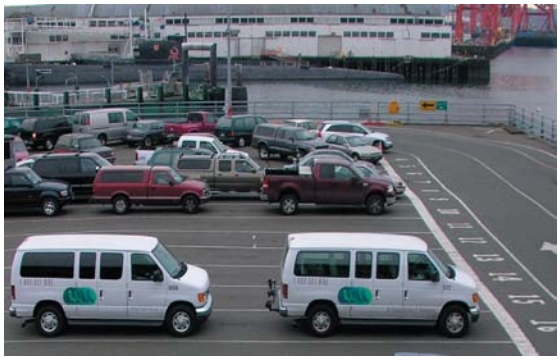
Loading-Unloading complaints were up 47% over the preceding quarter and up 81% over the same period last year. The Ferry System experienced 76 complaints about loading/unloading issues, or 1.0 complaint per 100,000 customers. Complaints increased due to the Ferry System changing its loading/unloading practices. Also, larger vehicles parked next to each other on older vessels (where lanes are narrow) can make it difficult for some customers to get in and out of their vehicle. Finally, summer is a busier season for the Ferry System and with increased ridership typically come increased complaints.

San Juan domestic trips (19 complaints) accounted for 25% of all complaints in the loading/unloading category. Complaints about employee behavior were up 6% over the preceding quarter and up 56% over the same period last year. Each complaint in this category results in a meeting between the employee and their supervisor to determine corrective action.

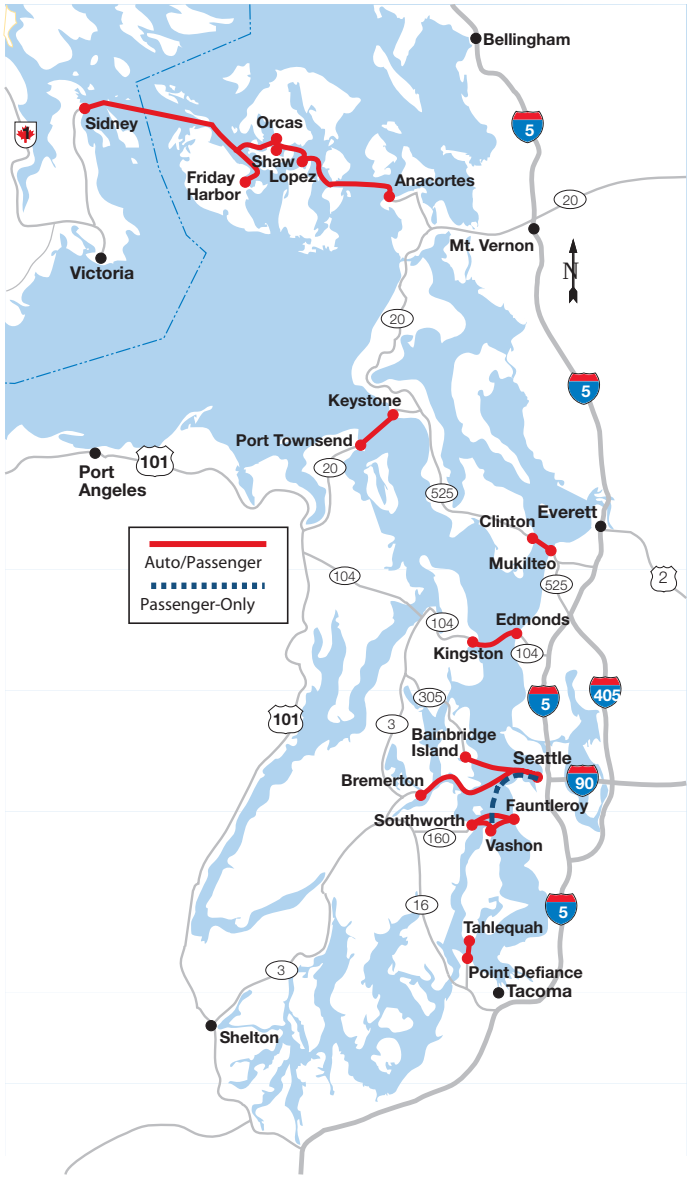
Common Complaints Per 100,000 Customers



Source: WSDOT Ferry System



Vanpools and vehicles waiting to board a ferry.



Washington State Ferries: Quarterly Report

Trip Reliability

In the first quarter of FY 2007, there were 43,348 scheduled trips, 140 were cancelled, and 39 make-up trips were made. The resulting number of completed trips was 43,247. Total completed trips are the actual trips after deducting cancellations, then adding the make-up trips back in (43,338 - 140 + 39 = 43,237). The chart to the right shows a system-wide average reliability index. Using this index, the Ferry System cancels an average of 1.0 ferry trips during the course of a year for a commuter who travels 200 days per year and makes 400 trips annually. This is a 32% improvement in performance compared to the preceding quarter and a 21% decline from the same period last year (the first quarter of FY 2006 had the best trip delivery performance on record.) Roughly 50% of cancelled trips this quarter occurred on the Port Townsend - Keystone route. Weather and tides on this route continue to account for the majority of all missed trips at WSF. Based on the net performance of the Port Townsend - Keystone route, WSF delivered 99.9% of all scheduled trip for an average reliability index of 0.5.

On-Time Performance

This quarter, on-time trip performance totaled 42,157 trips and represents the total number of trips captured by the automated on-time monitoring system. In the first quarter of FY 2007, the average delay was 69% higher (4.9 minutes) than the preceding quarter (2.9 minutes) and 2.1% higher than the same period last year (4.8 minutes). Approximately 87% of trips sailed on-time, which is a slight decrease in performance from the preceding quarter (4%). A trip sailing on-time will be within 10 minutes of its published departure time.

Reliability Index

Average Annual Missed Trips per Commuter

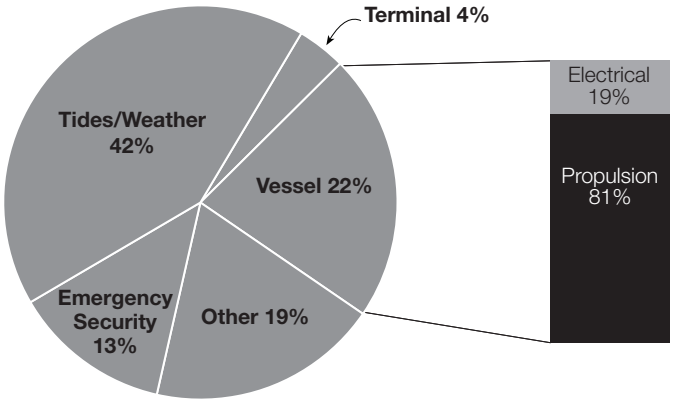
FY 2001	1.6
FY 2002	2.3
FY 2003	1.7
FY 2004	2.2
FY 2005	1.5
FY 2006	1.6
FY 2006 Qtr 4	1.4
FY 2007 Qtr 1	1.0

Source: WSDOT Ferry System

A total of 50 trips for the Port Townsend-Keystone route were cancelled due to weather and/or tides. Excluding trips lost to tidal conditions at Keystone, WSF completed 99.9% of trips and had a reliability index of 0.5, per legislation direction. WSF continues to study alternatives and in harbor options at Keystone.

Reasons for Trip Cancellations

First Quarter, Fiscal Year 2007



Source: WSDOT Ferry System.

On-time Performance - Washington State Ferry System

	1st Quarter FY 2006			1st Quarter FY 2007		
Ferries	**Number of Trips**	**Percent of Trips Within 10 Minutes of Schedule**	**All Trips Average Delay From Scheduled Sailing Time**	**Number of Trips**	**Percent of Trips Within 10 Minutes of Schedule**	**All Trips Average Delay From Scheduled Sailing Time**
San Juan Domestic	6,668	74%	6.9 minutes	7,441	78%	6.7 minutes
International Route	254	61%	12.6 minutes	336	73%	7.3 minutes
Edmonds - Kingston	4,517	79%	6.4 minutes	4,577	83%	5.7 minutes
Pass-Only Seattle-Vashon	919	99%	1.8 minutes	232	99%	2.4 minutes
Fauntleroy-Vashon-Southworth	10,520	89%	3.8 minutes	10,371	88%	4.7 minutes
Keystone-Port Townsend	2,721	81%	5.9 minutes	2,680	78%	6.7 minutes
Mukilteo-Clinton	6,644	93%	3.5 minutes	6,941	96%	3.3 minutes
Pt. Defiance-Tahlequah	2,901	91%	4.3 minutes	3,115	90%	4.8 minutes
Seattle-Bainbridge Island	4,081	86%	5.5 minutes	4,125	91%	3.4 minutes
Seattle-Bremerton	2,355	97%	3.0 minutes	2,339	97%	3.2 minutes
Total	**41,580**	**86%**	**4.8 minutes**	**42,157**	**87%**	**4.9 minutes**

Washington State Ferries: Quarterly Report

The table at the bottom of the previous page compares on-time performance across the system for the first quarters of FY 2006 and FY 2007. Comparing these quarters, the average delay time increased from a 4.8 minute delay to a 4.9 minute delay per departure. The average percentage of trips sailing on-time improved from 86% the first quarter of FY 2006 to 87% in the first quarter of fiscal year 2007.

Life Cycle Preservation Performance

The Ferry System plans to replace or refurbish 76 Category One systems and 82 Category Two systems during the 2005-07 biennium. Through the end of the fifth quarter of the biennium, 21 Category One systems and 19 Category Two systems have either been refurbished or replaced.[1]

Explanation of Key Terms

Systems Preserved - This measure focuses on performance of work planned and work delivered. The work measured is the number of terminal and vessel systems refurbished or replaced.

Life Cycle Rating - A life cycle rating is a percentage calculated by dividing the number of system structures weighted by their costs that are within their life cycle by the total inventory of systems weighted by costs. This measure focuses on program performance. It reflects the favorable impact of the organization's work achieved, offset by the unfavorable impacts of deferred preservation backlogs and on-going deterioration of the infrastructure.

In January 2001, the Legislature's Joint Task Force on Ferries recommended WSDOT work toward achieving a life cycle rating for Category One systems between 90% and 100% and for Category Two systems between 60% and 80%. The Task Force set FY 2011 as the target year for achieving this objective.

Category One systems are those designated by regulatory agencies as "vital" to the protection of people, the environment, and infrastructure. Included are vessel and terminal systems necessary to start, keep in motion, stop, land, and unload a vessel.

Category Two systems are all other terminal and vessel systems.

[1]Last quarter's *Gray Notebook* (June 30, 2006) incorrectly stated that 20 Category Two systems had either been refurbished or replaced. Only 18 Category Two systems had been refurbished or replaced. All Category Two data is currently under review and subject to verification.

Capital Expenditure Performance

WSDOT makes capital investments in the Ferry System through the WSF Construction Program. This program preserves existing terminals and builds new ferry terminals and vessels. The resulting infrastructure gives the Ferry System the physical capability to deliver responsible and reliable marine transportation services to riders.

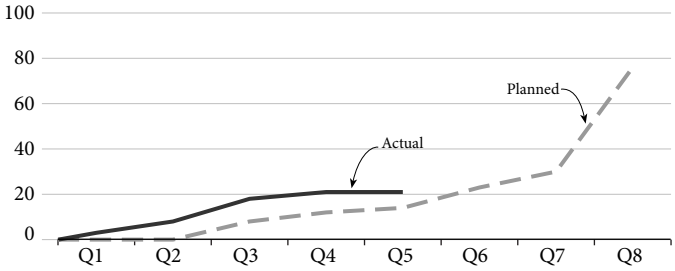
At the end of September 2006, a total of $107 million has been spent for the 2005-07 biennium on capital investments. The total expenditures planned through June 2006 were $124 million. Currently, the Ferry System is $17 million under its planned expenditures.

Vessel Construction Biennium-To-Date

Vessel construction biennium-to-date activities are under spending the plan by $6.0 million. Variances from the plan

Category One Terminal and Vessel Preservation Performance

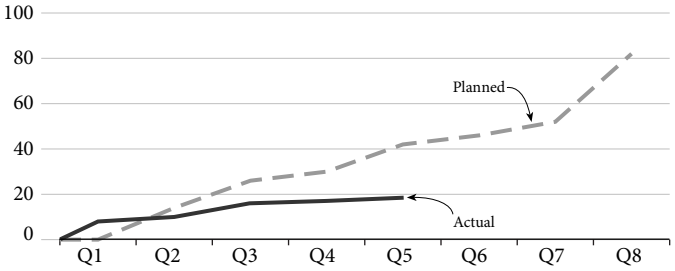
Cumulative Planned Projects vs. Actual Systems/Structures Preserved
Change in Life Cycle Cost Rating
Fifth Quarter, 2005-2007 Biennium



Source: WSDOT Ferry System

Category Two Terminal[1] and Vessel Preservation Performance

Cumulative Planned Projects vs. Actual Systems/Structures Preserved
Change in Life Cycle Cost Rating
Fifth Quarter, 2005-2007 Biennium



Source: WSDOT Ferry System

Washington State Ferries: Quarterly Report

by vessel in excess of $750,000 include the following: new auto ferry construction ($2.2 million under plan), Elwha ($1.7 million under plan), and Sealth ($1.0 million under plan).

Terminal Construction Biennium-To-Date
Terminal construction activities are under spending the plan by $6.3 million. Variances in excess of $750,000 include the following: Mukilteo ($4.4 million under plan), Seattle ($1.2 million under plan).

Emergency Repair Biennium-To-Date
Emergency repair activities are under spending the biennium-to-date plan by $1.0 million.

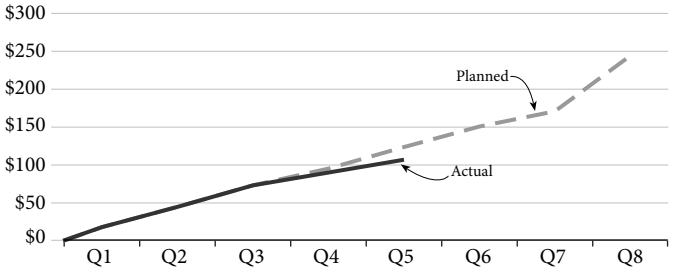
Ridership and Revenues

Ridership fiscal year to date is approximately 2% higher than anticipated (about 123,000). Compared to the same period last year, ridership is up 2.5% or 178,000 passengers. The growth seems to be driven by non-commuter categories. Full fares are up 3.5% for vehicles and 4.6% for passengers.

In spite of a reduction in capacity of the Sidney route this past summer with the assignment of the Chelan instead of the Elwha, vehicle traffic was up 0.9% over the corresponding period last year. The number of oversized vehicles between 20' and 49' in length was up 5.4%, and the number of over 50' long vehicles was up nearly 70% (the latter on an extremely small base).

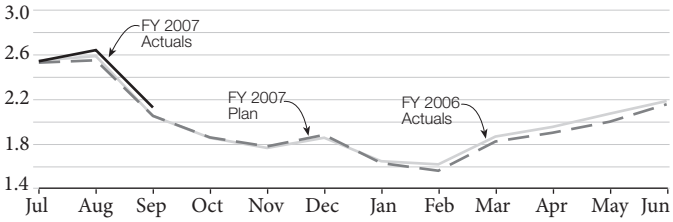
If these trends continue to hold, WSF is expecting an increase in ridership for the first year since 1999. For the FY to date, the Ferry system has received nearly $3.6 million, or 8.6% more in fare revenue than the same period last year. When compared to the forecasted plan, revenues are slightly behind. Total revenues received FY to date are $0.6 million, or 1.3% above the plan.

Construction Program Expenditures
Washington State Ferry System
Through Fifth Quarter, 2005-2007 Biennium
Cumulative Dollars in Millions
Authorized vs. Actual



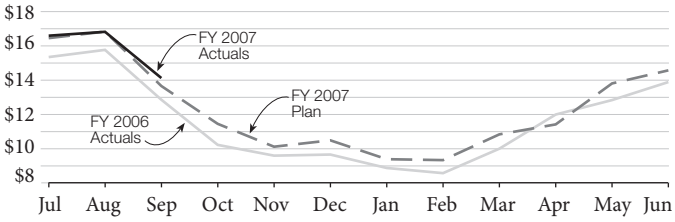
Source: WSDOT Ferry System

Ridership by Month
In Millions



Source: WSDOT Ferry System

Farebox Revenues by Month
Dollars in Millions



Source: WSDOT Ferry System

Rail: Quarterly Update

State-Supported Amtrak *Cascades*

Ridership

Ridership on state-supported Amtrak *Cascades* trains was 126,351 in the third quarter of 2006, showing a 4.3% increase in ridership over the third quarter of 2005. The addition of a new Seattle-Portland daily roundtrip on July 1, 2006, and the subsequently adjusted daily timetable, are improving the performance of state-supported Amtrak *Cascades* trains. Trains 513 and 516 have shown significant gains in ridership because they now connect 12 cities instead of five, operate on a popular midday schedule, and have shorter layover times. However, other state-supported Amtrak *Cascades* routes experienced ridership declines in the third quarter. The decline on other state-supported Amtrak *Cascades* trains was due to their poor on-time performance and the diversion of riders to the new midday trains.

WSDOT believes that when on-time performance improves and intercity travelers become accustomed to the new schedules and choices, Amtrak *Cascades* ridership will increase at a rate higher than the 4.3 percent growth experienced in the third quarter of 2006.

On-Time Performance

The on-time performance for state-supported Amtrak *Cascades* trains averaged 47.6% in the third quarter of 2006. The quarterly average was slightly less than in the preceding quarter, but on-time performance rose to 62% in September, which was the second highest monthly average in 2006.

Freight train interference continues to be the main cause of passenger train delays. Other causes include slower train speeds through railroad construction areas, delays at the international border, and some Amtrak mechanical problems. Overall ridership growth on Amtrak *Cascades* is lower than expected due to poor on-time performance.

The latest WSDOT Strategic Plan emphasizes the need to improve the on-time performance of Amtrak *Cascades*. WSDOT will continue to work with BNSF Railway, Union Pacific Railroad, Amtrak, and government officials to identify actions that can be taken to meet the expectations of the department, the Governor, and the taxpayers of Washington.

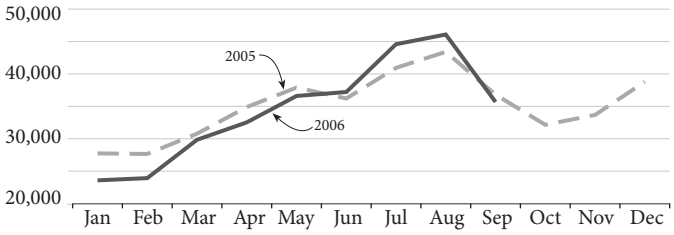
Customer Satisfaction

Amtrak's Customer Satisfaction Index (CSI) is based on surveys of riders using the service. The scores represent 3-month rolling averages. The CSI goal for Amtrak *Cascades* is 90 (out of 100) or better. In the most recent survey period, the overall score for Amtrak *Cascades* was 88. This score is 6 points higher than the low score of 82 that was recorded in March and April of 2006.

An Amtrak *Cascades* conductor prepares for departure.

State Supported Amtrak *Cascades* Monthly Ridership

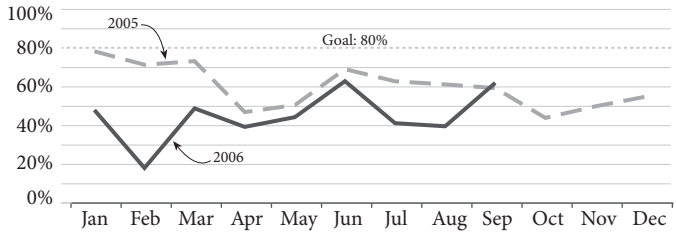
Number of Passengers



Source: Amtrak and WSDOT Rail Office.

State Supported Amtrak *Cascades* On-Time Performance

Percent on Time



Source: Amtrak and WSDOT Rail Office.

The on-time performance goal for Amtrak Cascades is 80% or better. A train is considered on-time if it arrives at its final destination within 10 minutes or less of the scheduled arrival time.

Rail: Quarterly Update

Washington Grain Train

WSDOT Repositions Grain Train Cars

WSDOT and the Port of Walla own 89 grain cars that help Washington farmers move grain to market. Twenty nine cars are positioned on the Columbia Basin Railroad that extends from Moses Lake to Connell. For several months this summer, two cars were out of service for repairs to allow them to be used for another 10 years under American Association of Railroads interchange rules. The repairs were completed in September, and the cars are back in service.

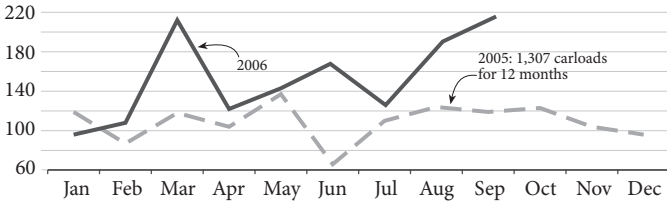
Late last year, the cost of shipping grain to the Coast using cars on the P & L branch of the Palouse River and Coulee City Railroad (PCC) rose sharply and it became economically impractical for shippers to use rail. In late September 2006, the shipping cost dropped enough that grain might again be shipped economically on the line. Shippers are evaluating whether to use rail. Once the decision to ship again is made, WSDOT and the short line carrier will decide how many grain train cars to move back to the line.

The remaining cars continue to be used in shuttle service between grain elevators on the PV Hooper line and the Blue Mountain line to a barge facility on the Snake River. Barges transport the grain to ports in Vancouver, Kalama, and Portland.

Use of the grain cars remains strong. Carloads for the third quarter of 2006 increased 95% over the third quarter of 2005. There were 539 carloads were shipped in the third quarter of 2006 compared to 277 in the third quarter of 2005. Staff will continue to monitor car usage and the changing economics of grain transportation to maximize the use of the grain train cars and the benefit to Washington State grain growers.

Washington Grain Train Carloads

Carloads per month 2006 vs. 2005



Source: WSDOT Rail Office

Note: The Washington Grain Train is a financially self-sustaining transportation program that supports the state's agricultural community while helping short line railroads maintain a sufficient customer base for long-term financial viability.

Highlights of Program Activities

Project Starts, Completions, or Updates

I-5 Everett

More than 100 people gathered on June 26 to celebrate the opening of the I-5 Broadway Avenue flyover exit ramp in Everett. The new, one-lane Broadway Avenue exit opened to drivers just 10 months after construction began. The new exit is one part of a $260 million project to improve safety and traffic flow on I-5 in Everett.

I-90 Snoqualmie

Work to improve the I-90 and SR 18 interchange began this summer near the city of Snoqualmie. The project involves widening the off-ramp, adding a second left turn lane, and installing a new signal. Crews also built a new northbound lane on SR 18 underneath I-90 and added a northbound lane to Snoqualmie Parkway for about 1000 feet to the north of I-90.

SR 123 Mount Rainier National Park

Crews completed emergency repairs and reopened SR 123 within Mount Rainier National Park on June 30. Although WSDOT maintains SR 123 within park boundaries under an agreement with Mount Rainier National Park, the park is responsible for planning and funding highway improvements and repairs.

SR 530 Darrington

Four months after a mudslide nearly blocked the main road to Darrington, crews wrapped up the project to stop the hillside from moving, keeping SR 530 open. The entire $4.4 million project was paid for through federal emergency funds.

U.S. 195 Rosalia

On July 7, contractor crews began work on a project that paves an eight-mile section of U.S. 195 in Whitman and Spokane counties. A stretch of highway between Rosalia and Plaza was resurfaced by removing a two-inch layer of roadway surface and paving back with new asphalt.

SR 433 Longview

Painting of the Lewis and Clark Bridge between Longview, WA, and Rainier, OR, began in July. Crews will clean and paint all the steel members on bridge to help preserve and prolong the life of the bridge. The project is scheduled to take 400 working days to complete. Since dry weather is required for the painting work, the project will be finished in fall 2009.

SR 548 Ferndale

On July 10, WSDOT began construction on a project to relieve congestion and improve safety for drivers and pedestrians at the intersection of Grandview Road (SR 548) and Portal Way Road north of Ferndale. Crews installed a new traffic signal and added pedestrian crossings. A new traffic signal replaced a four-way stop to help vehicles flow more smoothly and safely through all directions of the intersection. The traffic signal will also help prevent drivers from getting stranded on nearby railroad tracks by coordinating with the railroad signal and new in-ground electronic traffic loops.

I-5 Lacey

In July, crews began constructing the Chehalis Western Trail Pedestrian Bridge over I-5 near Martin Way in Lacey. The $1.88 million project is scheduled for completion in December 2006.

U.S. 12 Montesano to Elma

Crews installed 12 miles of high-tension cable barrier in the median of U.S. 12 between the communities of Montesano and Elma. The project will aid in the prevention of head-on collisions caused by vehicles crossing the median into oncoming traffic. The project was completed in late September.

U.S. 12 Burbank and Wallula

Contractor Apollo Inc. of Kennewick and WSDOT started widening work on U.S. 12 between Dodd Road (near Burbank) and the Boise Truck Center (near Wallula Town site) during the week of July 10. This project constructs the third phase of widening the U.S. 12 corridor from SR 124 to Wallula.

On SR 530 in Darrington, crews built a retaining wall to prevent future mudslides.

SR 142 Goldendale

A project improving fish habitat and movement through the Bowman Creek culvert (MP 20) and the Snyder Canyon Creek culvert (MP 13) under SR 142 in Klickitat County began July 10. At Bowman Creek, the culvert was replaced with a new bridge and the channel was rebuilt. At Snyder Creek, crews rebuilt the end of an existing box culvert and restored the streambed.

Highlights of Program Activities

SR 305 Bainbridge Island
Crews began work to improve a portion of SR 305 between the Winslow Ferry Terminal and Hostmark Street on Bainbridge Island. Work includes paving, widening shoulders, improving drainage, and upgrading guardrail terminals.

SR 161 Milton and Edgewood
WSDOT opened two new lanes on SR 161 between Federal Way and the cities of Milton and Edgewood on July 13. The new lanes were completed six months ahead of schedule and nearly a million dollars under budget. New turn lanes, sidewalks, shoulders, a raised concrete median, and bike and pedestrian lanes will increase safety. Crews also built a complex system of drains, pipes, and ponds to capture and clean storm water runoff and protect the Hylebos Creek watershed.

SR 112 and U.S. 101, Clallam County
Crews began work in late July on a project to repair pavement, replace culverts, and fill wheel ruts on 23 miles of SR 112 between West Twin Rivers and U.S. 101. As part of the project, crews will upgrade sidewalk wheelchair ramps, repair pavement, fill wheel ruts, and overlay pavement on 1.6 miles of the westbound couplet of U.S. 101 between Golf Course Road and Lincoln Street.

I-205 Vancouver
WSDOT completed the I-205 Southbound Off-Ramp Project, the first Transportation Partnership funded project to go to construction in Clark County. A second left-turn lane was added to the I-205 southbound off-ramp at Mill Plain. This ramp was identified as a High Accident Location, so completing the project was a priority to help reduce rear-end-type accidents. During peak hours, the number of vehicles turning left exceeded the capacity of the existing left-turn lane. A new left-turn lane is reducing delays at this busy intersection.

SR 305 Poulsbo
Crews began work in early August on a widening project for SR 305 through Poulsbo. The project adds lanes with peak-hour high occupancy vehicle (HOV) designation, improves five intersections, and installs bike lanes. WSDOT and City of Poulsbo awarded the construction contract to Stan Palmer Construction, Inc. for the company's $14.9 million bid.

I-90 Snoqualmie Pass
Thousands of tons of rock and debris were removed this summer above I-90 at Midway Curve. Contractor crews brought down loose material from the unstable slopes, 14 miles east of Snoqualmie Pass. Once the slopes are stabilized, a protective cable netting will be hung on the rock face to prevent falling material. WSDOT expects to have the work completed by the end of October 2006.

U.S. 2, Stevens Pass
Crews began replacing a culvert on Mill Creek, which runs under U.S. 2 east of Stevens Pass. This project removes a fish barrier on Mill Creek. Work began July 24 and was completed in late September.

U.S. 12, Clarkston
On August 2, crews began bridge deck rehabilitation work at the U.S. 12 Interstate Bridge between Clarkston, WA and Lewiston, ID. The work is taking place during late night/early morning hours. Nightly bridge closures are planned to continue Sunday through Thursday until early October.

SR 543, Blaine
On July 31, crews began stopping traffic and closing lanes at the Blaine border truck-crossing (SR 543) to construct roadway support shafts. The shafts allow crews to lower the highway 25 feet and build new retaining walls and an overpass at D Street. Over the next two years, crews will convert the Blaine truck crossing from a narrow and congested two-lane roadway into a five-lane highway. The expanded roadway includes a designated truck lane better aligned with the border inspection booths. The new lanes are scheduled to open by Fall 2008.

SR 99 Federal Way
This summer, crews started improving SR 99 (Pacific Highway South) in Federal Way by adding HOV lanes in both directions between S. 272nd Street and S. 284th Street. Once complete in Fall 2007, this section of SR 99 will be six lanes wide. This project is WSDOT's part in a master plan to improve traffic flow and safety on SR 99 from Federal Way to the Seattle city limits. Five South King County cities - Federal Way, Kent, Des Moines, Sea Tac, and Tukwila - are in various stages of improving SR 99.

SR 202 Sammamish
On August 9, contractor crews began installing a permanent signal at the intersection of SR 202 and 244th Avenue NE just northeast of Sammamish, an intersection known for accidents and near misses. The traffic signal is part of a $1 million project that widdens the intersection, makes improvements for pedestrians, and adds a right-turn lane to help relieve heavy traffic congestion on 244th Avenue NE.

I-90 Spokane
Major construction on I-90 in downtown Spokane wrapped up in mid-August, ahead of schedule and on budget. The contractor, Degerstrom/Acme Joint Venture began the process of returning traffic to its normal configuration on August 16. Beginning in May, 2007, the contractor will return to rebuild the north half of the downtown freeway.

Highlights of Program Activities

U.S. 395, North Spokane Excavation: work on the first of six new bridges for the North Spokane Corridor freeway.

SR 522 Maltby

On August 17, WSDOT, Washington State Patrol, elected officials and members of the community celebrated the completion of the new SR 522 bridge at Fales/Echo Lake Road east of Maltby. WSDOT engineers expect that the interchange improvements will reduce collisions on SR 522 at Fales/Echo Lake Road. SR 522 improvements from SR 9 to Paradise Lake Road, which were completed in 2001, reduced the annual collision rate nearly 50 percent and eliminated fatal, head-on crashes.

I-5 Lynnwood

On August 19 and 20, crews began repaving a two-mile stretch of southbound I-5 near Lynnwood with two types of quieter pavement. Quiet pavement is made of materials that reduce the amount of highway noise generated by the tires of traveling vehicles. Over the next five years, WSDOT engineers will study the test section to evaluate the pavement's durability and noise reduction. The test section is part of an $8.1 million project to repave nearly nine miles of southbound I-5 between Lynnwood and Everett. The entire project is scheduled to wrap up in late 2007.

U.S. 395 North Spokane

Another contract for the North Spokane Corridor began in August. This project builds six new structures in the northern portion of the route. The project includes building new bridges for the freeway crossing Fairview Road, Market Street, and Parksmith Road. Bridges for Shady Slope Road will be built over the new freeway and U.S. 2, plus a bridge for Perry Road will cross over the new freeway alignment. The job is expected to wrap up in early 2008.

SR 14 near Prindle

Repairs to the unstable slope on SR 14 near Prindle began September 11. Crews will build a 500-foot long, 20-foot deep cut-off trench that will intercept groundwater in the area and divert it to an existing drainage structure. By intercepting this water, the soils will not saturate, minimizing conditions that may cause slides.

SR 9 Nooksack

Crews began this work as part of a larger $17 million project to straighten, widen, and smooth SR 9 between Nooksack and Sumas. WSDOT will remove three ninety-degree turns from the highway, build three miles of new highway east of the existing SR 9 roadway, and improve drainage beneath the road surface.

SR 18 Maple Valley

On August 31, crews opened the new eastbound roadway on SR 18 between Maple Valley and Issaquah Hobart Road. They also removed the traffic signal at 244th Avenue SE. This milestone means opposing traffic is now separated by a median, significantly reducing the potential of head-on and sideswipe collisions. Removing the signal is also paying off in congestion relief. Crews will do final paving and striping on the westbound lanes, and should be completed with all four lanes in mid-October.

U.S. 12 White Pass

On September 11, WSDOT began a project to stabilize the slope along U.S. 12, six miles east of White Pass. Contractor scaling crews will bring down loose rocks and debris in an effort to stabilize a section of the hillside rated as a high rockfall location. This project begins a series of U.S. 12 unstable slopes projects that will continue each summer for the next seven years between Naches and Packwood.

I-5 Kelso

WSDOT began repairing the I-5 northbound East Fork Lewis River Bridge, just north of La Center, on September 5. The project will help prolong the life of the bridge. Crews will replace worn expansion joints and repair concrete around the joints. Crews will also paint, seal cracks, and repair steel components. Construction is expected to last 27 working days.

I-5 Everett

Preparations along I-5 near 112th Street in Everett began in September for Sound Transit's new South Everett Freeway Station/Park and Ride. To save taxpayer money, Sound Transit chose to build the new park and ride lot on state-owned land in the median and shoulders of I-5. Work is scheduled for completion in 2008.

SR 17 Moses Lake

WSDOT began construction to widen SR 17 in Moses Lake on September 15. Crews will widen the last two-lane segment of SR 17 to four lanes between the Port of Moses Lake and I-90

Highlights of Program Activities

The project includes improving several intersections and constructing a new bridge.

I-90 Ryegrass Hill

Crews finished paving 3.6 miles of I-90 near the top of Ryegrass Hill, about 11 miles east of Vantage. Work involved grinding up old pavement, crack sealing, paving and replacing shoulder rumble strips.

Ferries

Anacortes Terminal Extends Paid Parking

Washington State Ferries announced on September 6 that paid parking at the Anacortes Terminal will be extended to include the non-peak season, October 1-April 30, with significantly reduced fees. This decision was made to provide a year-round security and on-going maintenance. In past years, the off-season, non-fee parking lots attracted campers, abandoned vehicles, loitering, and vandalism.

Colman Dock Advisory Group

A group of 16 community members met for the first time on June 29 to advise WSF on the development of a new ferry terminal at Colman Dock. Over the next two years, the Community Advisory Group (CAG) will help formulate options for the terminal, provide key feedback to the project team, and assist in updating their communities about project developments. The CAG represents a diverse range of business, commuter, and environmental and community interests. It includes members from Seattle, greater Kitsap County, and members from WSF's Ferry Advisory Committees (FACs).

ORCA Participants Requested

In mid-September, Washington State Ferries announced a call for volunteers to test new Regional "smart card" equipment using turnstiles at Seattle's Colman Dock and vehicles at the Bremerton Terminal. The card will be known as ORCA (One Regional Card for All). Seven local public transportation agencies will conduct a test of the card electronic fare system, allowing riders to seamlessly travel throughout the region from system to system. Agencies participating in the card test include Sound Transit, Community Transit, Everett Transit, Kitsap Transit, King County Metro Transit, Pierce Transit, and Washington State Ferries. These transportation agencies will be looking for more than 2,000 riders to participate in the live test, lasting six weeks from November 9 through December 22. Afterward, test participants will be asked for their feedback on the project to help the agencies fine-tune the final smart card system.

Public Transit & Rail

Amtrak *Cascades* adds New Seattle-Portland Round Trip

I-5 Kelso (E. Fort Lewis River Bridge) work.

WSDOT and Amtrak added a fourth round-trip train to the Amtrak *Cascades* schedule on July 1. This mid-day service between Seattle and Portland provides passengers with more choices. To accommodate the additional round trip, some Amtrak *Cascades* schedules were changed. Passengers traveling between communities north and south of Seattle, such as from Bellingham to Portland, now have a shorter layover at King Street Station. The new Seattle-Portland round trip is funded by WSDOT and the Amtrak *Cascades* trains are funded by ticket-buying passengers, the states of Washington and Oregon, and Amtrak.

WSDOT Releases 2005 Summary of Public Transportation

At the end of August, WSDOT released the annual Summary of Public Transportation Systems for 2005. The 270-page report provides a statewide overview of transit service for the years 2003 through 2005, and planned services and operations for selected future years. The report describes the services, achievements, and objectives for the state's 28 governmental transit operators. Here's some of the report's highlights:

- Columbia County Public Transportation was established in 2005 and is the state's 28th official transit system
- Public transportation provided a total of 173,609,373 passenger trips in 2005, a 1.80 percent increase over 2004
- Local tax revenues increased statewide 10.55% over 2004

WSDOT compiles annual operational and financial data from each transit operator and provides copies of the report to the state legislature and other interested parties. The report is also available online at www.wsdot.wa.gov/transit.

WSDOT Recognized for Freight Transportation Planning

WSDOT's efforts to produce data-driven and customer-based transportation planning for freight has earned the agency national recognition. The Federal Highway Administration and Federal Transit Administration gave WSDOT an Honor-

able Mention in its 2006 Transportation Planning Excellence Awards for its planning document, "Washington Transportation Plan Update: Moving Freight."

Ground Breaking U.S. 2 Iron Goat Trail Interpretive Site

On July 14, a groundbreaking ceremony took place a few hundred yards from U.S. 2, eight miles east of Skykomish at the Iron Goat Trail Interpretive Site and Rest Area. WSDOT, Volunteers for Outdoor Washington, the U.S. Forest Service, and King County worked together to design the site on U.S. 2 at the intersection of the Old Cascade Highway. WSDOT is the lead agency and will build the interpretive site, trailhead, parking lot, and rest room facilities. The project also includes placing rail sections adjacent to the parking area and rest rooms to accommodate a historic Great Northern Railway caboose. Work is scheduled to finish by late September.

Outstanding Local Projects Chosen for Awards by WSDOT and FHWA

The Federal Highway Administration (FHWA) and WSDOT announced the 2006 Awards of Excellence. Projects completed by the cities of Prosser, Snohomish, and Brewster, as well as Skagit County, were recognized as the "best of the best" of local agency transportation projects funded by FHWA. The award categories and award recipients were:

- Best City Project: City of Prosser Wine Country Road Project
- Best County Project: Skagit County Main Street Reconstruction Project
- Best Special Project: City of Snohomish Riverfront Trail Project
- Director's Award: City of Brewster Main Avenue Reconstruction

WSDOT's Highways & Local Programs group administers the Excellence Awards. These awards are presented to local agencies to recognize projects of high quality, to reward exceptional coordination efforts, and perseverance, and to honor projects which serve as a model for the state.

Improved Motorist/Project Information

WSDOT Provides Wireless Internet Access at Highway Safety Rest Areas

In time for the Labor Day travel weekend, Washington State safety rest areas became "Wi-Fi Hotspots" enabling travelers to obtain current road conditions, check e-mail and gather other travel information on their laptop computers. A new WSDOT partnership with Parsons Transportation Group and Road Connect Inc. provides wireless Internet access in 28 of 42 safety rest areas along Washington State highways. By subscribing to Road Connect, travelers can visit other internet web sites. Road conditions and other traveler information resources are available free via WSDOT's web site http://www.wsdot.wa.gov/traffic/

Special Feature

Lane Miles

The number of Lane Miles added to WSDOT's highway system are based on contract completion dates due to lanes being designated by striping or construction projects between January 2001 and September 2006. As of September 25, 2006, WSDOT has added 24.18 total lane miles to the highway system in calendar year 2006.

The table below represents a snapshot of WSDOT's existing Lane Miles. These totals will change throughout the year as contracts are complete.

Lane Miles added to the State Highway System 2001-2006[1] by Type and Year

Year	General Purpose Lanes[2]	HOV Lanes	Two Way Turn Lanes	Climbing Lanes	Auxiliary (Weave/ Speed Change) Lanes	Bicycle Lanes	Turn/ Accel Lanes	Holding Lanes	Transit Lanes	Total per Year
2001	13.90	2.61	1.01	0.70	1.92	1.02	2.34	0.00	0.00	23.50
2002	20.39	0.00	6.77	1.24	0.23	1.18	2.76	0.00	0.00	32.57
2003	10.04	9.42	1.54	0.00	0.66	3.27	1.61	0.00	0.00	26.54
2004	24.40	8.00	0.85	10.60	1.14	3.21	2.90	0.23	0.00	51.33
2005	21.25	5.09	2.67	0.61	0.00	1.70	4.36	0.00	0.00	35.68
Total, 2001-2005	**89.98**	**25.12**	**12.84**	**13.15**	**3.95**	**10.38**	**13.97**	**0.23**	**0.00**	**169.62**
2006[1] to date	21.25	0.07	0.14	0.00	1.10	0.54	1.08	0.00	0.00	24.18
Under Construction[3]	58.72	13.24	6.14	1.10	.62	8.38	9.89	9.89	.32	98.43

[1]2006, Lane miles that are physically complete as of September 25, 2006
[2]General Purpose lanes are through lanes of mainline, spur, couplet, alternate, reversible, and ramp.
[3]Under Construction represents lane miles under construction (not yet physically complete) as of September 25, 2006.

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Americans with Disabilities Act (ADA) Information

Persons with disabilities may request this information be prepared and supplied in alternate formats by calling the Washington State Department of Transportation at (360) 705-7097. Persons who are deaf or hard of hearing may call access Washington State Telecommunications Relay Service by dialing 7-1-1 and asking to be connected to (360) 705-7097.

Civil Rights Act of 1964, Title VI Statement to Public

Washington State Department of Transportation (WSDOT) hereby gives public notice that it is the policy of the department to assure full compliance with Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, and related statutes and regulations in all programs and activities. Persons wishing information may call the WSDOT Office of Equal Opportunity at (360) 705-7098.

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
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

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