



Washington State  
Department of Transportation

# The Gray Notebook

# Lite

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

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



## GNB 31 Excerpts

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This *Gray Notebook* Lite provides highlights and performance topics selected from the *Gray Notebook*, WSDOT's quarterly performance report. This quarter's edition of the Lite includes annual excerpts from The 2008 Congestion Report, Intelligent Transportation Systems, Air Quality, Noise Quality, Stormwater Treatment Facilities, in addition to an excerpt from the quarterly Incident Response report.

The beige insert contains a summarized roll-up of WSDOT's Capital Project Delivery Program and a project delivery performance overview for the 2003 Nickel Program and the 2005 Transportation Partnership Account.

The complete edition of the *Gray Notebook* can be found at <http://www.wsdot.wa.gov/Accountability/GrayNotebook/default.htm>

# Mobility

The 2008 annual *Congestion Report* provides a comparative assessment of the travel conditions recorded in 2007 from those previously reported in 2005 for commutes in the central Puget Sound and Spokane-areas. Using a variety of measures assessing volume, speed, and travel-time reliability, WSDOT is able to evaluate its programs to better manage the current highway system, as well as conduct Before and After assessments for strategic capacity additions and new operational efficiency installations.

## Performance Highlights from the 2008 Annual Congestion Report

### Travel Times Analysis: 38 high demand Puget Sound commutes

**Average travel times:** Although many commuters experienced increasing travel times between 2005 and 2007, the rate of these increases has leveled off compared to prior years. Average travel times increased on 22 of the 38 high demand commute routes, with increases ranging from one and four minutes. Despite these marginal increases, average travel times improved by between one and two minutes on nine commutes during the same period and remained unchanged on seven. (See pages 18-31 for complete report)

**95% reliable travel times:** Between 2005 and 2007, 24 of the 38 high demand commutes saw increases in the 95% reliable travel time, with increases ranging from one minute (four commutes) to 11 minutes (SeaTac to Seattle evening commute). Ten commutes saw reliable travel times improve between one and four minutes, while reliable travel times remained unchanged for four commutes. (See pages 19-21 for complete report)

### HOV Lane Performance

**Person Throughput:** most HOV lanes continue to be more effective at moving more people during peak periods than general purpose lanes. At the monitoring locations, the average HOV lane carries about 35% of the people on the freeway in the morning and evening peak periods. I-5 near Northgate is an example of how effective HOV lanes are at moving people: during the morning peak period, the southbound HOV lanes on I-5 move about 14,400 people, or 44% of travelers on this section of highway, in only 21% of the vehicles. (See page 33 for complete report)

**HOV Lane Travel Times:** Average travel times and 95% reliable travel times are almost always faster in HOV lanes than in general purpose lanes. Of the 48 2-person HOV lanes, 3+ HOV lanes, and Express lanes that run alongside the 38 key commute routes, 39 provide between one minute (I-90 Seattle to Issaquah evening commute) and 20 minutes (I-405 Bellevue to Tukwilla morning commute) of savings in average travel time. Forty provide better reliability (95% reliable travel time) than their general-purpose lane counterparts. (See pages 34-37 for complete report)

### Hours of Delay

**Statewide delay,** relative to maximum throughput speeds and posted speeds, increased by 3% (+643,000 weekday hours of delay annually) and 4% (+1.8 million weekday hours of delay annually) respectively between 2005 and 2007. Delay relative to maximum throughput speeds cost Washington businesses and drivers roughly \$617 million in 2007—\$13 million more than in 2005 (\$604 million). (See pages 40-41 for complete report)

### Before and After Analysis of Selected Projects: Moving Washington Program

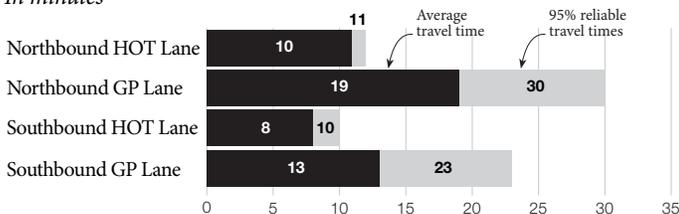
**Add Capacity Strategically—Nickel and TPA:** A study of 21 mobility projects funded by the 2003 and 2005 gas tax funding packages showed they save drivers an estimated 6,400 hours in combined travel time per day—a 10% improvement following construction. (See pages 42-43 for complete report)

### Special Report: fuel prices impacts on travel behavior - first six months of 2008

**Travel times and volumes:** WSDOT analyzed conditions on seven major Seattle-area commuting corridors in the first six months of 2008, as gas prices surged above \$4 per gallon. Average and reliable travel times for drivers on six of seven corridors improved during the peak periods as the strong local economy kept vehicle volumes high, with peak period volumes increasing by +2% to +4%. Volumes declined on weekends and evenings as drivers reduced discretionary trips, changed destinations and cut trips to save money. (See pages 12-14 for complete report)

### SR 167 travel times: HOT lanes vs. GP lanes

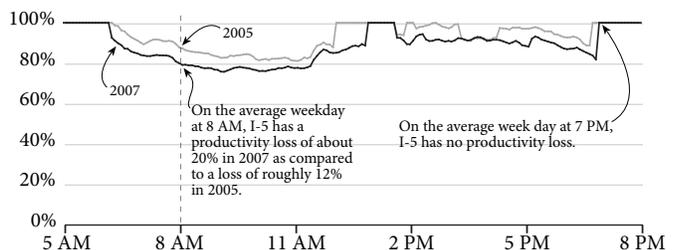
Average and reliable peak hour travel times for May 2008 - July 2008  
In minutes



NB travel times were calculated from SR 18 (MP 14.31) to S. 34th St. (MP 25.07)  
SB travel times were calculated from S. 34th St. (MP 25.07) to 43rd St. NW (MP 17.38)  
Peak hour used: 7:00 - 8:00 am for NB and 4:00 - 5:00 pm for SB  
Data used: May - July 2008, Monday - Friday  
Data Source: NW Region Traffic Operations.

### Lost vehicle throughput productivity: example

Based on the highest average five minute flow rates observed on I-5 at I-90 MP 164, for both directions of traffic in 2005 and 2007: 1,730 vplph northbound in the A.M. and 1,500 vplph southbound in the P.M.



High Occupancy Tolling can more efficiently use the available capacity on Washington State's highways by providing single-occupancy drivers an opportunity to 'buy into' the HOV lanes. The SR 167 HOT lanes pilot project is one example of WSDOT's Before and After analysis of congestion mitigation projects.

Throughput productivity compares the observed average vehicle flow (vehicles per lane per hour - vplph) for a selected location to the observed highest average five minute vehicle flow at that location. The eight selected Puget Sound monitoring locations, shows marginal decreases in vehicle throughput from 2005 to 2007.

## Highway Construction: Nickel and TPA Project Delivery Performance Overview

### Project Delivery Highlights for Nickel and TPA combined:

Both Nickel and TPA programs are 100% on or under their total legislative baseline of \$1.804 billion to date.

89% of Nickel and TPA projects combined are early or on-time, holding steady from last quarter's results.

87% of Nickel and TPA projects combined are under or on-budget, an improvement of 1% from last quarter.

77% of Nickel and TPA projects combined were both on-time and on-budget, the same percentage as last quarter.

### WSDOT has successfully delivered 167 Nickel and TPA projects on target with the \$1.804 billion Legislative budget

Since 2003, WSDOT has delivered a total of 167 Nickel and Transportation Partnership Account (TPA) projects for \$1.804 billion, on target with the legislative budget expectation.

### WSDOT delivers 17 projects during the first quarter of FY 2009

WSDOT's capital program delivery performance held steady at 77% in delivering projects on-time and on-budget through the first quarter of FY 2009, as another four Nickel projects and 13 TPA projects were completed.

### On-time and on-budget performance on individual projects remains steady

For the 167 highway projects completed through September 30, 2008, changes from the previous quarter are:

- On-time delivery performance held steady at 89%;
- On-budget performance improved slightly to 87%; and
- On-time and on-budget project delivery performance improved slightly to 78%.

### 61 Nickel and TPA projects under construction or advertised for construction

This quarter, five new projects were advertised for construction. One project was advertised earlier than scheduled and the rest were on time. One project is pending contract award amount, but the remaining projects have been awarded for a cumulative construction contract total of \$12.9 million.

### 43 projects totaling an estimated \$1.39 billion at completion are scheduled to advertise by March 31, 2009

Nine significantly sized projects have budgets of \$20 million, while another seven have budgets between \$10 and \$20 million. All but seven are on their original schedule, and six have been advanced to advertise earlier.

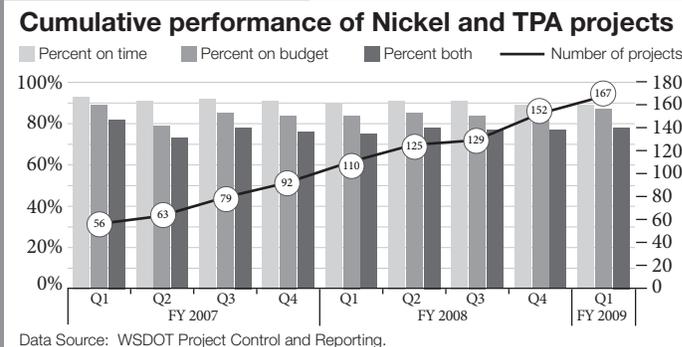
### Original project information in Schedule, Scope & Budget tables

The beige pages report the agency's project delivery performance against the most recent Legislative baseline (currently the 2008 supplemental budget). The *Gray Notebook* will also include the amount originally appropriated in the 2003 Nickel and 2005 TPA funding packages. Original appropriation figures for this edition includes Nickel and TPA projects completed through September 30, 2008.

In future editions of the *Gray Notebooks*, WSDOT will include project scope as compared to the scope included in the original budget. The *Gray Notebook* reports "on scope" as compared to last legislative expectations. This new reporting will complement the inclusion of projects' original budget, which are included in this edition.

### New: Completed project wrap ups

For more comprehensive information about projects completed in this quarter, turn to pages 103-109, for the new project wrap up section. These wrap up articles will build upon the principles of accountability and performance journalism and provide a better sense of the challenges WSDOT faces in delivering projects, WSDOT's work to use tax dollars as efficiently as possible, and the benefits citizens can expect to see from completed projects.



## Highway Construction Performance Dashboard

Each quarter, WSDOT provides a detailed update on the delivery of the highway capital programs in the *Gray Notebook* and on the web (at [www.wsdot.wa.gov](http://www.wsdot.wa.gov)) through the Project Pages and Quarterly Project Reports. The *Gray Notebook's* Beige Pages generally do not include planning studies or projects that do not have a construction phase. PEF projects are budgeted by program for the improvement and preservation of the highway

system, and the delivery of the work is reported programmatically in six categories.

Each of the 153 Nickel and 238 TPA projects has a line item budget, and are reported at an individual project level. Budgets for PEF, Nickel, and TPA in this edition of the *Gray Notebook* are based on the 2008 Supplemental Budget.

### Highway construction performance dashboard

	Nickel (2003)	Transportation Partnership Account	Combined Nickel & TPA	Pre-Existing Funds
Total number of projects	153	238	391	758
Total program budget*	\$3,946,466	\$9,415,872	\$13,362,338	\$4,411,627
<b>Schedule, Scope, and Budget Summary: Results of completed projects</b>				
<b>Cumulative to date: 2003 – September 30, 2008</b>				
	For Nickel and TPA details, see pages 81-86			See pages 99-102
<b>Total number of projects completed</b>	<b>104</b>	<b>63</b>	<b>167</b>	
% Completed early or on-time	88%	90%	89%	
% Completed within scope	100%	100%	100%	
% Completed under or on-budget	90%	82%	87%	
% Completed on-time and on-budget	82%	73%	78%	
Baseline estimated total cost at completion	\$1,618,846	\$190,561	\$1,809,407	
<b>Current estimated cost at completion</b>	<b>\$1,617,725</b>	<b>\$186,666</b>	<b>\$1,804,391</b>	
% of total program over or under budget	0.1% under	2.0% under	0.3% under	
<b>Biennium to date: 2007-09</b>				
<b>Total number of projects completed</b>	<b>35</b>	<b>40</b>	<b>75</b>	<b>232</b>
% Completed early or on-time	83%	90%	87%	-
% Completed within scope	100%	100%	100%	-
% Completed under or on-budget	89%	87%	88%	-
% Completed on-time and on-budget	77%	77%	77%	-
Baseline estimated cost at completion	\$864,943	\$175,642	\$1,040,585	\$1,403,904
<b>Current estimated cost at completion</b>	<b>\$864,386</b>	<b>\$171,951</b>	<b>\$1,036,337</b>	<b>\$1,412,194</b>
<b>Advertisement Record: Results of projects entering into the construction phase or under construction</b>				
<b>Cumulative to date: 2003 – September 30, 2008</b>				
	For Nickel and TPA details, see pages 87-90			See page 101
<b>Total number of projects in construction phase</b>	<b>18</b>	<b>43</b>	<b>61</b>	<b>N/A</b>
% Advertised early or on-time	83%	93%	90%	-
Total award amounts to date	\$562,412	\$628,925	\$1,191,337	-
<b>Biennium to date: 2007-09</b>				
	For Nickel and TPA details, see pages 87-90			See page 101
Total advertised	11	31	42	136
% Advertised early or on-time	91%	97%	95%	94%
Total award amounts to date	\$265,457	\$240,541	\$505,998	N/A
<b>Advertisement schedule for projects in the pipeline: Results of projects now being advertised for construction or planned to be advertised</b>				
October 1, 2008 through March 31, 2009				
	For Nickel and TPA details, see pages 91-93			See pages 98-102
Total projects being advertised for construction bids	6	37	43	86
% On schedule or early	100%	81%	84%	-

Data Source: WSDOT Project Control & Reporting. \* per 2005-07 Transportation Budget, Section 603.

## Special Report: Fuel Price Impacts on Travel Behavior

Nationwide statistics show driving declined for the first time in decades and Washington drivers are cutting back, using 63 million fewer gallons of fuel in the first six months of 2008 compared to the first six months of 2007. Upon close examination, Puget Sound region travel trends are somewhat different than those found nationally. The region experienced two distinct trends: the increase in peak hour travel demand due to continued employment growth in the spring and the decrease in off-peak travel demand due to the significant increase in gas prices.

On six of seven key corridors reviewed, peak period average travel times improved in the morning and afternoon. Reliable travel times also improved, declining one to nine minutes in the morning and evening on those six corridors. Reduced collisions also contributed, as highway fatality and serious injury collisions declined 8.6 percent in King County. The report is on pages 12-15 of the September 30, 2008 *Gray Notebook*.

## Changes in average and reliable travel times: Morning peak direction commutes

Comparing January through June data for 2007 and 2008, In minute

Commute, route	Average Travel Times		95% Reliable Travel Time	
	2008	Δ from 2007	2008	Δ from 2007
Everett to Seattle, I-5	33.0	-4	54.2	-9
Everett to Bellevue, I-405	33.2	-4	53.9	-7
Auburn-Renton, SR 167	14.4	-1	21.6	-4
Bellevue-Seattle, I-90	13.0	-1	18.2	-5
Bellevue-Seattle, SR 520	13.6	-1	20.0	-3

Data Source: WSDOT

## Intelligent Transportation Systems: Annual Update

ITS components aid WSDOT in both measuring system performance and regulating traffic to improve conditions and mitigate congestion. The 2008 *Congestion Report* provides an inventory (right) of WSDOT's ITS elements. Before and After analysis of ITS signals like ramp meters have shown how these systems improve local conditions by improving travel times and relative vehicle throughput.

In addition, WSDOT provides a glimpse into the future of ITS systems in Washington state as part of its efforts to implement Moving Washington's Operate Efficiently program component. Future systems could resemble those currently in use in Europe, where countries must implement operational efficiencies in order to make best use of constrained roadway capacities. For more reporting on ITS, see pages 49-50 of the September 30, 2008 *Gray Notebook*.

Right: A WSDOT illustration of a variable speed limit sign over a highway. These ITS devices could help to regulate speeds to improve throughput capacity during peak travel times.

## WSDOT-owned ITS elements inventory

As of September 30, 2008

Device Type	Number of Devices or Sites	Approximate Cost per Device or Site
Closed Circuit Television Cameras	542	\$15,000-\$30,000
Variable Message Signs (VMSs)	1813	\$100,000
Highway Advisory Radio Transmitters	72	\$50,000
Road/Weather Information Systems	97	\$25,000-\$50,000
Metered Ramps	137	\$10,000-\$100,000
Traffic Data Stations	554	\$10,000-\$20,000
Traffic Management Centers (TMCs) <sup>1</sup>	8	N/A

Data Source: WSDOT Traffic Operations Office.

<sup>1</sup> This includes one winter operations site at Snoqualmie Pass.



## Incident Response: Quarterly Update

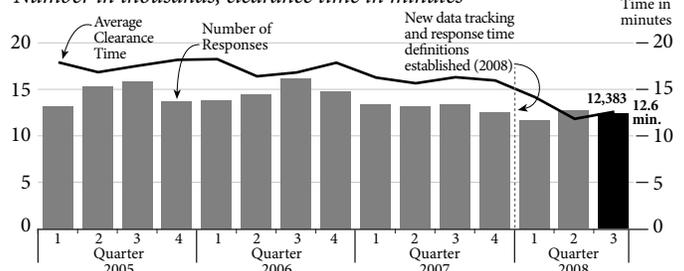
The average clearance time for the quarter was 12.6 minutes, a 6.8% increase over last quarter's historic low average of 11.8 minutes. However, the performance of Quarter 3 of 2008 is 22.7% better than the same quarter's average response time in 2007 (16.3 minutes). Compared with last year's performance, the quicker clearance times by IR drivers and lower collision rates contributed significantly to the year-over-year decline in average response time.

The number of fatality collision responses was up 58% in Quarter 3 over Quarter 2 2008, for a total of 27 incidents. Compared with Quarter 3 2007, there were 27% fewer responses in 2008 when 35 occurred. For more reporting on WSDOT's IR program, see pages 57-59 of the September 30, 2008 *Gray Notebook*.

## Number of responses and overall average clearance time

January 2005 - September 2008

Number in thousands, clearance time in minutes



Data Source: Washington Incident Response Tracking System, WSDOT Traffic Office.

Note: Program-wide data is available since January 2002. Prior to Q3 of 2003, the number of responses by IRT are shown. From Q3 2003 to Q2 2007, responses by Registered Tow Truck Operators and WSP Cadets have been reported in the total. From Q1 2002 to Q4 2007, Average Clearance Time do not include "Unable-to-Locate" (UTL) responses into calculation. Average number of responses does include UTLs, because this represents work performed on behalf of the Incident Response Program. In Q1 2008, WSDOT's Incident Response Program moved to a new database system and began calculating average clearance time in a different way. This accounts for the apparent decrease in the average clearance time value.

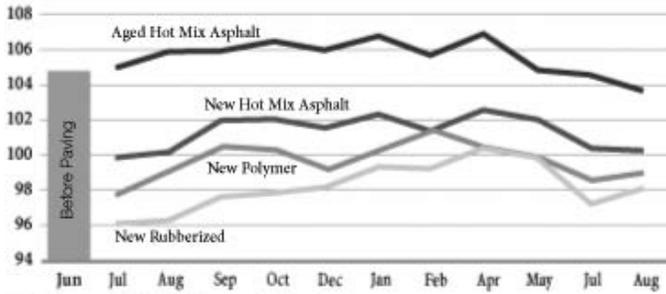
## Environment

### Noise Quality Annual Update

WSDOT continues to measure sound levels from its quiet pavement test sections in western Washington. The SR 520 Medina-vicinity test section on SR 520 was installed in 2007, and the first set of annual decibel measurements have been recorded. As expected, the quiet pavement test sections produce a better quality of sound, and the recorded noise levels are lowest in the summer months, and higher in the winter months.

#### Tire/Pavement noise sound intensity

Medina vicinity test section on SR 520



Data Source: WSDOT Environmental Services

### Air Quality: Annual Update

Air quality measurements made by the U.S. Environmental Protection Agency in 2007 and 2008 have indicated that several areas in Washington State have surpassed the allowable levels of particulate matter, and are expected to be designated in “non-attainment” status for 2009. Because federal highway funds are tied to federal air quality standards, WSDOT will coordinate with local clean-air agencies to help with mitigation in order to remain good standing with federal oversight agencies.

The Air Quality Annual Update also provides information on the next round of alternative bio-fuel testing Washington State Ferries vessels. The WSF bio-fuel program is one of several ways WSDOT is working towards meeting the Governor’s goal of 20% bio-fuel usage in state vehicles by 2010.

For more reporting on WSDOT’s environmental programs, see pages 70-76 of the September 30, 2008, *Gray Notebook*.

## Preservation

### Stormwater Treatment Facilities: Annual Update

WSDOT currently maintains over 2,100 stormwater treatment facilities along its right-of-way in order to remain in compliance with federal and state water quality standards. These facilities vary in size and design, but all are designed to treat rainwater that falls on the highway and flows off onto the adjacent ground or into open water sources. With regular maintenance, these facilities continue to absorb contaminants before they can reach open sources of water or seep below the surface into underground water supplies. Their maintenance is monitored and evaluated under WSDOT’s Maintenance Accountability Process (MAP) which is reported annually in the December 31<sup>st</sup> edition of the *Gray Notebook*.

Previously, WSDOT was required to construct, maintain, and monitor facilities in Clark, King, Pierce, and Snohomish counties only. New state regulations will expand this



requirement to over 100 urbanized areas statewide. In addition, new inspection and monitoring requirements will be implemented for all new required stormwater treatment facilities.

For more reporting on Stormwater Treatment Facilities, see pages 7-8 of the September 30, 2008 *Gray Notebook*.

### How to find performance information

The electronic subject index gives readers access to current and archived performance information. This 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: <http://www.wsdot.wa.gov/Accountability/GrayNotebook/SubjectIndex.htm>

The information presented here is a snapshot of what you’ll find in the full version of the *Gray Notebook*. The full version for the quarter ending September 30, 2008 is available on line at: <http://www.wsdot.wa.gov/Accountability/GrayNotebook/default.htm>

#### For more information contact:

Daniela Bremmer  
WSDOT Strategic Assessment Office  
310 Maple Park Avenue SE  
P.O. Box 47374  
Olympia, WA 98504-7374  
**Phone:** 360-705-7953  
**E-mail:** [bremmed@wsdot.wa.gov](mailto:bremmed@wsdot.wa.gov)