



**Washington State  
Department of Transportation**

# **Measures, Markers and Mileposts**

The Gray Notebook for the quarter ending June 30, 2002

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

**Douglas B. MacDonald**  
Secretary of Transportation



**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 ADA Accommodation Hotline collect (206) 389-2839. Persons with hearing impairments may access Washington State Telecommunications Relay Service at TTY 1-800-833-6388, Tele-Braille 1-800-833-6385, Voice 1-800-833-6384, and ask 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.

# Measures, Markers and Mileposts

## The Gray Notebook for the quarter ending June 30, 2002

6th Edition  
Published August 14, 2002

### Contents

Worker Safety .....	1	Commute Trip Reduction .....	19
Highway Construction Program.....	3	Protecting Streams from Construction	
Awarded Contracts.....	4	Site Erosion and Runoff .....	21
Completed Contracts .....	5	Washington State Ferries .....	22
Highway Safety Projects .....	7	State-Supported Amtrak	
Measuring Congestion .....	8	Cascades Service .....	25
Incident Response .....	10	Washington Grain Train .....	27
Trucks, Goods and Freight.....	11	Value Engineering .....	28
Highway Maintenance .....	15	Highlights of Program Activities .....	29
Aviation Division .....	17	Gray Notebook Subject Index .....	32

The *Gray Notebook* is published quarterly: February, May, August, and November. For this or a previous edition of the *Gray Notebook*, visit our website at [www.wsdot.wa.gov/accountability](http://www.wsdot.wa.gov/accountability)

The *Gray Notebook* is produced by:

Daniela Bremmer  
Nicole Ribreau  
Keith Cotton  
Megan Davis

Graphics:

Gerry Rasmussen

For information, contact:

Daniela Bremmer  
WSDOT Strategic Assessment  
310 Maple Park Avenue SE / P.O. Box 47370  
Olympia, WA 98504-7370

Phone: 360-705-7953

Email: [bremmed@wsdot.wa.gov](mailto:bremmed@wsdot.wa.gov)

Contributors include:

- |                   |                    |                   |                          |                  |
|-------------------|--------------------|-------------------|--------------------------|------------------|
| • Dave Acree      | • Tim Erickson     | • Ed Lagergren    | • Sandra Pedigo-Marshall | • Theresa Smith  |
| • Rico Baroga     | • Kirk Fredrickson | • Greg Lippincott | • Toby Rickman           | • Rex Swartz     |
| • Claudia Cornish | • Bill Greene      | • Jerry Lowery    | • Greg Selstead          | • Ted Trepanier  |
| • Dan Cotey       | • Robin Hartsell   | • Craig McDaniel  | • Gloria Skinner         | • Richard Tveten |
| • Kevin Dayton    | • Kathy Johnston   | • Eric Meale      | • Ken Smith              | • Dean Walker    |
| • Barry Diseth    | • Brian Lagerberg  | • John Milton     |                          |                  |

### “What gets measured, gets managed.”

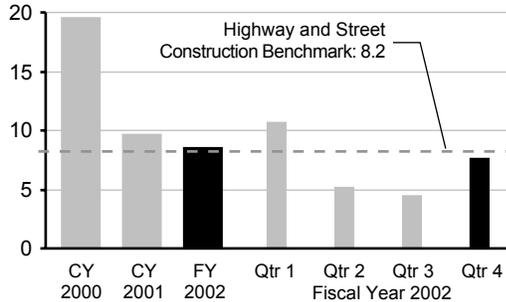
This periodic report is prepared by WSDOT staff to track a variety of performance and accountability measures for routine review by the Transportation Commission and others. The content and format of this report is expected to develop as time passes. Information is reported on a preliminary basis as appropriate and available for internal management use and is subject to correction and clarification.

# Worker Safety

Continuing updates on *Gray Notebook* safety topics – data is shown for calendar years (CY) 2000 and 2001, fiscal year (FY) 2002, and for fiscal year 2002 by quarter.

## WSDOT Highway Maintenance Workers

Recordable Injuries per 100 Workers per Fiscal Year

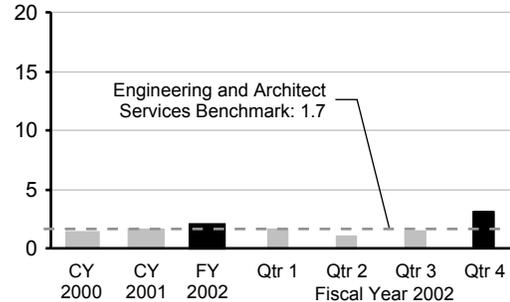


The recordable injury rate for maintenance workers declined from calendar year 2001 to slightly above the benchmark rate in FY 2002. During the fourth quarter, these workers most frequently injured their hands and backs. More than 25% of injuries occurred while driving or exiting vehicles. Five eye injuries could have been prevented with adequate eye protection.

Sources for all charts: WSDOT.

## WSDOT Highway Engineer Workers

Recordable Injuries per 100 Workers per Fiscal Year



The recordable injury rate for engineer workers increased slightly above the benchmark rate for FY 2002. During the fourth quarter, these workers most frequently injured their backs and hands. Injured workers typically suffered sprains, bruises, and dislocation or inflammation caused by slips and falls.

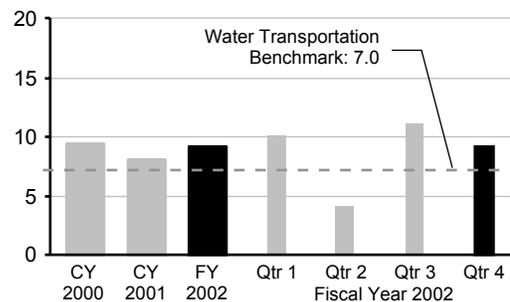
## Accident Prevention Activities

Fourth Quarter, Fiscal Year 2002

- Focused safety training on Blood Borne Pathogens, Flagging, Hearing Conservation, Fall Protection, Confined Space, Meth Lab Awareness and First Aid.
- Field tested three styles of newly designed lightweight high visibility vests.
- Designed and field tested new high visibility rain gear.
- Developed new guidelines for the installation of backup alarms on all vehicles with restricted vision to the rear that operate on construction sites.
- Conducted lead exposure monitoring at the Tacoma Narrows Bridge, dust exposure monitoring at the Mercer Island and Mt. Baker tunnels on I-90, and confined space air testing at the Hood Canal Bridge.
- Conducted WSDOT statewide work zone safety conference for safety managers, maintenance workers, and representatives from the Washington State Patrol.

## WSDOT Ferry Vessel Workers

Recordable Injuries per 100 Workers per Fiscal Year



The recordable injury rate for ferry vessel workers increased during FY 2002. The most common type of injury remained sprains, with 46 (55%) during FY 2002. As in previous quarters, these workers most frequently injured their backs, with 23 back injuries during FY 2002. Ferry vessel workers were exposed to sewage in nine incidents, but only two recordable injuries resulted. Fourteen injuries might have been prevented with adequate protective equipment, i.e., respirator, gloves, face shield, or goggles.

## Reading the Charts

"Recordable injuries and illnesses" is a standard measure that includes all work related deaths and work related illnesses and injuries, which result in loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid.

The U.S. Bureau of Labor Statistics provides the selected 2000 national average benchmarks.

After discussion with the National Bureau of Labor Statistics, the following benchmarks were selected to provide relevant and consistent benchmarks:

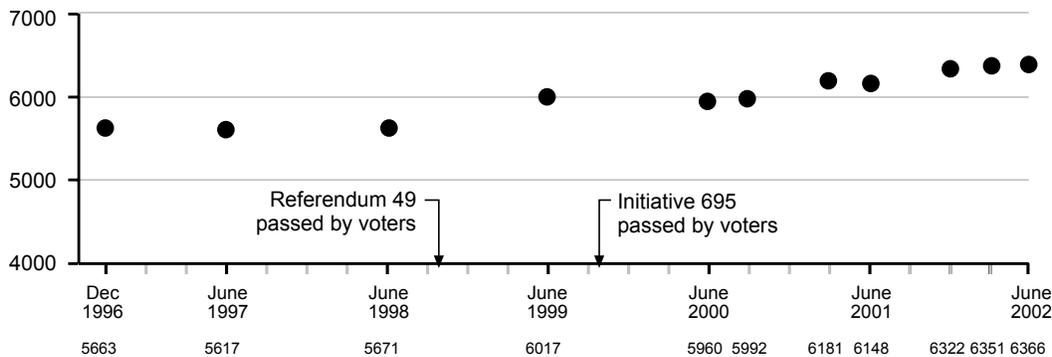
- Maintenance workers: "Highway and Street Construction" Standard Industry Classification (SIC) 161 (rate 8.2).
- Engineering workers: "Engineering and Architect Services" SIC 871 (rate 1.7).
- Ferry vessel workers: Will remain "Water Transportation" SIC 44. New 2000 rate is 7.0.

One worker equals 2,000 hours per year.

## WSDOT Workforce Levels

One indicator of the agency's workforce size is the current number of permanent full-time employees on staff. The accompanying chart shows that number at various points since the end of 1996. (The number of "FTEs" [full-time equivalents] will generally exceed the number of full-time employees, since seasonal and part-time work force must also be funded from "FTE" allotments.)

### Number of Permanent Full-Time Employees at WSDOT



- **Referendum 49** (Fiscal Year 1999) increased WSDOT's program and project delivery scope.
- **Initiative 695** (Fiscal Year 2000) decreased available transportation funds and required adjustments to project and program scope.
- **July 2000 to current:** Staffing reflects that in the 2001-2003 biennium, WSDOT is delivering one of the largest highway capital programs (approximately \$1.51 billion) ever undertaken in this state.

March 2002 data was adjusted, and now includes permanent seasonal employees. Source: WSDOT.

## Maintenance and Safety Training Required by Law

WSDOT is catching up on a backlog of required training for maintenance workers. One way to do this and enhance safety and operations for maintenance employees is to train newly hired workers in Maintenance Academies, usually scheduled in spring and fall. This year there are three four-day Maintenance Academies scheduled, allowing new workers to receive early training to protect them against common hazards encountered on the job. Over 100 entry-level workers have been trained in Maintenance Academies so far this year. Regional maintenance trainers also deliver required maintenance and safety training during brief periods of worker availability.

The chart shows status of training completed for five of the 13 required safety courses and five of the 12 maintenance courses.

	Number of Maint. Workers Requiring Training	Total Number of Maint. Workers Trained to Date	Maint. Workers Trained 3rd Quarter FY02	Maint. Workers Trained 4th Quarter FY02	Compliance to Date: Target = 90%	Refresher Training Interval	Washington Administrative Code (WAC) and Other References
<b>Safety Courses</b>							
Blood Borne Pathogens	1262	911	313	257	72%	1 Yr	WAC 296-62-08001
First Aid	1288	1105	107	334	86%	2 Yrs	WAC 296-24-060
Hearing Conservation	1175	1052	0	393	90%	1 Yr	WAC 296-62-09015
Fall Protection	841	258	63	112	31%	None	WAC 296-155-24505
Flagging & Traffic Control	1022	942	73	92	92%	3 Yrs	WAC 263-155-305
<b>Maintenance Courses</b>							
Drug Free Workplace	285	199	0	103	70%	None	49 CFR Part 382
Forklift	1117	919	15	45	82%	3 Yrs	WAC 296-24-23025
Hazardous Materials Awareness	1031	265	12	207	26%	1 Yr	WAC 296-62 Part R
Manlift Operations	617	240	0	114	39%	3 Yrs	WAC 296-155-493
Excavation, Trenching & Shoring	477	133	98	0	28%	None	WAC 296-155 Part N

Source: WSDOT.

# Highway Construction Program

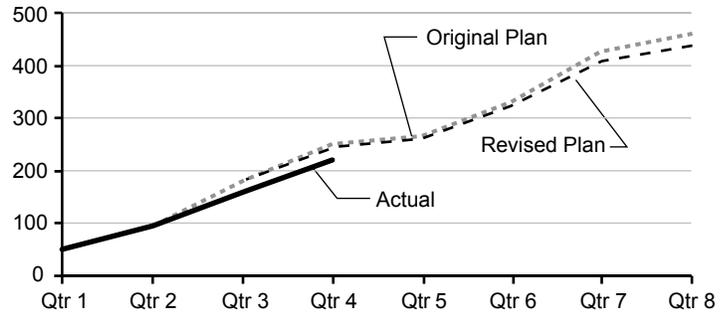
## Quarterly Update

### Meeting WSDOT's Scheduled Advertisement Dates

For the biennium to date, WSDOT has advertised 218 improvement and preservation projects against an original schedule of 251 projects. WSDOT's project delivery schedule, according to the Capital Improvement and Preservation Program (CIPP), is shown on the adjacent chart for the quarter ending June 30, 2002. WSDOT is meeting the planned advertisement date on over 90% of the projects that are being advertised for bids. The chart also shows a revision to the original planned line. This is the result of the \$76 million Current Law Budget reduction to the CIPP, from the 2002 Supplemental Budget.

### Highway Construction Program Delivery

Planned vs. Actual Number of Projects Advertised  
2001-2003 Biennium, Quarter 4 Ending June 30, 2002



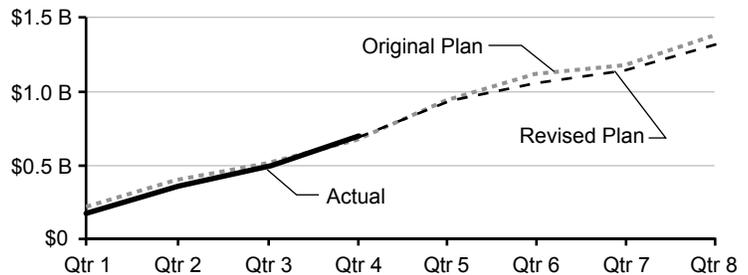
Sources for both charts: WSDOT.

### Highway Construction Program Cash Flow

Expenditures through the quarter ending June 30, 2002, are on target, achieving approximately 96% of budgeted cash flow. Historically, WSDOT's cash flow for this program is 92% to 95%. The chart reflects the newly revised plan due to budget cuts as explained above. The expenditure rate now slightly exceeds historical levels and reflects the high delivery rate of projects to advertisement in the highway improvement program.

### Highway Construction Program Cash Flow

Planned vs. Actual Expenditures  
2001-2003 Biennium, Quarter 4 Ending June 30, 2002  
Dollars in Billions



### Highlights

The highlights of the fourth quarter highway program advertisements were:

- U.S. 395, Hillsboro Street Interchange, north of Pasco Estimated at \$7.6 million.
- State Route (SR) 8, McCleary Interchange, McCleary Estimated at \$5.0 million.

There were 20 project deferrals this quarter. Six of these were in response to the budget cuts described above. The remaining 14 were caused by delays in the scoping, design and preliminary engineering phases. The most significant of the deferred projects were:

- U.S. 12 / SR 124 to Walla Walla Project deferred to Fall 2002 due to budget reduction.
- SR 527 / 164th St. SE to 132nd St. SE, Mill Creek Project deferred to Spring 2003 due to budget reduction.

### Forecast

Because highway construction program expenditures are running close to plan, WSDOT must carefully monitor ongoing expenditures for the remainder of the biennium. There will be little financial leeway for "surprises" in the form of major change orders or claims on projects in their construction phases. These may also include increased expenditures on right-of-way or preliminary engineering encountered during project development. WSDOT Headquarters is comparing monthly cash expenditures and updated cash forecasts to the plan for approximately **40** projects that account for about half of the remaining amount to be expended. These projects include:

- I-90 / Sunset Interchange Modification, Issaquah
- I-5 / Pierce County Line to Tukwila Interchange – HOV Lanes
- I-405 / Tukwila to Lynnwood (Preliminary Engineering)

As of August 1, no major modification of project deliveries and schedules appears to be required to maintain the program as planned.

# Construction Program Update: July 1, 2001 to June 30, 2002

Having completed the first four quarters of the 2001-2003 biennium, there is a suitable sample of projects to report on the status of project delivery in relation to cost expectations.

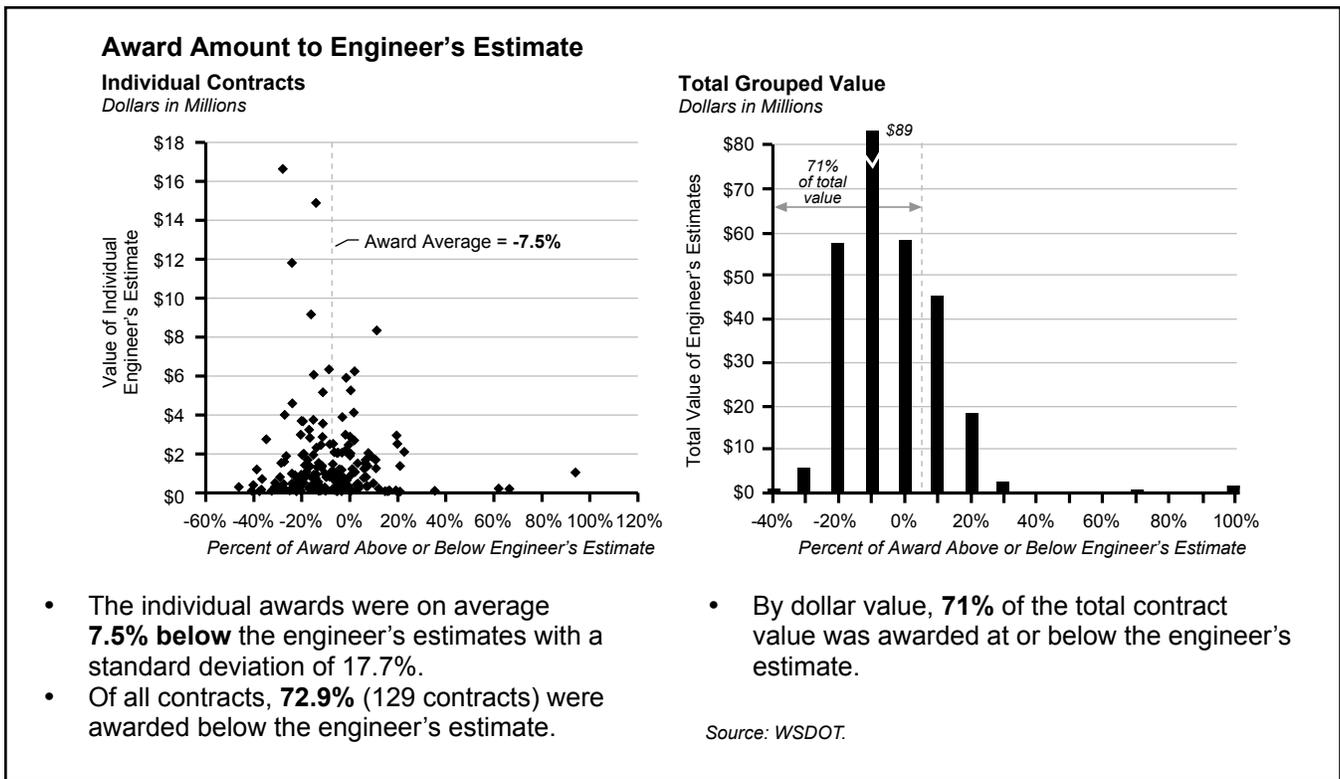
## Awarded Contracts

WSDOT awarded **177** highway construction contracts in this 12-month period.

### Award Amount to Engineer's Estimate

The Engineer's Estimate is WSDOT's estimate at the time of advertisement for work to be done by the contractor. Award Amount is the lowest responsive bid.

The total award amount of the contracts awarded during the 12-month period was \$250,561,516. The total engineer's estimate for these projects was \$277,091,361.



Left: Placing bridge deck concrete in Seattle on Interstate 5 at the northbound Ravenna and N 103rd ramp bridges.

Right: The stormwater vault for the State Route 520 – 40th Street Interchange under construction in Redmond.



# Completed Contracts

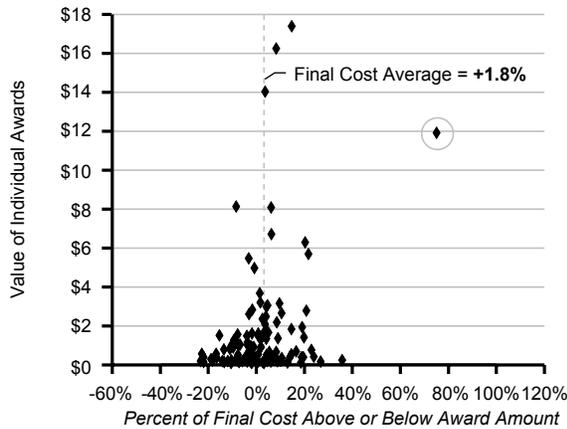
WSDOT completed **122** highway construction contracts in this 12-month period at a total cost of **\$213,953,865**.

## Final Cost to Award Amount

The Final Contract Cost is the amount paid to the contractor at the end of construction.

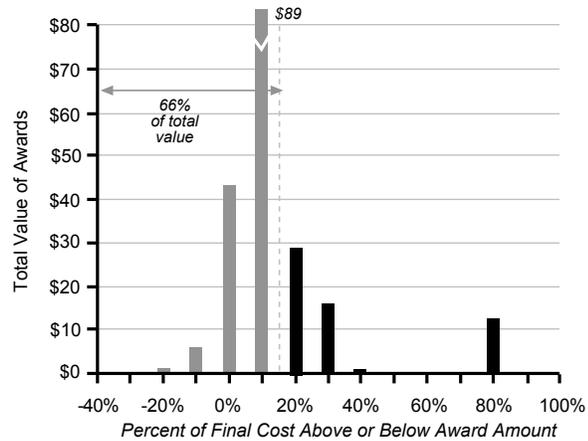
### Final Cost to Award Amount

**Individual Contracts**  
Dollars in Millions



- Looking at individual contracts\*, the average percent amount by which **final cost exceeded** the **award** amount was **1.8%** with a standard deviation of 12.9%.
- Comparing the dollar value of completed contracts (approximately \$214 million) to the aggregate award value (approximately \$196 million), the final cost exceeded award amount by **9.2%** (approximately \$18 million).

**Total Grouped Value**  
Dollars in Millions



- The final cost did not exceed **10% more than award value** for **66%** (\$141 million) of the total value of all contracts.
- Of the 122 completed contracts, the final cost for 98 contracts (**80.3%**) did not exceed 10% more than award value.

Source: WSDOT.

Readers of the "Individual Contracts" chart above will quickly be drawn to the fact that one project (circled) with a final cost of about \$21 million had about a 75% overrun against its award value. This project represents 42% of the total contract overruns from award to final. What happened?

This was the **NE 40th Street Interchange on SR 520** in Redmond. Opened to traffic in October 2000, final contract close-out was achieved in June 2002.\*\*

Construction began in June 1999, but was ordered stopped almost immediately by the City of Redmond – a Red Tailed Hawk nest had been found about 300 feet from where a large stormwater detention pond would be built. The one-month stop work order required re-sequencing of construction, construction of temporary ponds for run-off control, the extension of earthwork into a second summer construction season, and the need to purchase fill when waste fill from the site could not be stockpiled near the nest.

Other problems included design issues around existing and new utility locations. The costs that ran up included temporary traffic control, temporary water pollution control, stormwater runoff treatment costs and charges for schedule recovery. All told, \$9.8 million.

\* The results do not include on-going contracts, including the I-90 Sunset Interchange (Issaquah) and the SR 519 grade separation (Seattle), which remain work in progress.

\*\* Completed: This was the final acceptance date, although it had been opened for traffic earlier.

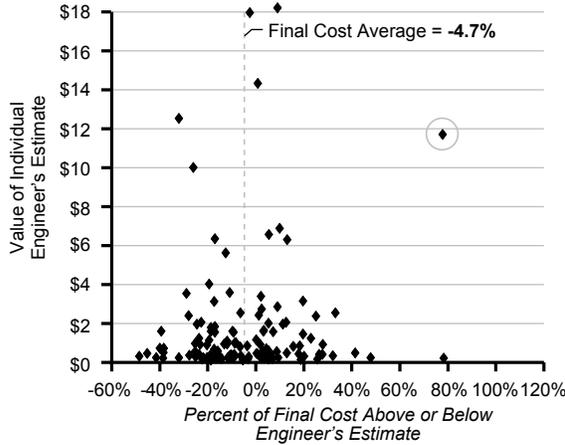
# Completed Contracts

Continued

## Final Cost to Engineer's Estimate

### Final Cost to Engineer's Estimate

**Individual Contracts**  
Dollars in Millions

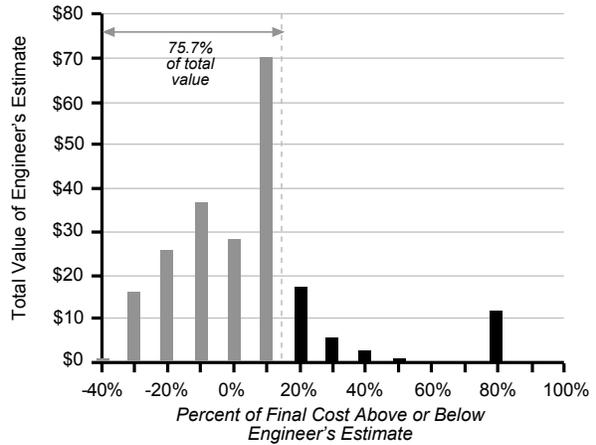


- Looking at individual contracts, **final cost fell below the engineer's estimate** by an average of **4.7%**, with a standard deviation of 21.7%.
- Comparing the dollar value of completed contracts to the aggregate engineer's estimate (\$215 million), the final cost fell below the engineer's estimate by **0.5%**.

See page 5 for explanation for circled diamond.

Source: WSDOT.

**Total Grouped Value**  
Dollars in Millions



- The dollar value of the contracts completed in which final cost was **no more than 10% in excess of engineer's estimate** was **75.7%** (\$162 million).
- The numeric tally of the contracts completed in which final cost was at no more than 10% in excess of engineer's estimate was **81.1%** (99 contracts).



State Route 520 in Redmond, NE 40th Street Interchange Project.



Interstate 90 in Spokane, Sprague Avenue Interchange project.

# Highway Safety Projects: Quarterly Update

WSDOT's safety projects can be described as either safety construction projects or Low Cost Enhancement (LCE) projects. This chart represents on-time delivery of highway safety construction projects. One safety project was deferred last quarter due to budget reductions.

This *Gray Notebook* highlights some safety projects from eastern Washington completed this quarter.

## Safety Construction Program

One of the recently completed safety construction projects is the Interstate 90 ramp terminal signal project located at Barker Road in the Spokane Valley area. This project replaced a stop sign intersection with a controlled signal intersection.

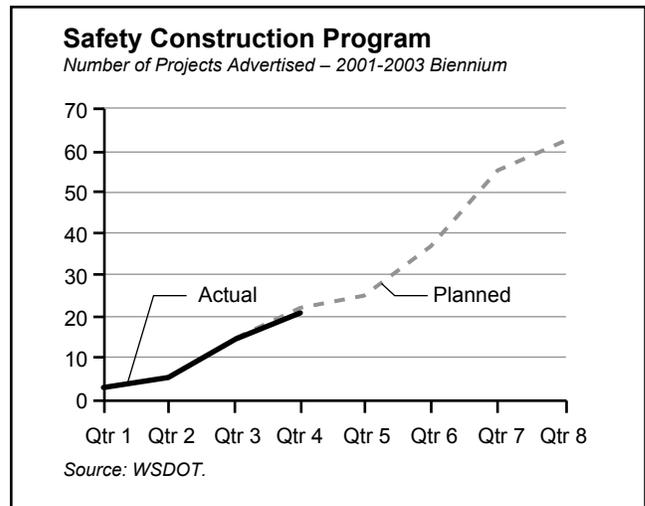
## Low Cost Enhancement Program

The LCE program is designed to allow WSDOT to deliver less expensive projects that provide immediate, sometimes interim, safety improvements to the highway system. Some LCE projects are safety projects that address High Accident Locations or High Accident Corridors. Other LCE projects resolve safety issues that fit the category of emergent needs as they are identified by WSDOT or constituents.

A recent example of a planned LCE is the U.S. 2 Safety Crosswalk Project in Airway Heights. This project involved 23 community groups and agencies. Two Washington Traffic Safety Commission grants supplemented WSDOT's funding. WSDOT installed three crosswalks on U.S. 2 in the busy Airway Heights business district near a shopping district and several bus stops. These are modern crosswalks, with embedded lighting in the pavement, bright signs, and central islands. Before the project was installed, pedestrians had to contend with traffic traveling on two way left turn lanes. Eastern Washington University helped identify the need and location of the three crossings.



U.S. 2 Airway Heights safety crosswalk project.



The Barker Road Terminal Signal Project in the Spokane Valley area.

## Low Cost Enhancements: Emergent Needs

Several safety signs were installed in eastern Washington this quarter as part of the WSDOT and constituent emergent needs portion of the LCE program.

Sample locations and signs included:

- SR 902 school bus stop ahead
- SR 23 curve warning
- SR 21 speed limit
- SR 26 directional signs at intersection
- SR 194 Lower Granite Dam Road closed
- U.S. 395 limited access area
- SR 206 deer crossing
- SR 31 crosswalk and speed limit

# Measuring Congestion: Quarterly Update

In a previous *Gray Notebook* (March 31, 2002), WSDOT reported on its congestion measurement principles (*see box at right*). Since then, real time travel measures captured from in-pavement detection systems have been added to the travel information website for 11 important commute routes in the Puget Sound region ([www.wsdot.wa.gov/pugetsoundtraffic/traveltimes](http://www.wsdot.wa.gov/pugetsoundtraffic/traveltimes)).

Television and radio stations regularly use this information for traffic reports and import the information to their own websites (for example, [www.king5.com/livetraffic/drivetimes.html](http://www.king5.com/livetraffic/drivetimes.html)).

## The Next Challenge – Travel Times: Incident vs. Non-Incident Related Congestion

WSDOT must track progress in reducing congestion and delay caused by traffic accidents and other incidents. WSDOT must also measure the proposed and actual effects of capacity improvements in reducing congestion and delay.

How can WSDOT distinguish travel time impacts from the two types of congestion (*with* incidents and *without* incidents) without having to rely on direct observation and logging of highway circumstances all over the freeway system at all hours of day and night? After considerable data review and analysis, the University of Washington’s Transportation Center (TRAC) has recommended a simple and convenient analytic approach:

*Travel conditions where trips are taking longer than twice as long as free flow travel times are so highly correlated with incident-induced congestion as to provide a useful indirect approximation of incident impacts.*

Using this still experimental approach (labeled today at WSDOT as the *Hallenbeck Theorem*), WSDOT has now analyzed archived data for the year 2001 from its loop detector system for selected commute routes, at both morning and afternoon peak times. From this analysis, WSDOT has derived average travel times with and without incidents. (*See next page.*)

## Travel Time Reliability

Meanwhile, the archived loop data has also been examined to provide key information on travel time reliability. Everyone agrees that when Ms. Smith, a typical driver, wants to plan her trip from Everett to Seattle for a concert, a ballgame, a medical appointment, a business meeting, or her nephew’s birthday, the last of the following questions might be the one she would most like WSDOT to answer:

*“What’s the average time it took drivers for the I-5 portion of their trip from Everett to Seattle last year at this time of day if traffic was **not** backed up from an incident?”*

*“What’s the average time it took drivers for the I-5 portion of their trip from Everett to Seattle last year at this time of day if traffic **was** backed up from an incident?”*

*“I can be a little early, but I can’t be late. How much time should I allow, incident or no incident, if I want to be sure, 95 times out of a 100, that I’ll make it at least within that time?”*

### WSDOT’s Congestion Measurement Principles:

- Use real time measurements (rather than computer models) 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.
- Demonstrate both long-term trends 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?)
- Use plain English to describe measurements.

The number Ms. Smith wants is the **95 Percent Reliable Travel Time**, which has now been computed from 2001 data for the selected commute routes at peak time. For most routes it is longer than the *average* time with incidents. It gives a reasonable approximation of the “worst case” travel time scenario.

<b>95 Percent Reliable Travel Time*</b>						
<i>Based on 2001 Archived Loop Data</i>						
Route	Route Description	Miles	Peak Time	Avg. Travel Time Without Incidents	Avg. Travel Time With Incidents	95% Reliable Travel Time
I-5	Everett to Seattle	23.7	7:25 am	37 minutes	56 minutes	62 minutes
I-405	Tukwila to Bellevue	13.5	7:40 am	22 minutes	34 minutes	43 minutes
SR 167	Renton to Auburn	9.8	4:25 pm	15 minutes	28 minutes	39 minutes

\* **95% Percent Reliable Travel Time:** If a commuter begins the route at the **Peak Time**, she can expect to be on time for work 19 out of 20 working days a month (or 95% of trips), if she allows for the **95% Reliable Travel Time**.

For the complete table of all 11 routes, visit [www.wsdot.wa.gov/accountability/peaktime](http://www.wsdot.wa.gov/accountability/peaktime)

For some routes with consistent performance and infrequent delays, the resulting small sample of “twice free flow time” trips tends to upset the intuitive relationship between average incident related times and the “95 Percent Reliable Travel Time.” In these instances, the “Average Travel Time With Incidents” is longer than the “95 Percent Reliable Travel Time” (for examples of specific routes, visit [www.wsdot.wa.gov/accountability/peaktime/](http://www.wsdot.wa.gov/accountability/peaktime/)).

More information must be gathered and additional analysis will be needed before determining how satisfactorily the loop data conclusions reflect actual recurrent (without incidents) and non-recurrent (with incidents) congestion conditions. This is a report on work in progress. The issues and problems embraced are lively topics in traffic analysis all across the country. WSDOT is examining other states’ work as well as sharing our own. Refinements can be expected.

Nevertheless, work to date suggests the following measurement and tracking objectives:

**Incident Related Travel Time**

Changes in this time should be helpful in determining the effect of efforts to cut down on incident related congestion, for example the recent deployment of new Incident Response vehicles.

**Non-Incident Related Travel Time**

Changes in this number should be useful in measuring the effects of operational (such as ramp metering) and capacity improvements and in setting future performance targets.

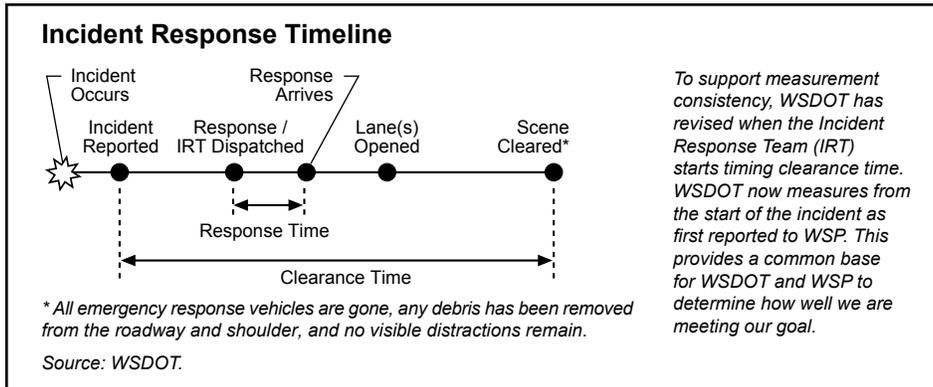
**95 Percent Reliable Travel Time**

This is probably the most important measure for everyday travelers. Changes in this measure should tell travelers, as time goes on, whether efforts to address congestion conditions are making their lives easier in getting where they want to go, and when they expect to get there. On the other hand, more vehicles, more drivers, more trips and attraction of more drivers onto the freeways from arterial routes, will push back congestion relief progress even as capacity improvements can be made.

# Incident Response: Quarterly Update

A major element in WSDOT's efforts to keep traffic moving is to reduce incident related congestion. Since the signing of the Joint Operations Policy Statement (JOPS) between the Washington State Patrol (WSP) and the WSDOT in February 2002, the two agencies are assessing their performance against a new, joint goal of clearing all incidents within 90 minutes.

WSDOT is tracking clearance and response times for all incidents, and is focusing particular attention on those where the clearance time exceeds the 90-minute goal. These are being analyzed for lessons learned.



Fatalities and major incidents like this crumpled car on I-5 in Seattle account for the majority of incidents that take over 90 minutes to clear.

To support measurement consistency, WSDOT has revised when the Incident Response Team (IRT) starts timing clearance time. WSDOT now measures from the start of the incident as first reported to WSP. This provides a common base for WSDOT and WSP to determine how well we are meeting our goal.

In April, WSDOT logged 19 "over-90 minute" incidents; in May, 25 incidents; and in June, 22 incidents. The examples below describe nine of the 66 "over-90 minute" incidents that occurred this quarter.

## Examples of Incidents Over the 90-Minute Goal

Between April 1 and June 30, 2002

### Tacoma Vicinity:

#### State Route 7 near 38th Street

Injury collision involving one vehicle that caused the right shoulder to be closed. Driver/vehicle went through the right-of-way fence into a WSDOT gravel pit. IRT unit had to obtain key to unlock gate in order to remove vehicle. It took 1 hour and 59 minutes to clear the scene.

### Bellevue vicinity:

#### Interstate 405 at Coal Creek Parkway

Injury collision and roll-over blocking the exit ramp that involved two vehicles. Driver of semi reportedly had a heart attack and subsequently ran off the ramp, rolling his tractor/trailer, spilling the load of beer onto the highway. It took 5 hours and 10 minutes to clear the scene.

### Whatcom County:

#### Interstate 5 near Loomis Trail Road

Blocking incident involving one vehicle that closed one lane. Driver reportedly fell asleep, drove into the median, rolled over and lost his load of 6,000 lb. rolls of paper onto the highway and median. It took 10 hours and 45 minutes to clear the scene.

### Clark County:

#### Interstate 5 near 159th Street

Injury collision involving two vehicles that blocked one lane in the southbound direction. Driver collided with a WSDOT truck and fled the scene. It took 1 hour and 56 minutes to clear the scene – both vehicles had to be towed. The driver was later apprehended by a K-9 unit.

### Cowlitz County:

#### Interstate 5 near Dike Road

Blocking debris closed one lane and the left shoulder. Flatbed pickup hauling garbage lost control and rolled, dumping garbage onto travel lanes. It took 1 hour and 58 minutes to clear the scene.

### Clark County:

#### State Route 14 near Schmitt Pit

Injury rollover involving one vehicle that blocked one lane and the right shoulder. Semi was reportedly going too fast to negotiate curve resulting in a rollover. It took 5 hours and 41 minutes to clear the scene.

### Pierce County:

#### State Route 162 near South Prairie

Injury collision involving one vehicle. Driver left the roadway hitting a power pole, which caused live wires to fall across all lanes. It took 2 hours and 2 minutes to clear the scene.

### Lewis County

#### Interstate 5 on-ramp from U.S. 12

Injury rollover that blocked shoulder and ramp area. The driver failed to negotiate curve, rolled over and spilled load of milk. It took 3 hours to clear the scene.

### Pierce County:

#### State Route 512/Canyon Rd. Interchange

Hazardous material spill that blocked two lanes. Driver of semi failed to negotiate curve on Canyon Rd. to SR 512, went through the guardrail and over the embankment and blocked the adjacent on-ramp. Remaining diesel in fuel tanks was pumped. It took 2 hours and 53 minutes to clear the scene.

## WSDOT Activities to Support the 90-Minute Clearance Time Goal

The recently enhanced IRT training now includes:

- 2 days of classroom training.
- 2 days of ride-along training with an experienced IRT driver.
- 1 day ride-along training with a Washington State Patrol trooper.
- 1 day visit to the WSDOT Traffic Management Center and the Washington State Patrol Communication Center.

As of July 1, 2002, 19 additional roving incident response vehicles are operating in the Puget Sound area, Vancouver, Spokane, and on Stevens and Snoqualmie passes. Expanded Motorist Assistance tow truck operators and WSP service patrols are also assigned to segments of I-5.

The next *Gray Notebook* will report on clearance and response times for these expanded incident response services.

# Trucks, Goods and Freight

Tracking measures in this area have long been an underattended issue across the country. WSDOT is now collaborating with the Freight Mobility Strategic Investment Board (FMSIB) and the Freight Mobility Roundtable to address this issue. This *Gray Notebook* presents basic information on truck registrations and permits as initial measures of trucking activity. A preliminary look has also been given to identification and measurement of impediments to truck movements and point-to-point shipper times by truck.

## Are there more large trucks on the road?

The answer is yes – there are more of *every* vehicle type on the road. But the proportion of trucks compared to other vehicles on the road has remained essentially unchanged in Washington in recent years.

## Truck Registrations

Washington state truck and prorate registrations, processed by the Department of Licensing, have increased over the last twenty years. The chart below, and the chart on page 12, represent truck registration trends for fiscal years 1981-2001.

## Typical Truck Sizes by Weight Class



## Heavy Trucks as Share of Total Daily Vehicle Volumes

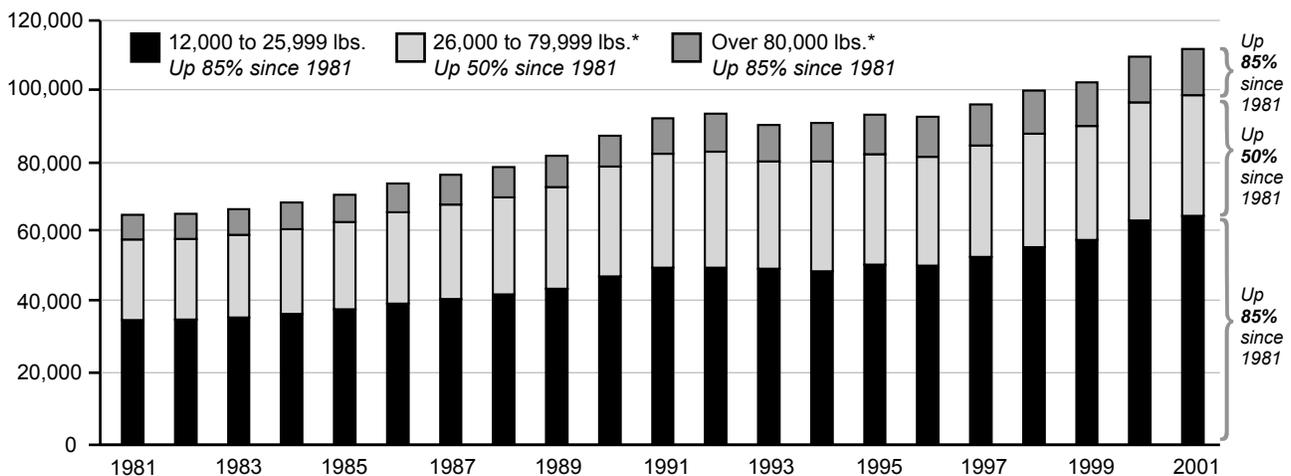
Percent Change: 1994 and 2001

Corridor	1994	2001	Change
Interstate 5 Rural	13.0%	12.4%	- 0.6%
Interstate 5 Puget Sound	4.4%	4.8%	+ 0.4%
Interstate 90 Rural	23.0%	22.0%	- 1.0%
U.S. 97	13.0%	14.0%	+ 1.0%

Source: WSDOT. (based on loop data).

## Number of Registrations for Trucks in Washington Not Registered for Interstate Use

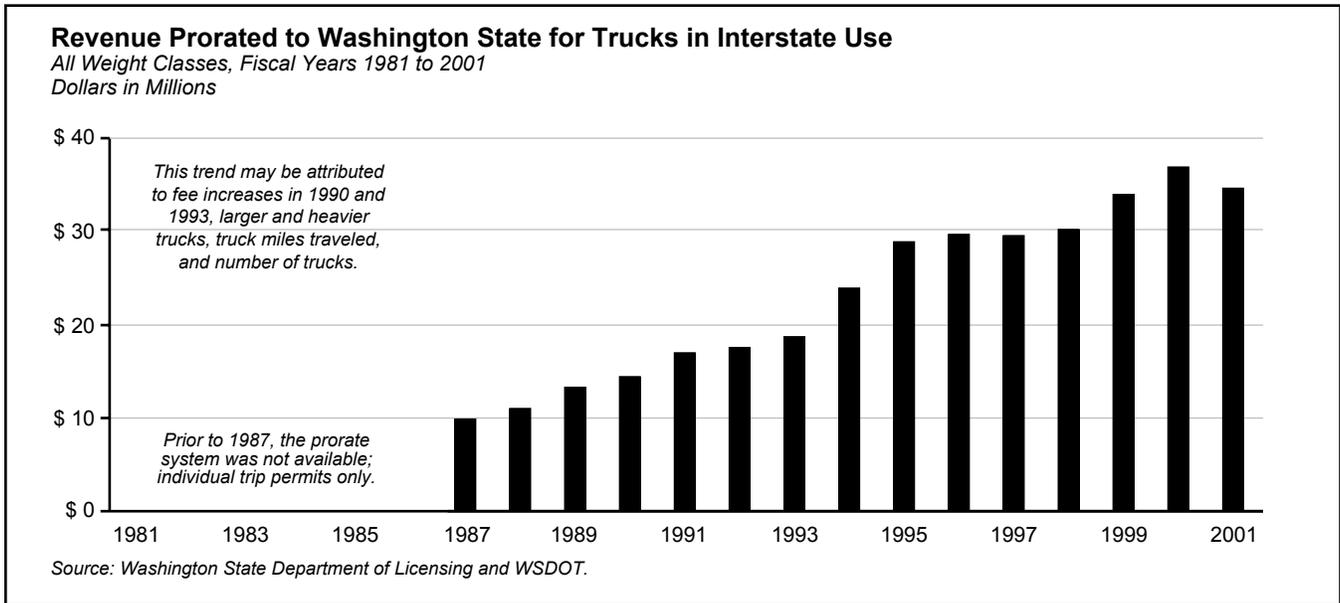
According to Typical Weight Class  
Fiscal Years 1981 to 2001



Source: Washington State Department of Licensing

\* Requires a Commercial Driver's License (CDL).

Trucks in interstate commerce register and pay state taxes based on weight and travel mileage. Receipts are prorated among the states in which the trucks register to travel. Washington's revenue settlements with other states involve distributing and collecting moneys from individual registrations. Available data records total revenues from the interstate registration system but does not provide data about the exact number of types of trucks that have contributed to prorated registration revenues. The growth in registration revenues, seen in the chart below, indicates an overall upward trend in trucking activity.

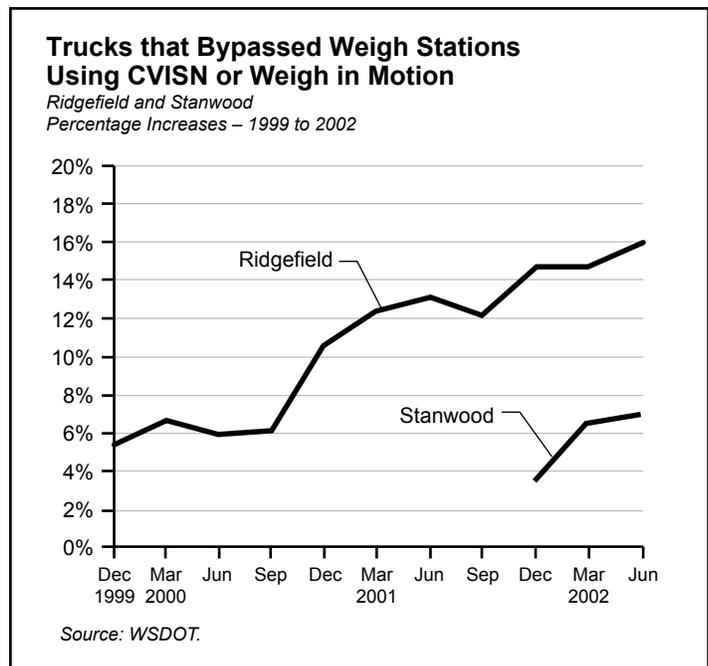


### Intelligent Transportation Systems for Trucks

Washington was the first of three pilot states to successfully implement a Commercial Vehicle Information Systems and Networks (CVISN) system.

Trucks with transponders can now bypass weigh stations by electronically transmitting essential safety rating credentials, weight, and other information to a weigh station. The data is instantly checked out and if no problems appear, the trucker literally gets a green light inside the cab to keep moving without having to pull over. This technology could also be used to measure border travel times.

The chart to the right shows that transponder usage at Ridgefield and Stanwood, both on the Interstate 5 corridor, has increased. In 1999, Ridgefield (north of Vancouver) was the first weigh station in the U.S. to implement this technology; Stanwood (between Marysville

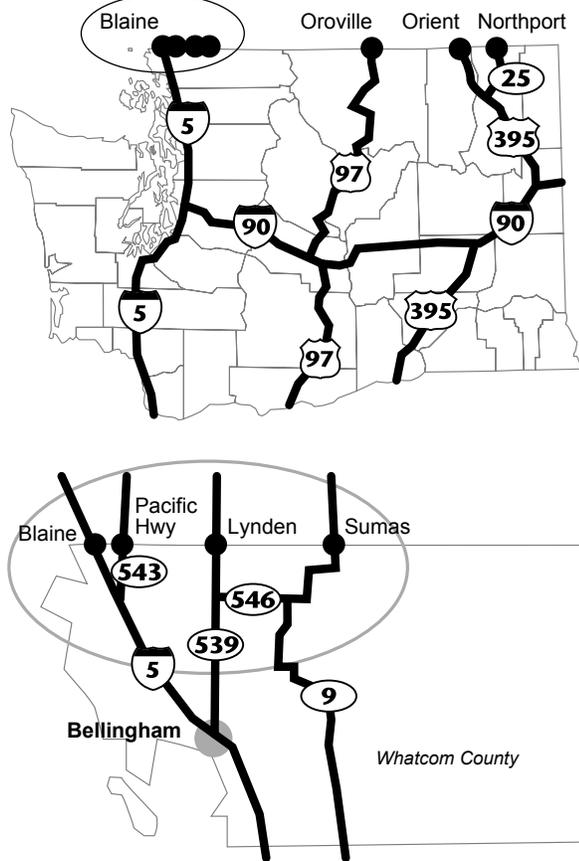


and Mount Vernon) came on-line in December 2001. Other stations using CVISN are Fort Lewis (near DuPont), Bow Hill (near Burlington) on I-5, and Cle Elum on I-90.

## Major Washington Freight Routes and Border Crossings

The number one concern to the trucking community is highway and arterial road congestion. With the advent of just-in-time delivery business practices, getting goods delivered without delay is more important than ever. Truckers want quick and reliable trip times on major freight routes such as I-5, I-90, U.S. 97, and U.S. 395. A significant amount of truck movement has to contend with traveling to and crossing the U.S./Canada border. WSDOT, FMSIB, and the Freight Mobility Roundtable are now developing performance measures for three types of travel times: port-to-border, border crossing, and point-to-point.

### Major Washington Freight Routes and Border Crossings



**Notes:**

The crossing at Blaine accommodates the fourth largest national volume of north border commercial traffic.

U.S. 395 is designated a national high priority corridor and is recognized as an important North-South Freight Corridor.

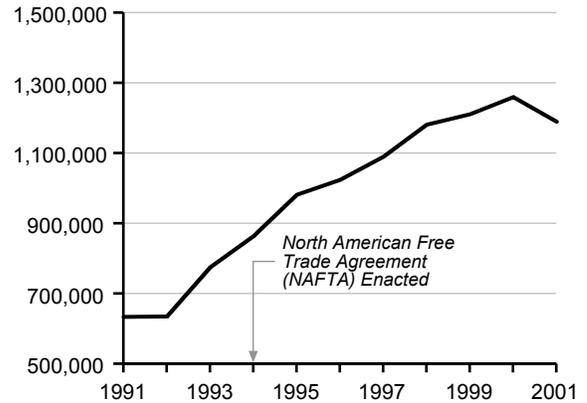
The Strategic Freight Transportation Analysis (SFTA) research study will analyze truck volumes on U.S. 395 and the data will be available later this year.

### Cross Border Truck Volumes

There has been a significant increase in cross border truck volumes from 1991-2001. For ten years, volumes at the border went up approximately 10% a year. This chart also shows a recent decline in truck volumes at the border crossings for the last five quarters.

#### Cross-Border Truck Volumes

*Whatcom County Northbound and Soundbound, 1991-2001*



Source: U.S. Customs Service and Statistics Canada.  
Compiled by Whatcom Council of Governments.



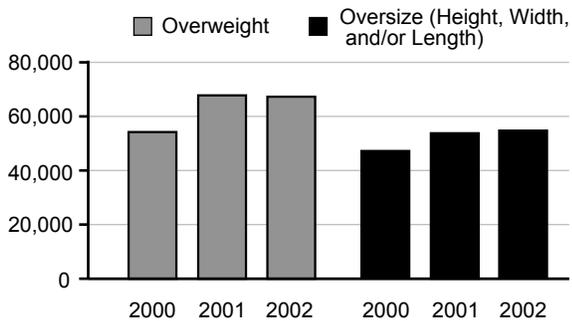
This photo shows the U.S./Canadian border truck crossing on State Route 543 (Pacific Highway) in Blaine on Friday, August 2, 2002, just before noon. Trucks going into Canada can only use the State Route 543 crossing. This traffic camera can be found at [www.wsdot.wa.gov/traffic/](http://www.wsdot.wa.gov/traffic/)

### Overdimensional Permits

WSDOT implemented an electronic permit issuance system in 1999 to save time and money for both truckers and WSDOT. Permits issued in Washington state for both oversize and overweight trucks have increased significantly for fiscal year 2000 to 2001, but held about steady for 2001 to 2002.

#### Number of Overdimensional Trucking Permits

Fiscal Years 2000 - 2002



Source: WSDOT.

### Impediments to Truck Shipping on the State Highway System

Structural impediments to truck use on the state highway system matter to truckers, WSDOT and local communities. An example of a structural impediment is a bridge with posted weight restrictions below legal load limits. Other impediments include restricted bridges and vertical clearances on bridges.

There are also 130 restricted bridges on the state system. Restricted bridges are bridges that can only support legal loads. Overweight permits are not issued for these bridges.

Photo: Typical weight restriction sign. This particular sign is for the Murray Morgan Bridge on 11th Street in Tacoma.



### Leading Bridges in Washington With Posted Weight Restrictions Below Legal Load Limitations

Route	Bridge Name & Location	Limitations
99	Alaskan Way Viaduct Northbound and Southbound Seattle	No Over Legal Axle Weights – 105,500 lbs. Weight Limit. Each single axle not to exceed 20,000 lbs. Tandem axles not to exceed 34,000 lbs. Trucks and buses to travel in right lane only.
165	Carbon River, 0.5 mile north of junction with Carbon River Road	Trucks: 50,000 lbs. Truck/Semitrailers: 72,000 lbs. Truck/Trailers: 80,000 lbs.
240	Yakima River, 1 mile north of junction with U.S. 12	No Over Legal Axle Weights – 80,000 lbs. Weight Limit.
241	Mabton - Sunnyside #650 1.3 miles from junction with SR 22	Trucks: 28,000 lbs. Tractor/Semitrailers: 36,000 lbs. Truck/Trailers: 44,000 lbs.
509	Murray Morgan, Tacoma	20,000 lbs. Weight Limit.
530	Sauk River Bridge, 5.5 miles south of Rockport	No Over Legal Axle Weights – 80,000 lbs. Weight Limit.

Source: WSDOT.

### Managing Overdimensional Truck Loads to Keep Traffic Moving and Prevent Damage to the Highway

To facilitate the movement of overdimensional vehicles on state highways, WSDOT issues permits with travel time and route specifications. WSDOT limits overdimensional transport to non-peak traffic times to minimize traffic congestion and improve traveler safety. The load is also routed around bridges that cannot safely support its weight, as well as tunnels or

underpasses that cannot accommodate its dimensions. A truck or load needs special consideration if it is wider than 8 feet 6 inches, taller than 14 feet, longer than 40 feet, or has a trailer longer than 56 feet. Approximately 125,000 of these large loads are given permits for transit on Washington state highways each year.

# Highway Maintenance: Quarterly Update

## Pavement Striping

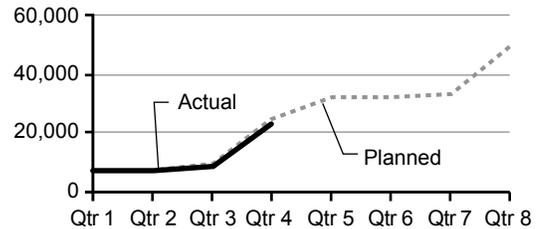
Wear and tear requires that stripes must be repainted each year.



See the story on how stripes are painted on page 16.

## Pavement Striping

Miles of Roadstripe Painted  
2001-2003 Biennium



Note: The planned, annual miles of painted stripe was reduced to 24,260 due to the replacement of 255 miles of painted stripe with durable markings in 2001 that do not require annual re-painting.

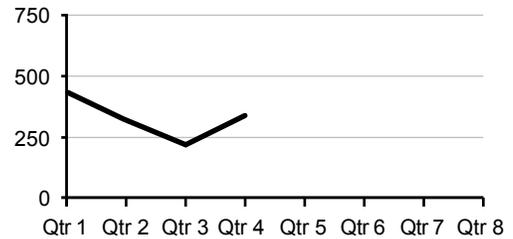


## Litter Removal

Litter, debris, and animal carcasses must be removed from highways and roadsides. Pickup and disposal activities are carried out by highway maintenance personnel, citizen volunteers (Adopt-a-Highway Program), Dept. of Corrections work crews, and members of the Dept. of Ecology Youth Corps. (See March 31, 2002 Gray Notebook for more details.)

## Tons of Litter Removed from State Highways

2001-2003 Biennium



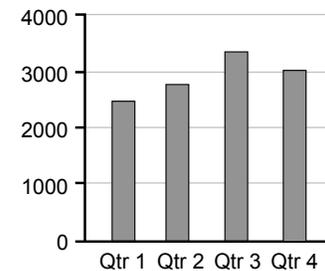
## Highway Sign Maintenance

Maintenance on highway signs includes repairing or replacing damaged signs or posts and washing signs that are not readable. Highway signing contributes to motorist safety and convenience by giving information on roadway regulations, routes, destinations, and services.



## Number of Maintenance Actions on Highway Signs

2001-2003 Biennium

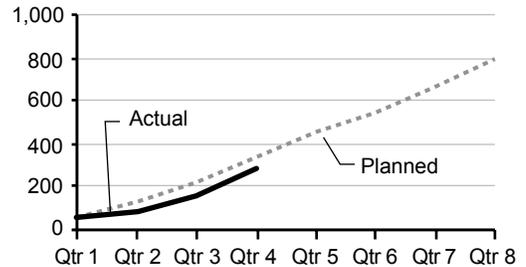


## Sign Bridges

Sign bridges are structures used to mount large signs over or near highways. These structures periodically need repairs of loose or rusted bolts, bracing, and foundations.

## Repairs of Sign Bridges

Number of Sign Bridges Repaired  
2001-2003 Biennium



Source for all charts: WSDOT.

## Why Hadn't Anybody Else Thought of This? (WSDOT's Jerry Lowery Did!)

Debris on the roadways is dangerous to motorists. But removing debris, especially on heavily traveled high speed freeway lanes, can be an everyday life-threatening experience for highway maintenance workers.

In 2001, Jerry Lowery of WSDOT's Lakewood Maintenance Shop, designed a new truck attachment that might be thought of as a 21st century cowcatcher. Jon Moergen of WSDOT's Tacoma Narrows Bridge maintenance crew, built Jerry's debris pusher, which is mounted on the plow attachment. A maintenance truck can now swoop in at highway speeds on the remnants, say, of a large tire in the travel lanes. Without even stopping his truck, to say nothing of dodging speeding vehicles on foot on the highway, the maintenance worker can maneuver the debris to the roadside for safe and convenient disposal in the truck bed.

Jerry won the 2001 Crystal Mouse Award from WSDOT's Washington State Technology Center for his innovation. No counterpart has been found in any of the equipment catalogs. At least three other state transportation departments, after writing for Jerry's plans, have added debris pushers to their maintenance fleets.



## How Do They Paint the Stripes So Straight?

Drivers depend upon paint striping to guide their vehicles down the road. Straight lines contribute importantly to safe highway operation. But how are these straight lines produced?

Painting a straight line requires teamwork, sophisticated equipment and total concentration. The striper truck driver and the two "gunners" who control the spray guns for the centerline and the edge line (as well as all the support trucks) are in constant radio communication. The gunners must start the flow of paint at the precise instant and location where it's needed, so they concentrate on the line they are creating, watching the paint as it covers the road surface or the existing stripe. The striper truck driver tells the gunners when a striping pattern is going to change. The support trucks help protect the crew from traffic behind them, and inform them of upcoming wide loads, narrow bridges, long queues of vehicles behind the striper, or other "obstacles" they may encounter.

The driver's equipment includes a video camera, a video monitor, (which is used about half the time to navigate the truck) and a sight similar to a gun sight. The gunners' equipment, in a booth mounted on the back of the truck, includes a specially programmed computer that creates different types of lines, and specialized spray guns controlled by steering wheels and switches. All of this equipment is on a truck designed to provide extra directional stability.



# Aviation Division

The Aviation Division directs air Search and Rescue (SAR) missions, registers aircraft and pilots, maintains 16 state-owned airstrips, administers Airport Aid Grants, and provides aviation planning support to cities and counties. WSDOT is currently working with a newly formed advisory committee, the Aviation Alliance, to develop performance measures related to these responsibilities.

## Airports in Washington

There are 129 public use airports in Washington.

- 13 airports provide commercial service.
- Cities, counties, and port districts own most airports.
- WSDOT owns 16 small emergency airstrips in the Cascades Mountains, along the Snake River, on the beach in Copalis, and other locations.
- WSDOT airstrips are used for emergency landings only – no commercial flight services are available.
- A few of WSDOT’s airstrips have full-time caretakers. WSDOT crews or volunteers mow and maintain the airstrips; only two are paved.



## State-Owned Airports



## Pilot and Aircraft Registration

Only 8,900 of Washington’s 24,000 Federal Aviation Administration (FAA) registered pilots are currently registered with WSDOT. Registration with WSDOT is required in this state, but there is little public education about the program and no enforcement. WSDOT’s new outreach coordinator will help improve registration rates. As a first step, on-line registration will be available soon.

Pilots who pay the \$8 annual fee to register with WSDOT receive a copy of the *Pilot’s Guide to Washington Airports* detailing general airport information (navigation information, aerial photographs of 137 airports, airport radio frequencies, type of fuel and services available) and the *Flight Plan* newsletter.

Aircraft registration is also low with only 4,582 aircraft of the 10,000 aircraft in Washington registered. Aircraft owners pay an average of \$43 a year, based on an airplane excise tax schedule.

Registered Pilots and Aircraft					
	FY97	FY98	FY99	FY00	FY01
Pilots	9,740	10,254	9,747	9,485	8,961
Aircraft	4,440	4,687	4,768	4,644	4,582

Source: WSDOT.

In 2001, \$70,000 of pilot registration fees was collected to fund Air Search and Rescue Program and education, and \$60,000 in aircraft registration fees funded aviation grants.

## Air Search and Rescue

When an aircraft is lost, WSDOT directs the search in coordination with the U.S. Air Force, law enforcement, and Washington Air Search and Rescue (WASAR) volunteers. WSDOT sets up the base command center, coordinates rescue pilots, and works with the military to pick up electronic locator transmitter (ELT) signals to pin point the location of the lost aircraft. Pilot and aircraft registration fees that are collected by WSDOT fund the SAR program and air safety education.



### Search and Rescue

WASAR was established to support air search and rescue activities coordinated by WSDOT's Aviation Division. WASAR contributes 400 state qualified search pilot volunteers, observers, and air vehicle owners and over 200 privately owned airplanes. Members and their equipment are available 24-hours-a-day to support air SAR activities. Search flying requires careful teamwork. Most search flying is done at a 500-1000' altitude and 70-80 knots. During a search, a two pilot-observer team might typically be assigned a 7.5 minute by 7.5 minute (about 5 by 7.5 nautical miles) grid box that might take two hours to cover.

### Training

The most popular air safety education course offered by WSDOT is the annual Mountain Flying Clinic that provides pilots with an opportunity to learn high country flying techniques in the Cascade Mountain Range. Each year WSDOT sponsors flight instructor refresher clinics, mechanic inspection renewal clinics, emergency preparedness and survival training, mountain flying seminars, and search and rescue training clinics.

### WSDOT Grants to Airports

WSDOT Local Airport Aid grants provide funding for essential maintenance and pavement preservation projects. The program is funded by the 7.5¢ tax per gallon on aviation gas. Approximately \$1 million is available each year for WSDOT airport grants, however the impact of September 11th has reduced average fuel sales. The Airport Aid Grant Program awarded \$1.5 million to 37 airports this biennium.

### Rogersburg Airstrip Opened for Emergency Landings (and Fishing!)

Rogersburg is a scenic backcountry airstrip in southeast Washington alongside the Snake River. The airstrip was closed in 1996 and successfully reopened this quarter, May 13, 2002, with the help of volunteers. Last year's



attempt to open the strip went awry when the volunteer's lawnmower caught fire and spurted burning fuel onto grass and thatch. Over 600 acres were damaged

by fire. In November, volunteers, eager to see this airstrip open again, reseeded approximately 200 acres with 3,000 pounds of grass seed. Pilots look forward to using this airstrip again to access popular fishing spots on the river.

Additional information about Rogersburg, as well as all the other state-owned airports, is available at the Aviation Division web site: [www.wsdot.wa.gov/aviation](http://www.wsdot.wa.gov/aviation)

### Pilot and Mechanic Refresher Courses

Total Trained

FY 98	FY99	FY00	FY01	FY02
297	309	492	466	462

Source: WSDOT.

### Taxable Gallons of Aviation Fuel

Fiscal Years 1995 - 2001

Total Gallons in Millions

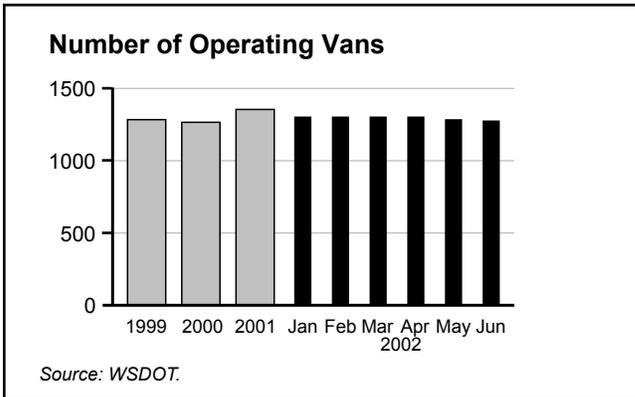
FY95	FY96	FY97	FY98	FY99	FY00	FY01
26.2	27.1	32.6	29.8	35.9	25.1	22.9

Source: WSDOT.

# Commute Trip Reduction: Quarterly Update

## Vanpools in the Puget Sound Region

The number of public vanpools on the road in the Puget Sound region has declined 2 percent since January. If this trend continues for the year, 2002 will be only the second year with declining vanpools since the public system began nearly 23 years ago. Since 1998, the number of vanpools on the road is up 8.3 percent. Despite the overall decrease, one type of vanpooling, the *VanShare* program (the use of vans as connections between trains and ferries) continues to expand.



## Quarterly Regional Vanpool Highlights

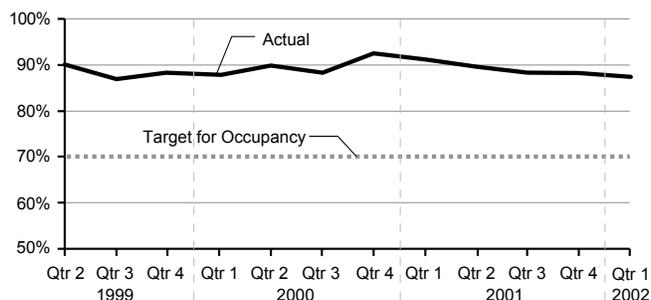
- To reverse the recent vanpool declines, several operators have begun offering rider incentives, including providing the first month free.
- Washington State Ferries, King County Metro Transit, and Kitsap Transit are partners in a program that puts vanpool and carpool information from Metro and Kitsap Transit on the ferries serving Bainbridge, Bremerton, Vashon, and Southworth. Commuters on these routes are being introduced to the newest commute service, *VanShare*, which places vans at both ends of ferry routes heavily used by commuters to give commuters a ridesharing option.
- Federal agency incentives continue to offset some vanpool group losses. For example, Pierce Transit added 24 new federal employee riders this quarter.
- WSDOT has rented 76% (38 vans) of its vanpool rental fleet to meet the short-term needs of the vanpool operators. This includes all five vans currently operated by Skagit Transit's new vanpool program.

## Park & Ride Lot Occupancy at WSDOT-Owned Sites in King County

Crowding of Park & Ride lots continues to constrain increased ridesharing. During the first quarter of 2002, the average occupancy for the nearly 8,000 parking spaces in 31 WSDOT lots was 87%. At occupancy levels above 70%, risk of not finding a parking space becomes an issue for potential users and discourages expanded use of vanpooling and transit.

### WSDOT-Owned King County Park & Ride Lots

Percent of Capacity Used: 1999-2002\*



Source: WSDOT.

Almost two-thirds (65%) of WSDOT's Park & Ride lots in King County were more than 70% full during the quarter.

Parked cars exceeded maximum capacity at seven lots, down from 10 lots over capacity last quarter.

\*Data availability has a lag of three months to allow the transit systems to collect and analyze the data. Data for the second quarter of 2002 will be available in the next Gray Notebook.

## CTR Overview

Washington law requires employers with more than 100 employees, located in nine Washington counties, to participate in a program to decrease energy consumption, improve air quality and reduce traffic congestion by reducing commute trips.

WSDOT supports this program with direct and indirect assistance to the employers to encourage voluntary participation in the program. A tax credit was available in the years 1994-1999 which acted as an incentive for voluntary participation. Many employers involved in the program report economic benefits from the program, for example, reduced costs of providing parking for commute vehicles.

## Carpools and Vanpools Help Offset Closures of Ferry Terminals During Construction

During the upcoming three-week closures of the Southworth and Fauntleroy terminals (September 21 to October 14, 2002), WSF, King County Metro, and Kitsap Transit will team up to help commuters. Registered vanpools and carpools will be able to use free parking in downtown Seattle and at Southworth, enabling commuters to use the temporary walk-on ferry service provided at Southworth and try *VanSharing*. King County Metro will also provide commuter vans at Seattle's Colman Dock to all existing Metro vanpool groups during the closure.



Vanpools enjoy guaranteed loading on ferry sailings.

### Driving Alone: Comparative Data from the 2000 Census

Recently released 2000 census data provided "drive alone" commuting rates for each state and the country as a whole. The nation's "drive alone" rate went up since 1990 by over 3% to 76%. *Every state showed an increase.* Washington's increase, however, was only 0.24%, the lowest increase in the country, virtually equal to the Oregon increase of 0.25% and well below California's increase of .80%. Washington improved 11 places from 1990 to 2000. Compared with the 2000 statewide commuting "drive alone" rate of 74.1%, employees at CTR participating worksites have a "drive alone" rate of only 64.9%, down from 73.9% a few years ago.

Source: 2000 Census Supplementary Survey.

State	Drove Alone (2000)	2000 Rank	Drove Alone (1990)	1990 Rank	Change in Drive Alone Share
<b>U.S.</b>	<b>76.3%</b>		<b>73.2%</b>		<b>3.1%</b>
Alabama	84.6%	1	79.2%	1	5.4%
Michigan	83.7%	2	81.5%	2	2.2%
Idaho	76.1%	36	74.8%	23	1.3%
Utah	75.8%	37	73.9%	29	1.9%
Montana	75.1%	38	71.7%	41	3.4%
Wyoming	74.8%	39	73.8%	32	1.0%
Arizona	74.3%	40	73.6%	33	0.7%
<b>Washington</b>	<b>74.1%</b>	<b>41</b>	<b>73.9%</b>	<b>30</b>	<b>0.2%</b>
Oregon	73.6%	42	73.3%	36	0.3%
Massachusetts	73.5%	43	72.1%	39	1.4%
Maryland	73.3%	44	69.8%	47	3.5%
Illinois	73.2%	45	69.9%	46	3.3%
California	72.4%	46	71.6%	43	0.8%
New Jersey	72.3%	47	71.6%	42	0.7%
Alaska	68.8%	48	62.5%	48	6.3%
Hawaii	66.8%	49	60.5%	49	6.3%
New York	55.7%	50	54.3%	50	1.5%
District of Columbia	40.0%	51	35.1%	51	4.9%

### Employer Highlight

SAFECO offers its employees a FlexPass that gives them unlimited rides on Metro, Community Transit, Sound Transit, and Pierce Transit.



In 2001, SAFECO implemented a new Vanpool Incentive Program, which attracted 180 new vanpoolers and removed more than 78,000 commute

trips a year from the roads. Nearly 40% of SAFECO employees use a commute alternative, reducing the need for 575 parking stalls on the Redmond campus and over 700 spaces at SAFECO Plaza in Seattle's University District.

### National Award for the Commute Trip Reduction Program

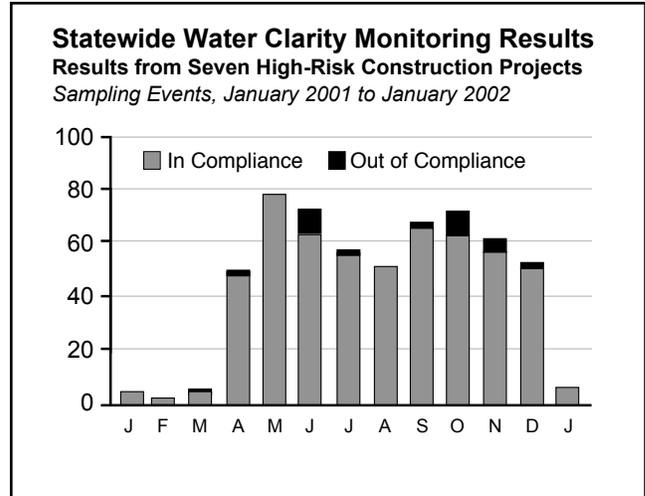
Recently the U.S. Department of Transportation commended WSDOT and ten other public and private sector organizations for expanding transportation choices for commuters. WSDOT, the only state department of transportation recognized, received the award for the Commute Trip Reduction Program.

Mary Peters, Federal Highway Administration Administrator, said of the award, "By improving the choices available for commuters to get to work, these pioneer agencies are playing an important role in reducing the overall impact of congestion and protecting the environment."

# Protecting Streams from Construction Site Erosion and Runoff

## Summary of 2001 Pilot Project Monitoring Results

In 2001, WSDOT took weekly water quality samples upstream and downstream from seven critical construction projects for erosion and sediment control. Tabulating the weekly samples into monthly summaries, the accompanying chart illustrates that more than 95 percent of 578 sampling events proved streams to be free from violations of permit conditions for the construction activities; 32 samples (5.5%) showed non-compliance. More than half (18) of the problems occurred in June and October. Fourteen of those high readings were associated with heavy rainfall events (mostly ½- to 1-inch storms) and four were associated with unavoidable in-water work. Most of the other problems occurred in November and December as large, prolonged storms (1-3 inches of rain/day) overwhelmed the design capacities of approved Best Management Practices on fully winterized areas. In all cases the non-compliance readings prompted immediate corrective actions to regain and maintain compliance with water quality laws.



Source: WSDOT.

## Revised Monitoring Standards for 2002

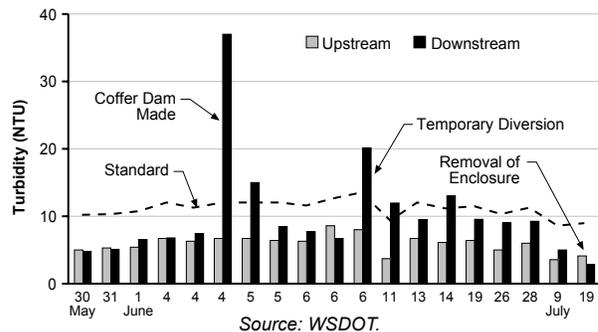
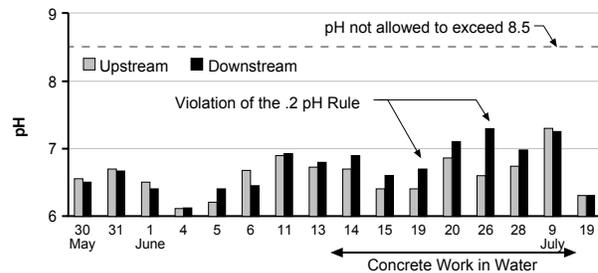
The pilot monitoring work in 2001 showed the need for greater standardization in monitoring and reporting. New protocols were developed to improve consistency in sampling methodology and formalize regulatory reporting. The following report on an I-90 West Ellensburg bridge repair shows the information format for the current construction season. Additional information on 2002 results will be available in a future *Gray Notebook*.

### Temporary Cofferd Dam Protects Wilson Creek During Bridge Repairs, I-90 – West Ellensburg

Concrete work to repair bridge supports can cause critical in-stream pH jumps. At Wilson Creek, repairs to an I-90 bridge were performed with a temporary steel coffer dam and water treatment pond. While concrete was being placed, pH levels inside the dam reached as high as 9.5, well above the 8.5 limit. But in the protected, adjacent stream, levels never exceeded 7.5. It is also required that downstream pH not exceed the upstream measurement by more than .2 pH. This stringent requirement was also met except on two days.



Upstream to downstream changes to the turbidity of the stream were also measured. Instances of temporarily exceeding the turbidity standard were associated with the installation of the coffer dam itself and a couple of instances of construction activity.



Source: WSDOT.

# Washington State Ferries: Quarterly Update

## Customer Feedback

WSF collects customer complaints, compliments, comments, and suggestions. This information is recorded in the Automated Operating Support System (AOSS) database for measurement and action, based on date base cross tabulation and analysis.

The charts show trends in the data for the last three fiscal years, the four quarters of fiscal year 2002, and the 2002 summary.

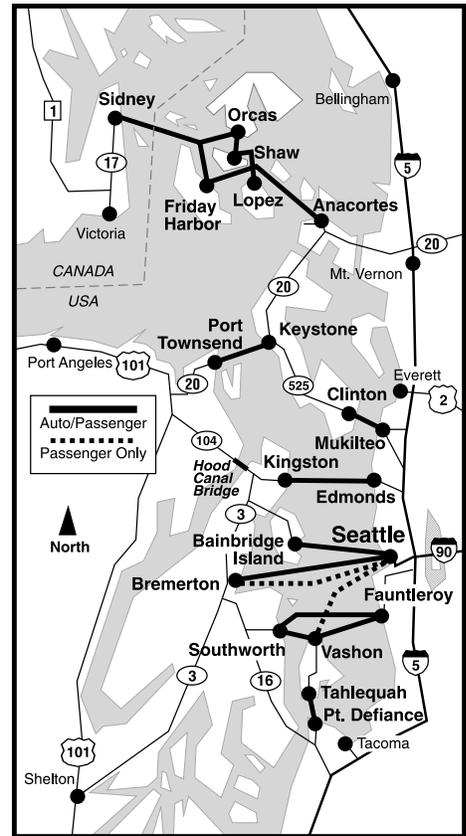
While fourth quarter complaints were down 8 percent from the previous quarter, the year-end FY 2002 summary shows an overall increase in complaints of about 35 percent compared to FY 2001.

For the quarter, the largest category of complaints was on-time performance. These as well as a large volume of loading/unloading complaints were related to a service failure in May on the Seattle/Bainbridge that led to capacity downsizing on that route and single vessel service on the Bremerton/Seattle route for one day on May 7.

For the entire year, WSF received 413 complaints related to ticket issues, compared to 135 in the preceding year, as customers reacted to tariff increases. Compliments increased 23 percent in FY 2002 over the previous year.

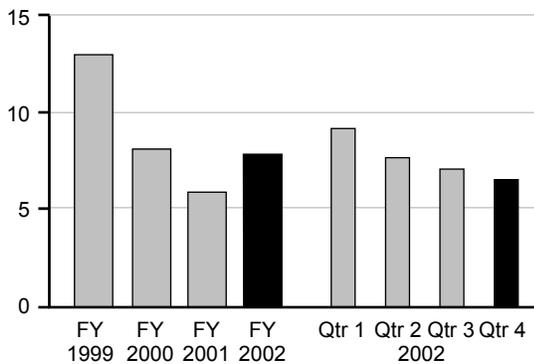


Washington State Ferries carry other vehicles besides cars and bicycles. In the San Juans and other island locations, big trucks still need to take a ride to get to the job site and deliver their materials. In some special cases, ferry runs are provided to get larger and/or hazardous cargo (i.e., gasoline for service stations) to island businesses.



### Total Customer Complaints

Complaints per 100,000 Customers\*

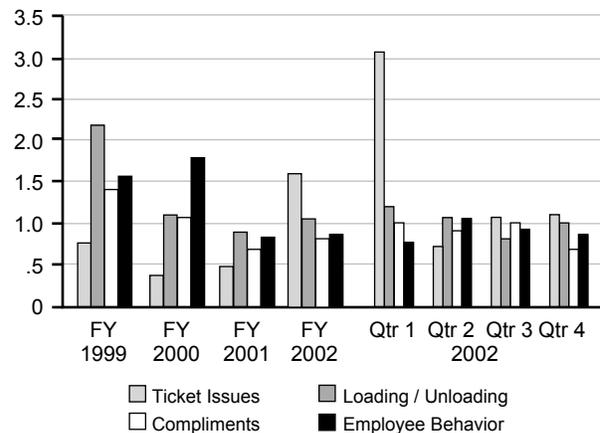


\*Does not include compliments or suggestions.

Source for all charts: WSDOT.

### Most Frequent Customer Comments

Top Four Comment Types per 100,000 Customers  
Fiscal Year 2002, Fourth Quarter



## On-Time Performance

Washington State Ferries has now collected on-time performance data for four quarters of fiscal year 2002. The table below depicts WSF on-time performance across the system for the third and fourth quarters, and for the entire fiscal year. Fourth quarter on-time performance declined from the preceding quarter. This was primarily due to vessel related service problems on the Fauntleroy/Vashon/Southworth route and temporary vessel assignments on the Bainbridge/Seattle and Bremerton/Seattle runs.

### On-Time Performance Delivery

*A trip is considered to be on time if it departs within ten minutes of the published scheduled sailing time. Missed trips are not reported in this measure. They are included in the following measure (Trip Reliability).*

Route	Third Quarter Fiscal Year 2002			Fourth Quarter Fiscal Year 2002			Totals for Fiscal Year 2002		
	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	Number of Trips	Percent of Trips Within 10 Minutes of Schedule	All Trips Average Delay From Scheduled Sailing Time
San Juan Domestic	6,478	92%	2.0 minutes	6,575	88%	3.4 minutes	26,716	84%	4.5 minutes
International Route	175	82%	4.3 minutes	209	71%	8.6 minutes	901	81%	5.7 minutes
Edmonds/Kingston	4,329	96%	2.5 minutes	3,844	93%	3.4 minutes	17,078	92%	3.5 minutes
Passenger-Only: Seattle/Bremerton	1,604	95%	2.7 minutes	1,658	96%	2.9 minutes	6,507	96%	2.9 minutes
Passenger-Only: Seattle/Vashon	971	99%	1.9 minutes	1,054	99%	1.9 minutes	4,043	98%	2.2 minutes
Fauntleroy/Vashon/Southworth	10,569	95%	2.9 minutes	10,317	87%	4.3 minutes	41,708	91%	3.7 minutes
Keystone/Port Townsend	1,171	97%	2.0 minutes	2,092	94%	3.0 minutes	7,970	92%	3.3 minutes
Mukilteo/Clinton	6,460	99%	1.7 minutes	6,477	98%	2.2 minutes	26,176	98%	2.0 minutes
Point Defiance/Tahlequah	3,042	93%	3.2 minutes	3,043	90%	3.6 minutes	12,207	91%	3.5 minutes
Seattle/Bainbridge Island	4,114	94%	3.8 minutes	4,094	87%	5.2 minutes	16,366	88%	4.8 minutes
Seattle/Bremerton	2,481	99%	2.4 minutes	2,392	98%	2.1 minutes	9,863	98%	2.5 minutes
<b>Total</b>	<b>41,394</b>	<b>95%</b>	<b>2.6 minutes</b>	<b>41,755</b>	<b>91%</b>	<b>3.5 minutes</b>	<b>169,535</b>	<b>92%</b>	<b>3.5 minutes</b>

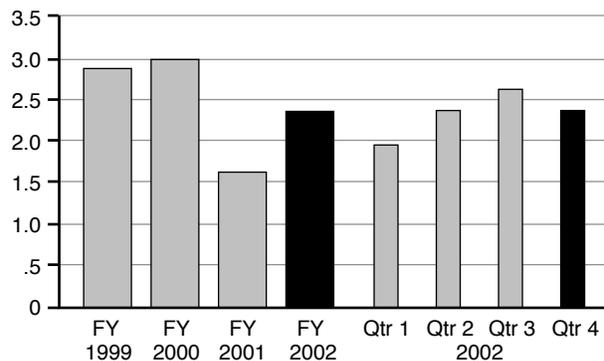
## Trip Reliability

WSF scheduled 44,406 trips during the fourth quarter of fiscal year 2002. Of these trips, 262 were cancelled.

The chart below shows a system-wide average reliability index. Assuming that a commuter worked 200 days per year and made 400 trips on WSF, the statistical likelihood is that 2.3 ferry trips would be cancelled. This rating represents an improved reliability rating from the preceding quarter. The full-year results shows that FY 2002 did not attain as good a trip reliability record as FY 2001, although it remained much better than FY 1999 and FY 2000. Vessel-related cancellations were up 82% in the fourth quarter.

### Trip Reliability Index

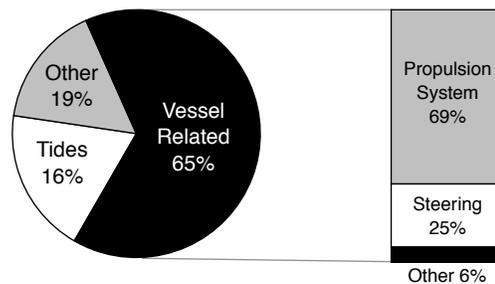
Missed Trips per 400 Sailings



Nearly one third of all vessel related cancellations during the fourth quarter were the result of problems with the Chelan. The Chelan experienced propulsion and steering system related problems on April 24, 2002 while operating on the Fauntleroy/Vashon/Southworth run. As a result, WSF was forced to reduce service to a two-boat schedule and a total of 58 trips were missed that day before the problem was resolved.

### Most Common Trip Cancellation Causes

Fourth Quarter, Fiscal Year 2002



The Fauntleroy/Vashon/Southworth route is the busiest in the system. Nearly one-quarter of all trips made by WSF occur on this triangular route structure. A single vessel failure can have a dramatic impact on the trip delivery performance for the entire system.

Source: WSDOT.

## Ridership and Revenues

The Legislature's Joint Task Force on Ferries, comprised of legislators, citizens, ferry management, and ferry workers was formed in 2000. The Task Force reviewed the workings of the WSF system and made recommendations including tariff increases designed to raise the farebox recovery rate to 80 percent of operating costs over six years. The Transportation Commission instituted this recommendation and WSF implemented the first tariff increase of 20 percent on June 3, 2001, with another fare increase of 12.5 percent on May 12, 2002.

WSF forecasted that ridership should fall from the previous year because of the fare increase, but that the amount of total fares would go up. In fact, both ridership and revenues have consistently exceeded forecasts during fiscal year 2002.

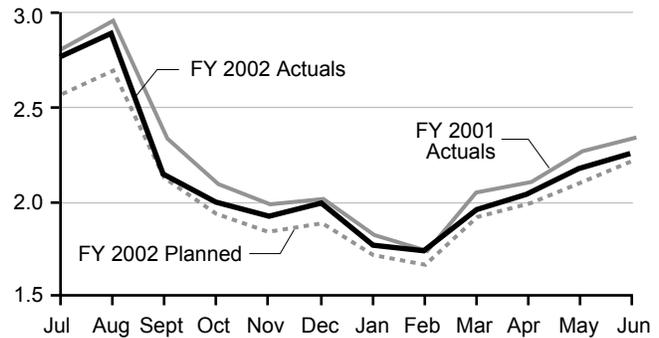
### Note to Ridership and Farebox Charts:

Fiscal year 2002 ridership exceeded the forecast plan by 3.8% or 928,000 riders. Revenues exceeded the forecast plan by 6.6% or \$6.7 million. (Plan based on June 2001 forecast).

In anticipation of the May 2002 fare increase, frequent riders stocked up on 90-day coupon books causing a spike in revenues. Farebox revenues in June were much closer to the June 2001 plan.

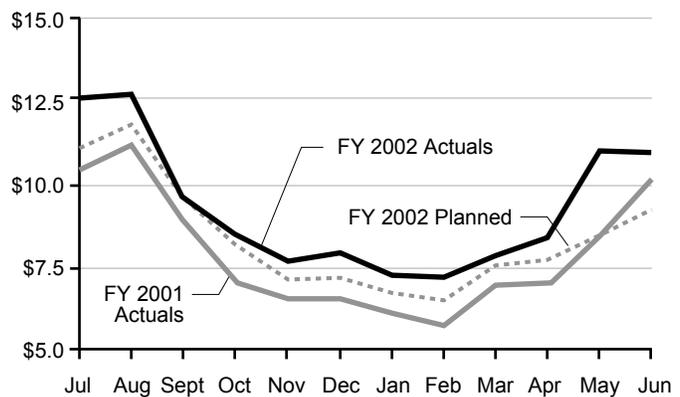
### Ferries Ridership by Month

In Millions



### Ferries Farebox Revenues by Month

Dollars in Millions



## Expenditure Performance

WSDOT makes capital investments in the ferry system through the Washington State Ferries Construction Program. The program preserves existing and builds new ferry terminals and vessels. This infrastructure gives the ferry system the physical capability to deliver responsible and reliable marine transportation services to customers.

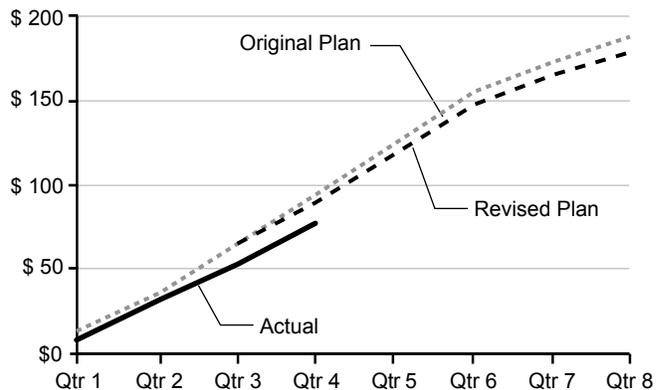
At the end of the third quarter of the 2001-2003 Biennium, the program spent \$76.1 million compared to its plan of \$90.2 million. There are three primary causes for this under-expenditure:

- Adjustments to the 2001-2003 plan resulting from the \$10 million Current Law Budget reduction enacted by the 2002 Legislature.
- Propulsion system replacements on the three Evergreen State class ferries and the *Elwha* are behind schedule.
- WSF has combined the repairs scheduled at Southworth with repairs at Fauntleroy to minimize service disruptions.

## WSF Construction Program Expenditures

2001-2003 Biennium, Quarter 4 Ending June 30, 2002

Planned vs. Actual



Program expenditures are grouped into spending on terminal construction (45% to date), vessel construction (38%) and emergency repairs of terminals and vessels (94%).

Sources for all charts: WSDOT.

# State-Supported Amtrak Cascades Service: Update

## Ridership

Ridership on state-supported Amtrak *Cascades* service was 98,651 for the second quarter of 2002. This represents a four percent increase over the same period in 2001, and marks the highest second quarter ridership total in program history.

WSDOT believes this ridership gain was the result of several factors, including competitive fares, ongoing cooperative promotions, and a growing public awareness of rail travel in the Pacific Northwest. In June 2002, however, a dip in ridership took away from what would have been an even stronger quarter. This dip is clearly seen on the accompanying chart. The explanation for this dip probably includes the customer impact of news stories about Amtrak's difficult financial condition, as well as continuing softness in the regional economy.

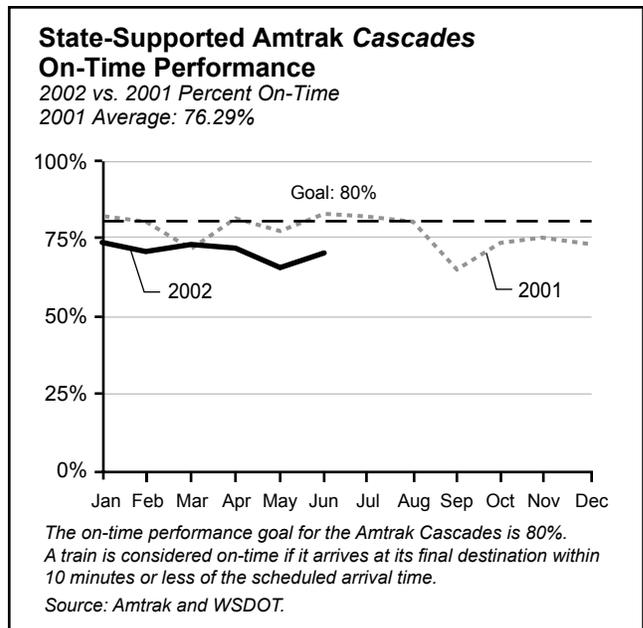
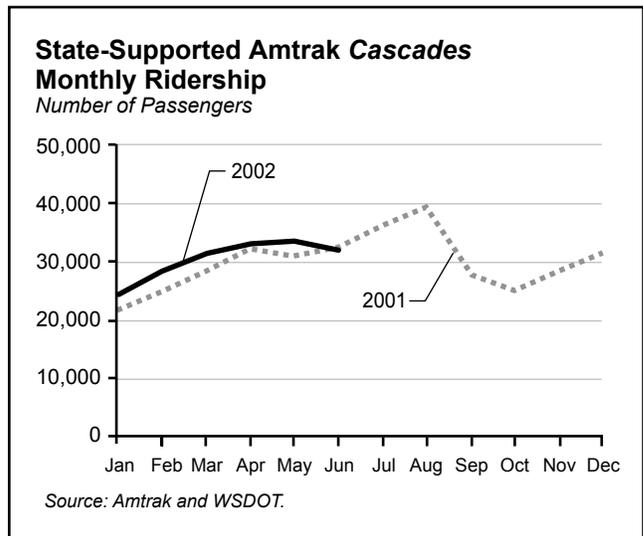
## On-Time Performance

On-time performance for state-supported Amtrak *Cascades* service averaged 71.7 percent in April, 64.4 percent in May, and 69.5 percent in June 2002. Delays were primarily caused by slow orders issued by the BNSF in areas where rail line maintenance was or had recently taken place, and freight traffic between Eugene and Portland that periodically delayed the departure of northbound train 752.

## Internet Reservations and Automated Ticketing

Most people use Amtrak's toll free telephone reservation system to order their train tickets. However, a growing number of people are using the Internet to reserve their seats. The percentage of Amtrak *Cascades* passengers who reserved their seats through the Internet averaged 26.4 percent in the second quarter of 2002. This rate ranked first of all Amtrak train routes in the nation. This is important because it reduces the cost the state pays Amtrak for calls made by *Cascades* riders to Amtrak's national reservation centers.

People in the Pacific Northwest also seem to have a growing level of comfort with automated ticket machines at train stations. These machines are popular where lines at ticket counters are long, and at unstaffed stations along the corridor. The percentage



of Amtrak *Cascades* passengers who used automated Quik Trak ticket machines to obtain their tickets averaged 8.2 percent in the second quarter of 2002, which was the highest percentage on the West Coast and 2 percentage points higher than the same period in 2001. Only Amtrak's Northeast Corridor shows higher machine use.

### An Update on the Future of Amtrak

In early July, the U.S. Department of Transportation agreed to provide a loan of up to \$100 million to Amtrak. The loan is necessary to maintain train service across the nation and to enable Amtrak to meet its day-to-day financial obligations, including payroll. At *Gray Notebook* press time, Amtrak was seeking additional funds to continue train service through September 2002.

The Bush Administration and Congress will be deliberating the future of Amtrak and its role in the nation's transportation system while they develop the federal government's 2003 budget. Insufficient funding for Amtrak could lead to the cancellation of train service in eastern Washington and disrupt the operation of the Amtrak *Cascades* in western Washington. An update on Congressional actions concerning Amtrak and the resultant implications for the state of Washington will be included in the next *Gray Notebook*.

### Amtrak and Station Activity in Washington

Amtrak trains serve 17 Washington communities each day. Amtrak service helps people travel and also supports community development and economic activity in the vicinity of train stations. The table below shows the number of Amtrak passenger trips originating and terminating in Washington cities in 2001.

Station	Service	2001		Total	Percent Change (1994-2001)
		Passenger Trips Beginning	Passenger Trips Ending		
Bellingham	Amtrak <i>Cascades</i>	23,565	22,956	46,521	n/a <sup>1</sup>
Bingen/White Salmon	Empire Builder	537	717	1,254	45.6%
Centralia	Amtrak <i>Cascades</i>	9,207	8,967	18,174	3.2%
Edmonds	Coast Starlight				
	Amtrak <i>Cascades</i>	12,564	11,928	24,492	244.0%
Ephrata	Empire Builder	996	1,298	2,294	25.3%
Everett	Amtrak <i>Cascades</i>	15,309	14,887	30,196	86.1%
	Empire Builder				
Kelso/Longview	Amtrak <i>Cascades</i>	10,385	10,876	21,261	32.4%
	Coast Starlight				
Mount Vernon/Burlington	Amtrak <i>Cascades</i>	7,253	8,621	15,874	n/a <sup>1</sup>
Olympia/Lacey	Amtrak <i>Cascades</i>	19,564	20,282	39,846	61.9%
	Coast Starlight				
Pasco	Empire Builder	6,935	7,478	14,413	7.0%
Seattle	Amtrak <i>Cascades</i>	312,251	313,168	625,419	84.1%
	Empire Builder				
	Coast Starlight				
Spokane	Empire Builder	17,466	18,865	36,331	-0.6%
Tacoma	Amtrak <i>Cascades</i>	52,837	51,518	104,355	33.1%
	Coast Starlight				
Tukwila	Amtrak <i>Cascades</i>	1,052	1,337	2,389	n/a <sup>2</sup>
Vancouver	Amtrak <i>Cascades</i>	32,064	31,311	63,375	52.3%
	Empire Builder				
	Coast Starlight				
Wenatchee	Empire Builder	5,840	7,812	13,652	47.9%
Wishram	Empire Builder	388	432	820	27.3%
Totals:		<b>528,213</b>	<b>532,453</b>	<b>1,060,666</b>	<b>75.6%</b>

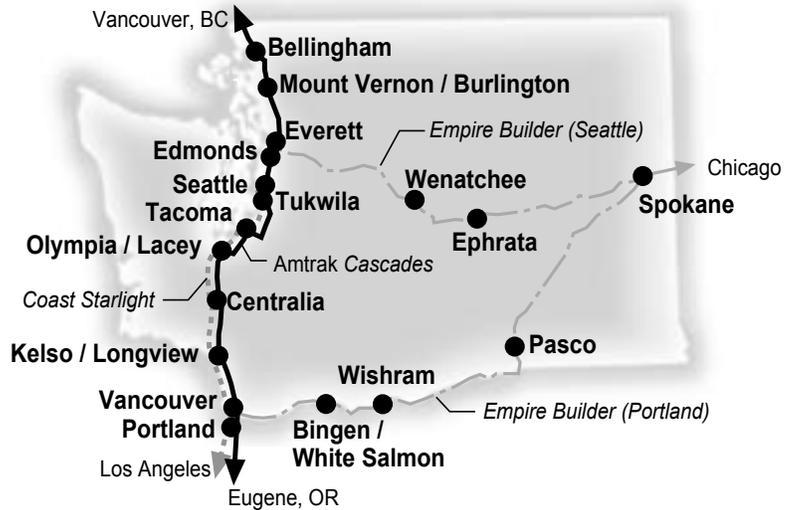
Footnotes: 1 – Service started May 1995; 2 – Service started June 2001

Source: Amtrak and WSDOT.

Amtrak's **Empire Builder** – operating daily between the Pacific Northwest and Chicago – has two segments. One segment serves Seattle, Edmonds, Everett, Wenatchee, and Ephrata. The other segment serves Portland, Vancouver, Bingen/White Salmon, Wishram, and Pasco. Spokane is where the trains are joined and separated each morning, depending on the direction of travel.

Amtrak's **Coast Starlight** operates daily between Seattle, Portland, Oakland and Los Angeles.

The **Amtrak Cascades** operates daily between Vancouver, British Columbia, and Eugene, Oregon.



### Background

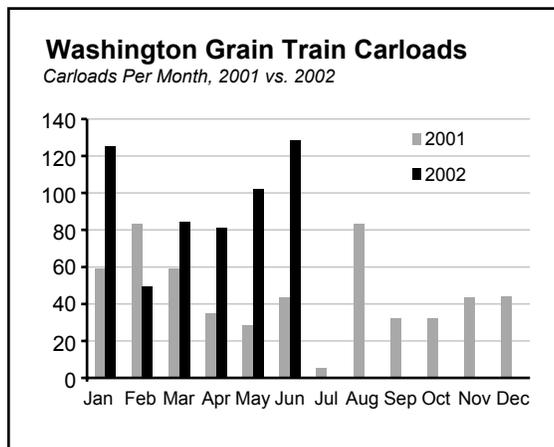
WSDOT supports the development of Amtrak *Cascades* intercity passenger rail service. WSDOT's strategy is to increase ridership, reduce travel times, and increase the number of trains operating between Seattle and Portland and Seattle and Vancouver, BC. These changes will be realized through the completion of various capital projects along the Pacific Northwest Rail Corridor, the purchase of new train equipment, and aggressive marketing. WSDOT partners with Amtrak, the Burlington Northern Santa Fe Railway, the Union Pacific Railroad, the Oregon Department of Transportation, the federal government, and local jurisdictions to provide Amtrak Cascades service. Currently, there are 12 daily trains in operation, eight of which are financially supported by WSDOT.

Since 1994, ridership has grown nearly six-fold on the Amtrak *Cascades*. The program's ultimate goals are 13 daily roundtrips between Seattle and Portland with a travel time of two-and-a-half hours, and 3 to 4 daily roundtrips between Seattle and Vancouver, BC, with a travel time of just under three hours.

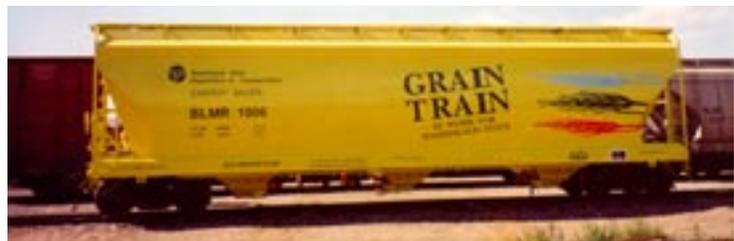
## Washington Grain Train Update

In the second quarter of 2002, the state-owned Washington Grain Train carried 213 carloads of Washington grain to Columbia River ports. This represents an increase of 148 percent over the same period in 2001. The total number of Grain Train carloads – including cars owned by the Port of Walla

Walla – was 311 for the second quarter of 2002. This represents an increase of 193 percent over the same period in 2001. The primary reasons for this increase include a higher demand for grain in international markets, improved car handling by the railroads, and more use of the Wallula grain shuttle.



Source: WSDOT.



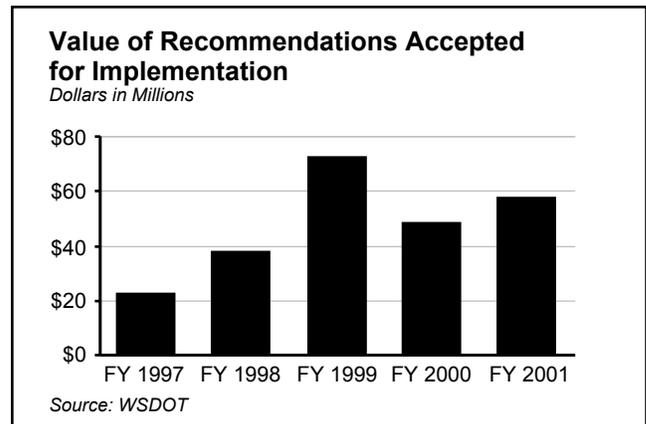
# Value Engineering

Value engineering (VE) is the name for the brainstorming used today, mostly during a project's design phase, when fresh eyes and minds bring creative solutions to projects-in-development. WSDOT makes extensive use of VE on inter-changes, structures, new alignments, traffic controls and other complex and expensive projects. VE teams include WSDOT's own specialists and often include contributors from cities, counties, consultants, regulatory agencies and others.

VE is a disciplined process to make the best use of "out-of-the-box" thinking. Like mining gold from a stream bed, a lot of gravel will be tossed from the pan in order to find the rich nugget. The weight of the gold, not the weight of the gravel, is the measure of success. WSDOT tracks its VE efforts – this is an important part of any strong VE program. In 2001, WSDOT convened 12 VE exercises. In total, 528 separate ideas were elicited and evaluated. Seven percent of those ideas endured rigorous technical feasibility and cost review to be incorporated into plans and specifications. Those ideas saved taxpayers about \$57 million.

## More Than Just Saving Money

The Federal Highway Administration (FHWA) asked WSDOT to report in 2001 on the benefits to projects from implemented VE recommendations. Here are the categories in which the 37 implemented recommendations contributed to improved projects as reported to FHWA (one recommendation



**Value Engineering Implemented Recommendations**  
Fiscal Year 2001

Partnering and/or Consensus Building	19
Compressed Development or Construction Schedule	13
Improved Constructability	14
Enhanced Operational Performance	17
Minimized Right-of-way and/or Environmental Impacts	15

Source: WSDOT

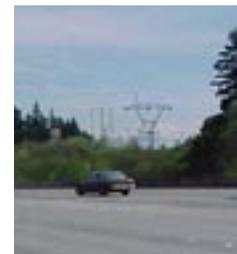
can score in more than one category).

WSDOT's Ken Smith currently chairs the American Association of State and Transportation Officials' (AASHTO) Value Engineering Task Force.

## Value Engineering Case Study: State Route 500 Intersections in Vancouver

WSDOT's VE program has received national recognition from AASHTO and FHWA on many occasions. In 2001, this project won AASHTO's *National Value Engineering Award for Most Effective Proposal in Design*.

Three intersections (St. John's, 42nd, and 54th) on SR 500 in Vancouver are High Accident Locations. A VE team examined early design work for carrying SR 500 over the three local streets. The VE team recommended that the streets be carried over a slightly re-aligned SR 500, that the cross streets be narrowed in some locations, that smaller footprints be adopted, and that a connection for a local trail be made under one of the cross streets. The design changes will lead to significant reductions in right-of-way disputes and costs, improved construction-period traffic management, and elimination of a high tension line relocation, among other benefits. Total cost savings were estimated at over \$40 million. However, for now the projects, like so many others, are "on hold" for lack of funding. For the current biennium, the only available funds are for right-of-way acquisition and design for the interchange at St. John's.



The SR 500 project avoided power line relocations.

# Highlights of Program Activities

Quarter Ending June 30, 2002

## April 2002

- Bids opened on 29 jobs with engineers' estimates of \$57,195,859 and low bids of \$52,348,822, 8.47 percent below estimates. Thirty-two contracts were awarded.  
Examples of projects to be constructed are:
  - Stevens County, U.S. 395, Arden to Colville – Drainage and paving.
  - Thurston County, Interstate 5, Trospen Road interchange – Bridge widening.
  - Chelan County, U.S. 97A, Chelan West – Culvert repair.
  - Clark County, State Route (SR) 503, NE 76th St. to NE 144th St. – Paving/signals.
- WSDOT imposed a 20,000 lb. weight limit restriction for the historic Murray Morgan Bridge, the former 11th Street bridge that connects downtown Tacoma to the nearby Port of Tacoma tide flat area. This weight restriction eliminates heavy truck and overload traffic on the bridge, redirecting it to the new SR 509 bridge over the waterway.
- Chuckanut Drive (SR 11), south of Bellingham, was completely closed for 30 days while a temporary retaining wall was replaced and removed. The work was completed on time and within budget. Field office staff coordinated closely with community leaders to get support for the closure as well as address their concerns, including emphasizing to the public and media that businesses were open and accessible throughout the closure period.
- The Washington State Transportation Commission unanimously approved designation of a 12-mile section of Makah reservation road as the Cape Flattery Tribal Scenic Byway. Washington State and the nation now have the first designated “scenic byway” located on tribal lands – a step that promises tourism benefits for the Olympic Peninsula region, and also signals cooperation between the state and tribes.
- Crews opened one lane of the SR 503 Spur east of the town of Cougar, in Cowlitz County, to traffic in time for the start of fishing season, following a breach in the Swift Power Canal that washed away about 200 feet of the roadway. Repairs to the washed out road began under an emergency contract two days after the damage occurred, and one lane was opened five short days after the road washed away. The road remains in a one-lane configuration until permanent repairs can be designed and constructed.



*Heavy equipment shores up the roadside to repair the flooded section of SR 503.*

---

## May 2002

- Seventeen projects were advertised; 36 bids were opened and 29 projects were awarded. The total engineer's estimate for the awarded projects was \$34,779,722, and the total contract bids were \$33,641,187, 3.27 percent below the total engineer's estimate.

Examples of projects are:

- Adams, Franklin, Lincoln, Pend Oreille, Spokane and Whitman Counties, U.S. 2, Eastern Region – Chipseal.
  - Pierce County, I-5, 84th St. to Fife Interchange – Ramp repair.
  - Spokane County, U.S. 2, Deer Road to Westwood Road – Paving.
  - Benton County, U.S. 395, I-82 to Kennewick Ave. – Pavement restoration and illumination.
- WSDOT unveiled another tool to help motorists: the Travel Times web page. The page, at [www.wsdot.wa.gov/pugetsoundtraffic/traveltimes/](http://www.wsdot.wa.gov/pugetsoundtraffic/traveltimes/), provides average travel times and estimated current travel times for 11 highway and freeway travel routes in Central Puget Sound.
  - WSDOT awarded its first separate plant establishment contract to Methow Natives, to provide weed control and other vegetation establishment services at the Bonaparte Creek wetland mitigation site near Tonasket.
  - Washington State Ferries introduced a new monthly pass for commuters. For the first time, the passes were sold through retail stores and over the Internet. The first month's sales totaled 1,516, with 1,058 sold through the retail network and 458 sold over the Internet.
  - Washington State Ferries was awarded an Federal Transit Administration (FTA) grant totaling \$10.7 million for Jumbo Class Vessel Preservation.
  - Crews closed the southbound SR 529 Steamboat Slough Bridge between Marysville and Everett for repairs to renovate the bridge deck, motors and swing-span drive system which will give the bridge up to an additional 30 years of service. The closure is the second of three closures associated with this ongoing project. Responding to public outcry about congestion during the first closure, WSDOT used several innovative traffic control techniques to keep traffic moving, conducted public outreach to alert the public, and coordinated with Everett and Marysville community leaders and emergency responders.
- 
- Ironworkers installing carrier frame under the bracket on the Steamboat Slough Bridge on SR 529.*
- A section of U.S. 12 along the Naches River near Yakima was saved from inevitable washout by floodwaters when WSDOT, through an emergency declaration, diverted a construction contractor from a construction project to the threatened roadway to make emergency repairs.
  - The SR 20 North Cascades Highway opened to traffic at 8 a.m. on May 7. This highway is closed every winter due to extreme weather conditions and avalanche hazards. The latest opening occurred on June 14, 1974, and the earliest opening was on March 24, 1993.
  - Marking an important milestone, crews switched traffic over to a newly paved stretch of SR 18 through Covington and Maple Valley, part of WSDOT's project to widen SR 18 to four lanes between 180th Ave. SE and the Cedar River in Maple Valley.

- Washington State Ferries received formal U.S. Coast Guard approval of its Vessel Life Saving Requirements, Subchapter W, compliance plan.
- WSDOT and the Meeker Southern Railroad reached agreement on a \$400,000 WSDOT freight rail assistance loan. The loan funds critical improvements on the short line that will preserve essential rail freight service to some of the Puyallup area's largest employers.
- FHWA announced the award of the FY 2002 funds from the National Scenic Byways Program. Washington ranked ninth in the amount of funds received from the \$20 million in discretionary funds available to scenic byway programs in 40 states.

---

## June 2002

- For the month of June five projects went to bid, and bids were opened on 13 projects. Fifteen projects were awarded, for a low bid of \$9,081,541, compared to engineering estimates of \$8,599,415.77, which is 5.6% above the engineers' estimates.
  - Yakima County, I-82 and SR 22, Valley Mall Blvd. vicinity, and Sunnyside vicinity – Safety and paving; Mabton vicinity – Bridge removal.
  - Grant and Kittitas Counties, I-90 Columbia River Bridge at Vantage – Bridge painting.
  - Whatcom County, SR 543 Boblett St. intersection – Signalization and illumination.
  - King County, I-5, NE Northgate Way to 175th St. vicinity – Bridge deck resurfacing.
- The new Sullivan Road Interchange on I-90 near Spokane was opened with a new westbound loop on-ramp, a westbound off-ramp, and intersection improvements in the interchange area.
- WSF began its Summer Sailing Schedule with its seasonal increase in service including five-vessel service on the Anacortes/San Juan Islands/Sidney, BC route, additional service hours on the Mukilteo/Clinton route, and in response to customer requests, a new 6:30 a.m. first sailing on the Port Townsend/Keystone route.
- Washington State Ferries was awarded a grant totaling \$1.9 million by the FTA for the Revenue Collection System Replacement Project.
- WSDOT hosted 30 delegates representing the Virginia legislature, the Virginia Department of Transportation, press and community leaders. Their interest was the Amtrak *Cascades* intercity passenger rail service and how they could apply lessons learned by WSDOT to develop similar services throughout Virginia.
- The I-405 Corridor Program received three planning awards:
  - Public Relation Society of America – 2002 Totem Award for outstanding community relations program;
  - Puget Sound Regional Council – Vision 2020 Award for achieving extensive regional cooperation and practicing extensive public outreach to develop options for improving transportation in the I-405 corridor;
  - National Association of Environmental Professionals – President's Environmental Excellence Award for providing significant leadership in early involvement of resource agencies and jurisdictions for issue resolution.

# Gray Notebook Subject Index

Edition Key: 1 = Quarter 1 2001, 2 = Quarter 2 2001, 3 = Quarter 3 2001, 4 = Quarter 4 2001, 5 = Quarter 1 2002, 6 = Quarter 2 2002

All editions can be accessed at [www.wsdot.wa.gov/accountability](http://www.wsdot.wa.gov/accountability)

<b>Topic</b>	<b>Edition</b>
<b>Aviation</b>	
Air Search and Rescue .....	6
Airport Aid Grant Program .....	6
Airports in Washington .....	6
Fuel: Taxable Gallons .....	6
Registrations of Pilots and Aircraft .....	6
Training of Pilots and Mechanics .....	6
<b>Bridge Conditions on State Highways</b>	
Age of WSDOT Bridges.....	4
Bridge Ratings (FHWA): Structurally Deficient and Functionally Obsolete .....	4
Deck Protection Program Overview .....	4
Deck Protection Program: Planned vs. Actual Projects .....	4, 5
Inspection Program .....	4
Inventory of WSDOT Bridges .....	4, 5
Rehabilitation and Replacement Project Schedule .....	4
Scour Mitigation .....	4
Seismic Retrofit Program: 1990-2020 Status .....	4
Seismic Retrofit Program: Planned vs. Actual Projects.....	4, 5
Seismic Retrofit Program: Top 10 Priority Bridges .....	4
Steel Bridge Painting: Planned vs. Actual Projects .....	4, 5
<b>Commute Trip Reduction</b>	
Commuting Trends at CTR Work Sites and Work Sites in General .....	4
“Drive Alone” Commuting Rates Comparison .....	6
Effectiveness of CTR Program (Biennial Results).....	4
Employer Highlight .....	6
Employer Participation, Investment, and Benefits.....	2
National Award for the Commute Trip Reduction Program .....	6
Park & Ride Lot Occupancy Rates: Central Puget Sound .....	4
Park & Ride Lot Occupancy Rates: King County .....	3, 5, 6
Park & Ride Lot Security .....	5
Vanpool Operation in the Puget Sound Region.....	2, 3, 4, 5, 6
Vanpooling Share of Daily Puget Sound Area VMT .....	2
<b>Congestion on State Highways</b>	
Benchmark Policy Goals for Congestion: Analysis .....	5
Congestion Measurement Principles .....	5
Daily Vehicle Hours of Delay per Mile, Sample Commutes Measured by Delay, Time of Day Distribution of Delay, and Travel Rate Index .....	2
Induction Loop Detectors .....	5
Intelligent Transportation Systems in Washington State .....	5
Traffic Volumes on Nine Puget Sound Region Corridors .....	5
Travel Time Reliability .....	6
Travel Time to Work Comparison: State and County Rankings .....	5
Travel Times on 11 Puget Sound Region Corridors .....	5
Travel Times With and Without Incidents .....	6

<b>Topic</b>	<b>Edition</b>
<b>Construction Program for State Highways</b>	
Advertisements by Subprogram: Planned, Actual & Deferred.....	4, 5
Asphalt Concrete Pavement Delivery.....	3, 5
Contracts Awarded: Engineer's Estimate to Award Amount.....	6
CIPP Value of Advertised & Deferred Projects by Subprogram.....	4, 5
Contracts Completed: Final Cost to Award Amount.....	6
Contracts Completed: Final Cost to Engineer's Estimate.....	6
Construction Program Cash Flow: Planned vs. Actual Expenditures.....	4, 5, 6
Construction Program Delivery: Planned vs. Actual Advertisements.....	1, 2, 3, 4, 5, 6
Safety Construction Program: Planned vs. Actual Advertisements.....	3, 6
<b>Design</b>	
Value Engineering.....	6
<b>Environmental Programs</b>	
Construction Site Erosion and Runoff Protection.....	4, 6
Fish Passage Barriers.....	4
Wetland Mitigation and Monitoring.....	5
<b>Ferries (WSF)</b>	
Construction Program Expenditures: Planned vs. Actual.....	4, 5, 6
Customer Comments.....	3, 4, 5, 6
Fare Comparison: WSF to Other Auto Ferries.....	4
Farebox Recovery by Year: Passenger-Only and Auto Ferries.....	5
Farebox Recovery Comparison: WSF to Other Auto Ferries and Transit.....	5
Farebox Revenues by Month.....	3, 4, 5, 6
On-Time Performance.....	3, 4, 5, 6
Operating Costs Comparison: WSF to Other Ferry Systems.....	3
Ridership by Month.....	3, 4, 5, 6
Trip Reliability Index and Trip Cancellation Causes.....	3, 4, 5, 6
<b>Highlights and Special Features</b>	
Highlights of WSDOT Program Activities.....	1, 2, 3, 4, 5, 6
Lane Miles Added to State Highway System, 1996-2001.....	2
Meeting Summary: North American Association of Transportation Safety and Health Officials Meeting.....	3
WSDOT Website.....	3
<b>Maintenance of State Highways</b>	
Achievement of Biennial Maintenance Targets (MAP).....	3, 4
Costs of State Highway Maintenance.....	4
Customer Satisfaction with WSDOT Highway Maintenance Activities.....	3
Debris Pusher Maintenance Attachment.....	6
Highway Sign Bridges: Planned vs. Actual Repairs.....	3, 4, 6
Highway Signs: Number of Maintenance Actions.....	6
Integrated Vegetation Management: Herbicide Usage Trends.....	5
Litter Removal from State Highways.....	5, 6
Pavement Striping: How Do They Paint the Stripes So Straight?.....	6
Pavement Striping: Planned vs. Actual Miles Painted.....	3, 4, 6
Road Kill on State Highways.....	5
Snow and Ice Control Operations.....	4
Survey on Pass Travel Conditions and Anti-Icer Use.....	2
Traffic Signals: Annual Energy Costs and Incandescent Bulb Conversion.....	3
Vortex Generators.....	5

<b>Topic</b>	<b>Edition</b>
<b>Operations of State Highways</b>	
Freeway Operations Efficiency Initiatives .....	3
Incident Response Calls Responded to by Region.....	2
Incident Response Timeline .....	6
Incident Response Times and Clearance Times.....	2, 3, 4, 5
Incidents Over the 90-Minute Goal .....	6
Induction Loop Detectors .....	5
Intelligent Transportation Systems in Washington State .....	5
Joint Operations Policy Statement between WSDOT and Washington State Patrol.....	5
Operational Efficiency Program Strategies .....	2
Service Patrol Contacts .....	3, 4
Spokane Interstate 90 Peak Hour Roving Service Patrol Pilot .....	5
WSDOT Incident Response Teams Go to the Olympics .....	5
<b>Pavement Conditions on State Highways</b>	
Condition by Pavement Type .....	2
Determining Pavements "Due" for Rehabilitation .....	2, 4
Long-Term Condition Trends.....	4
Lowest Life Cycle Cost.....	2
Pavement Types on the State Highway System .....	2
Rehabilitation Needs .....	4
Smoothness Rankings by State .....	4
<b>Rail: Freight</b>	
Grain Train Carloads .....	5, 6
Grain Train Route Map.....	5
Washington Fruit Express: Car Loadings Per Week .....	5
<b>Rail: State-Supported Amtrak Cascades Service</b>	
Capital Improvement Program and WSDOT Service Goals.....	2
Customer Satisfaction .....	2, 3, 4
Farebox Recovery: Percentage by Train.....	4
Internet Reservations and Automated Ticketing.....	6
Investment in Intercity Rail Comparison.....	5
On-Time Performance .....	2, 3, 4, 5, 6
Operating Costs .....	4
Ridership by Month .....	2, 3, 4, 5, 6
Ridership by Year: Long-Term Trends.....	2, 4
Ridership Patterns by Segment (Seats Sold).....	3
Route Map: Amtrak in Washington.....	6
Station Activity in Washington .....	6
Vehicles Diverted Annually from Interstate 5 by Cascades .....	2
<b>Safety on State Highways</b>	
Driving Speeds on State Highways.....	4
Fatal and Disabling Crashes and VMT, percent change .....	3
Fatality Rates: State Highways, All State Public Roads, & U.S. ....	3
High Accident Corridors and Locations by Region.....	4
High Accident Corridors and Locations Statewide .....	3
Low Cost Safety Enhancement Program: Planned vs. Actual Projects .....	3, 4, 5
Low Cost Safety Enhancement Program: Sample Projects.....	4, 6
Safety Construction Program: Planned vs. Actual Project Advertisements.....	3, 6

<b>Topic</b>	<b>Edition</b>
<b>Truck Freight</b>	
Cross Border Truck Volumes .....	6
Freight Routes and Border Crossings in Washington .....	6
Impediments to Truck Shipping: Bridges with Posted Weight Restrictions .....	6
Intelligent Transportation Systems Use for Trucks .....	6
Managing Over-Sized Truck Loads .....	6
Overdimensional Trucking Permits .....	6
Revenue Prorated to Washington for Trucks in Interstate Use .....	6
Truck Registrations in Washington .....	6
Truck Share of Total Daily Vehicle Volumes .....	6
<b>Workforce</b>	
Accident Prevention Activities .....	3, 4, 5, 6
Ferry Vessel Workers Recordable Injuries .....	2, 3, 4, 5, 6
Highway Engineer Workers Recordable Injuries .....	2, 3, 4, 6
Highway Maintenance Workers Recordable Injuries .....	1, 2, 3, 4, 5, 6
Maintenance Worker Safety Training .....	5, 6
Workforce Levels .....	5, 6

### The Biggest Loads Ever on Washington State Highways

The **longest load** ever moved was a pressurized vessel used at an oil refinery. It measured 320 feet (twenty feet longer than a football field).

The **widest and highest load** was a planing machine used in a lumber mill. It was 35 feet wide (the standard highway lane is twelve feet wide) and 21 feet tall.

The **heaviest load** was a gas turbine generator used in a power plant. It weighed in at 779,800 pounds.

Source: WSDOT.



*This load is part of a Boeing 747 fuselage on its way to the assembly plant in Everett. It was 21 feet, 7 inches wide and 90 feet long.*