



**Washington State  
Department of Transportation**

# **Measures, Markers and Mileposts**

The Gray Notebook for the quarter ending  
December 31, 2002

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

**Douglas B. MacDonald**  
Secretary of Transportation



# Measures, Markers and Mileposts

## The Gray Notebook for the quarter ending December 31, 2002

8th Edition  
Published February 19, 2003

### “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.

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# Measures, Markers and Mileposts

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### Contents

<b>Highlights of Program Activities.....</b>	<b>1</b>	<b>Highway Maintenance:</b>	
A snapshot of WSDOT's activities during the quarter, including started or completed projects, savings and efficiencies, innovations and awards, new WSDOT information sources, grants received and awarded, and special events.		<b>Quarterly Update.....</b>	<b>18</b>
		Pavement striping, litter removal, and highway sign maintenance.	
<b>Worker Safety .....</b>	<b>5</b>	<b>Annual Update .....</b>	<b>19</b>
Injury rates for WSDOT's highway engineering, highway maintenance, and ferry vessel workers.		Meeting maintenance targets.	
		<b>Integrated Vegetation Management .....</b>	<b>20</b>
<b>Workforce Levels and Employee Training .....</b>	<b>6</b>	Herbicide usage trends update.	
The size of WSDOT's permanent, full-time workforce and employee training needs.		<b>Ecology Embankment .....</b>	<b>21</b>
		Highway runoff pollutant removal.	
<b>Highway Construction Program .....</b>	<b>7</b>	<b>Traveler Information .....</b>	<b>22</b>
Construction program delivery, cash flow, deferred and deleted projects, and the Tacoma Narrows Bridge project status report.		Number of calls to 1-800-695-ROAD, website use, camera views and website feedback.	
		<b>Commute Trip Reduction.....</b>	<b>23</b>
<b>Highway Safety.....</b>	<b>9</b>	Puget Sound vanpool use and park and ride lot occupancy trends.	
Delivery of safety improvement projects, analysis of fatal and disabling collisions, the Corridor Safety Program, and pedestrian fatalities.		<b>Washington State Ferries .....</b>	<b>25</b>
		Customer comments, on-time performance, trip reliability, ridership, farebox revenues, and construction program delivery.	
<b>Incident Response .....</b>	<b>12</b>	<b>Rail:</b>	
Number of responses, average clearance times, incidents with clearance times over 90 minutes, and customer comments.		<b>State-Supported Amtrak</b>	
		<b>Cascades Service.....</b>	<b>28</b>
<b>Bridge Assessment .....</b>	<b>14</b>	Ridership, on-time performance, and farebox recovery for the state-supported <i>Cascades</i> service.	
Delivery of preservation and seismic retrofit projects.		<b>Washington Grain Train .....</b>	<b>30</b>
		The number of carloads carried.	
<b>Pavement Assessment .....</b>	<b>16</b>	<b>Washington Fruit Express .....</b>	<b>30</b>
Pavement rehabilitation needs, pavement condition trends, and pavement smoothness by state.		The number of carloads carried.	
		<b>Gray Notebook Subject Index .....</b>	<b>31</b>
		Where to find every performance measure ever published in the <i>Gray Notebook</i> , via electronic access.	

# Highlights of Program Activities

Quarter Ending December 31, 2002

During the past seven quarters, the Program Activities section was featured in the back of the *Gray Notebook*. This quarter's "Highlights" reflects an interesting array of WSDOT activities and leads this edition.

## Project Starts, Completions, or Updates

- New lanes and a new interchange were opened on State Route 18 between Covington and Maple Valley. The project finished five months ahead of schedule and \$300,000 under the original construction budget of \$25.8 million.
- Olympia's earthquake-damaged Deschutes Parkway reopened to traffic two months ahead of schedule and under budget. WSDOT managed the \$6.7 million construction project for the Department of General Administration, the road's owner.
- A railroad tanker caught fire under the State Route 509 bridge in Tacoma in early December, damaging the concrete. WSDOT Incident Response teams and bridge inspection engineers were on the scene immediately to assist traffic control and determine if the 1,000° F fire had significantly weakened the concrete girder. No one was hurt in the fire and the bridge inspection was complete by 3:30 a.m. allowing the bridge to open with weight restrictions only. Additional testing is being done to determine the need for further repairs.
- An agreement was reached between WSDOT and the Port of Port Angeles for use of approximately 22 acres of land and harbor areas for the construction and operation of a graving facility and staging areas. The graving facility will be used for constructing floating bridge pontoons and bridge anchors, part of a \$255 million project to replace the east half and retrofit the west half of the Hood Canal Bridge on State Route 104. Negotiations are continuing for a long-term lease.
- Crews installed 23 miles of centerline rumble strips on State Route 17 between Moses Lake and Othello as part of a corridor-safety project. The vibrations and noise created by tires as they run on these parallel grooves in the pavement, alert drivers when they stray out of their lane and cross toward on-coming traffic. This \$85,000 project was funded by a federal safety grant and WSDOT to help reduce the high collision rate on State Route 17.
- Construction started on a new cloverleaf interchange, connecting U.S. 395 with Hillsboro Street in Pasco. Hillsboro Street is the only access route into the Port of Pasco Processing Center, Burlington Northern Railroad yard, and many trucking business centers. DeAtley Construction Co. is WSDOT's contractor for the \$12.3 million design-build project, which is scheduled to open in January 2004.
- Crews completed a project to widen a 2.3-mile section of I-5 between Burnt Bridge Creek in Hazel Dell to NE 78th Street in Vancouver. Work on the \$50 million project began in August 1999. Due to an aggressive schedule and relatively mild winters, nearly the entire project area was opened to traffic in the fall of 2001 – almost a year ahead of schedule.



- Workers activated a new traffic signal at Valley Mall Boulevard in Union Gap and widened the westbound I-82 exit to Union Gap (Exit 36) to two lanes. The project increases capacity and safety, and improves traffic flow. The Valley Mall developer paid 90 percent of the \$130,000 project cost.
- Crews completed a \$2.3 million project at the Liberty Lake (Harvard Road) interchange on Interstate 90 east of Spokane. The public/private partnership effort to ease congestion and improve traffic flow provides a new westbound loop on-ramp to Interstate 90, and a realigned westbound off-ramp. The project was finished on time and about \$97,000 under budget.
- A groundbreaking was held for the State Route 20, Swinomish Tribe Exit project, east of Anacortes. The project will increase safety by constructing a frontage road and eliminating a left turn across State Route 20 for eastbound motorists entering the Swinomish Tribe's casino. The project funding partners are Federal Highway Administration, Bureau of Indian Affairs, Swinomish Tribal community and WSDOT.
- Changeable message signs were installed and new "chain up" areas were constructed on I-82 between Yakima and Ellensburg to help winter travelers. The highway crosses Manastash Ridge, which is the same elevation as Snoqualmie Pass and experiences the same weather conditions as a mountain pass.
- A project to widen 3.4 miles of U.S. 12 southeast of Pasco from the McNary Pool to Dodd Road will start this spring. Steelman-Duff of Clarkston was the successful contractor to construct the project. The project is part of a seven-phase project that would ultimately widen U.S. 12 to four lanes from the Snake River to Walla Walla.

### **Savings and Efficiencies**

- WSDOT began a winter-long pilot project to analyze the effects of salt both on roadway driving conditions and on corrosion factors. The pilot project is taking place along I-90 between the I-82 interchange (east of Ellensburg) to the Columbia River Bridge at Vantage; I-90 between the Grant/Adams county line (east of Moses Lake) to the Lincoln/Spokane county line; and State Route 6 between Chehalis and Raymond. After the data has been compiled and analyzed, WSDOT will present the results to the Transportation Commission.

### **Innovations and Awards**

- Washington State Transportation Commissioner Connie Niva was honored during the 11th International High Occupancy Vehicle (HOV) Conference held in Seattle. The Transportation Research Board's HOV Systems Committee selected Niva as the recipient for the 2002 *HOV Leadership Award*.
- Tony Allen (at right), State Geotechnical Engineer, won the International Geosynthetics Society's Award, for his contribution in developing WSDOT Test Method 925, "*Determination of Long-Term Strength of Geosynthetics.*" Tony's work is currently being used as the basis for a proposed ISO standard, and portions of the work have been incorporated into the American Association of State Highway and Transportation Officials (AASHTO) *Design Specifications for Highway Bridges* as well as U.S. Federal Highway Administration (FHWA) documents.



- WSDOT was presented two environmental awards: One was the Federal Highway Administration's *Excellence in Environmental Design* category for a project that rebuilt a natural terraced creek bed under State Route 971 (South Lake Shore Drive) near Chelan. As a result of the project, for the first time in 50 years, Chinook, Kokanee, Cutthroat and Rainbow Trout have access to and are spawning in the upper reaches of First Creek. The second award was in the *Environmental Excellence* category for WSDOT's Indian Creek Stormwater Treatment Facility in Olympia. Prior to construction of the facility, untreated stormwater from Interstate 5 flowed into a natural tributary, degrading both the tributary and Indian Creek. Through a cooperative effort with WSDOT, the City, the Olympia Arts Commission, and the Squaxin and Nisqually Tribes, this new facility doubles as a regional stormwater treatment facility and a tranquil greenspace in a city neighborhood.
- WSDOT is testing a system to warn drivers that deer are on the roadway along a half-mile segment of U.S. 97A on the east bank of the Columbia River north of Wenatchee. Large yellow and black warning signs, depicting a deer, are topped with amber beacons that flash for 60-seconds when a deer breaks an "eye-safe" laser beam located on either side of the roadway. WSDOT will monitor whether the system is successful in reducing vehicle-deer collisions.

### New WSDOT Information Sources

- A new, solar powered, portable Highway Advisory Radio (HAR) station was activated at the Winchester Safety Rest Area on I-90 between Moses Lake and George, to alert westbound travelers of pass conditions so they can turn off at George to use Stevens Pass (U.S. 2) if a problem exists on Snoqualmie Pass (I-90). Pass reports are updated at least six times daily and more frequently if conditions dictate.
- WSDOT has added several new locations in eastern Washington to its Internet camera network at [www.wsdot.wa.gov/traffic](http://www.wsdot.wa.gov/traffic). New images include I-90 at the Columbia River Gorge, near Vantage (see photo); U.S. 395 at Laurier (the U.S./Canada border); State Route 20 at the Sherman Pass summit; and State Route 27 where it crosses Interstate 90 in Spokane. The cameras at the gorge, Sherman Pass, and Laurier are a part of a complete weather station system.
- Traffic cameras were added at the State Route 522 intersections with State Route 104 in Lake Forest Park, and with 68th Avenue NE in Kenmore.
- Traveler information is now available at the Indian John rest area kiosk along westbound Interstate 90. The newly installed display uses a personal computer and monitor to allow viewers to see camera images from Blewett Pass summit, Snoqualmie Pass summit, and the Easton chain-up area. Other information includes pass reports for Snoqualmie and Blewett Pass, traction tire and chain requirements over Snoqualmie Pass, winter driving tips, and rest area information. In addition, an audio playback of current pass conditions and weather forecast for Snoqualmie Pass can be initiated by pushing a button.



- Tacoma Mall partnered with WSDOT to bring traveler information to holiday shoppers. A kiosk displaying the Tacoma-area traffic flow map and traffic cameras was activated in late November and ran through the holiday season.
- A new traffic camera map for the Tacoma/Pierce County area debuted recently at [www.wsdot.wa.gov/PugetSoundTraffic/cameras/tacomadefault.htm](http://www.wsdot.wa.gov/PugetSoundTraffic/cameras/tacomadefault.htm). The expanded coverage now includes flow information for the entire I-5 corridor from Fife to Bridgeport Way in Tacoma and a new camera at the State Route 410 and State Route 167 interchange.

### Grants Received and Grants Awarded

- The second spur track to the Yakama Nation’s new \$35 million White Swan sawmill began operation October 11. WSDOT provided \$879,000 in freight rail assistance grants to Yakima County’s TS&W railroad, leveraging the Yakama Nation’s own funds and other government grants to provide access to low cost, nationwide rail transportation. Not only were WSDOT’s grants a critical element in gaining the 225 new jobs at the sawmill, the rail line will now move at least 525 carloads of lumber and 1,300 railcars of woodchips each year. The TS&W’s minimum of 1,825 carloads in 2003 will be in stark contrast to the 30 carloads of 1999.
- WSDOT expended \$100,000 from the Local Rail Freight Assistance (LRFA) revolving fund to help construct a new rail spur at the Port of Chehalis. The 3,500-feet of new track that was completed was a necessary pre-condition for the owners of a plastic pipe manufacturing plant, who were also considering a site in Lebanon, Oregon. According to the port director, WSDOT’s quick approval of the \$100,000 LRFA grant was the deciding factor in winning the new business, which supports 75 family-wage jobs for the local economy.
- Thanks to a \$1 million WSDOT freight rail assistance grant shippers in Morton and Eatonville can transport rock, lumber and woodchips on the national rail network for the first time in 23 years. The rebuilding of the line, completed in mid-October, also brings Tacoma’s “*Train of the Mountain*” tourist train to Mount Rainier. WSDOT’s funds, along with a \$1.5 million federal disaster grant, rebuilt bridges that had been destroyed earlier by floods and cleared fallen trees from the unused line.
- WSDOT received grants for three federal Hazard Elimination Safety projects that will help fund project construction in 2003:
  - 1) A \$210,000 project to replace guardrail with concrete barricade on a tight curve on U.S. 2, Steven Pass received \$189,000 in federal grant money.
  - 2) An intersection on U.S. 2 near Winton, east of Lake Wenatchee, will be improved with a \$250,000 grant. The \$640,000 project is a partnership with Longview Fiber and Chelan County.
  - 3) Guardrail will be installed on State Route 24 from the Columbia Plateau to the Vernita Bridge with the help of a \$250,000 grant.



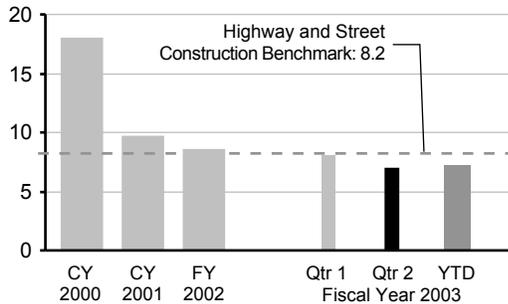
### Special Events

- Studded tires became legal November 1, the usual starting date. Studded tires are restricted because they wear road surfaces at a higher rate than other tires, causing millions of dollars in wear and tear each year to state highways.

# Worker Safety

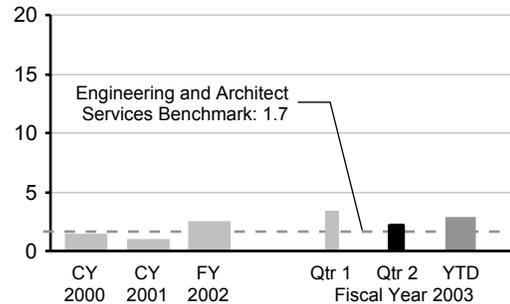
Continuing updates on *Gray Notebook* safety topics – data is shown for calendar years (CY) 2000 and 2001, fiscal year (FY) 2002, and FY 2003 by quarter and by Year-to-Date (YTD).

## WSDOT Highway Maintenance Workers Recordable Injuries per 100 Workers per Fiscal Year



The second quarter recordable injury rate for maintenance workers was 7.0 recordable injuries per 100 workers. Twenty-six recorded injuries resulted in 132 lost workdays and 154 restricted duty days. An average of 5.1 workdays were lost per recordable injury for a lost time-incident rate of 42.6 lost workdays per 100 workers. A total of \$13,173 in medical aid payments and workers compensation benefits was paid during the quarter. Slips, trips, and missteps were the most common source of injury (29%). Forty-two percent of the injuries were sprains, 17% were fractures, and 13% involved hearing loss. The most frequently injured parts of the body were backs (16%), ankles (12%), wrists (12%), and ears (8%).

## WSDOT Highway Engineer Workers Recordable Injuries per 100 Workers per Fiscal Year



The second quarter recordable injury rate for engineer workers was 2.1 recordable injuries per 100 workers – a 35% reduction in the frequency of recordable injuries from last quarter. Thirteen recorded injuries resulted in 184 lost workdays. An average of 14.2 workdays were lost per recordable injury for a lost time-incident rate of 24.2 lost workdays per 100 workers. A total of \$8,163 in workers compensation benefits was paid during the quarter. The most frequently injured parts of the body were ankles (22%), backs (22%), ears (22%), abdomens (11%), and chests (11%).

## Accident Prevention Activities Second Quarter FY 2003

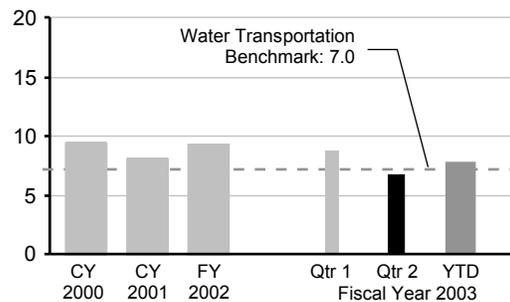
- The Department received a reduction in its accident experience rating for the third year in a row. This is its lowest rating since 1999 and is a result of the reduction in the number and seriousness of accidents at WSDOT from July 1, 1998 to June 30, 2001.
- The South Central Region began a pilot project in one maintenance area to encourage employee ownership and initiative in safety awareness and compliance in the workplace.
- WSF hired a new fleet safety coordinator and a security and emergency manager to increase emphasis on safety and security issues. WSF also submitted a proposal for hiring an investigator and a claims manager to manage employee and patron injury claims.

## Reading the Charts

"Recordable injuries and illnesses" is a standard measure that includes all work-related deaths and work-related illnesses and injuries that result in loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid. One worker equals 2,000 hours per year.

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

## WSDOT Ferry Vessel Workers Recordable Injuries per 100 Workers per Fiscal Year



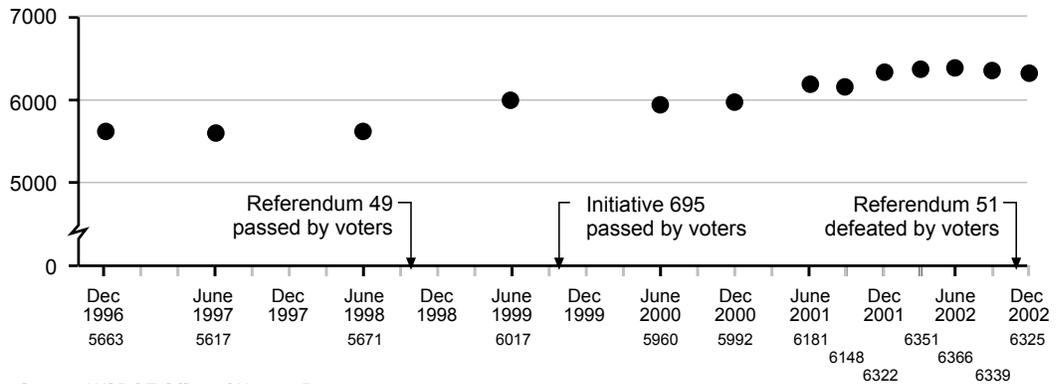
The second quarter recordable injury rate for WSF vessel workers was 6.9 recordable injuries per 100 workers. There was a total of 17 recorded injuries during the quarter – a 26% decrease in recordable injuries from the first quarter. These injuries resulted in 165 lost workdays, for an average of 9.7 lost workdays per recordable injury and a lost time-incident rate of 32.5 lost workdays per 100 workers. Strains/sprains accounted for 71% of the injuries. The most frequently injured parts of the body were backs (24%), shoulders (18%), ankles (12%), knees (12%), and feet (6%). Fifty percent of the back injuries were aggravations of previous back injuries.

Sources for all charts: WSDOT Safety Office.

## 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



Source: WSDOT Office of Human Resources.

## WSDOT Employee Training Requirements

### Maintenance and Safety Training Required by Law

WSDOT continues progress toward achieving training goals for maintenance employees. A total of 25 safety and maintenance courses are required by laws and regulations. More training opportunities are available in the fall and spring, between construction season and winter snow and ice season, than at other times.

	Number of Maintenance Workers Requiring Training	Total Current Maintenance Workers Trained to Date	Maintenance Workers Trained 1st Quarter FY03	Maintenance Workers Trained 2nd Quarter FY03	Compliance to Date: Target = 90%	Change Since Last Quarter
<b>Safety Courses</b>						
Blood Borne Pathogens	1,204	946	47	67	79%	+ 6%
First Aid	1,415	1,309	35	23	93%	+ 6%
Hearing Conservation	1,302	1,182	0	15	91%	same
*Personal Protective Equipment	988	348	61	81	35%	- 14%
Fall Protection	714	326	25	60	46%	+ 12%
Flagging & Traffic Control	1,110	1,058	17	10	95%	+ 2%
<b>Maintenance Courses</b>						
*Drug Free Workplace	326	220	0	11	67%	- 4%
Forklift	1,146	953	18	33	83%	same
Hazardous Materials Awareness	1,020	477	103	133	47%	+ 14%
Manlift Operations	550	278	0	99	51%	+ 5%
Excavation, Trenching & Shoring	369	120	5	8	33%	+ 2%

\* In the case of two courses, the number of workers requiring the training increased. This caused the percent completion to decrease this quarter, even though the total number of employees trained continued to increase.

### Training for All WSDOT Employees

The following table reflects continued progress on four important workforce courses that are receiving increased emphasis.

	Number Requiring Training***	Number of Employees Trained****	Number Trained 1st Quarter FY03	Number Trained 2nd Quarter FY03	Status to Date: Target = 90%	Change Since Last Quarter
<b>Training Courses</b>						
Violence That Affects the Workplace	7,305	5,473	671	577	75%	+ 4%
Valuing Diversity**	7,305	2,347	54	389	32%	+ 5%
Sexual Harassment**	7,305	2,896	71	397	40%	+ 6%
Disability Awareness**	7,305	1,995	42	199	27%	+ 2%

\*\* The diversity training previously offered and completed by 63% of our workforce (1992 to present) has been revised and replaced with three separate courses. These new courses are offered as refresher training and first time training. The goal is to have 90% of our workforce trained as resources and time allow.

\*\*\* These courses are for all permanent full-time, part-time, and temporary employees.

\*\*\*\* Number of current employees trained since 1997.

Source: WSDOT Office of Human Resources.

# Highway Construction Program Quarterly Update

## Meeting WSDOT's Scheduled Advertisement Dates

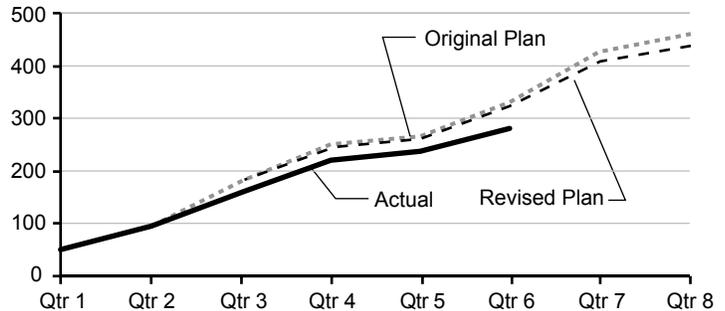
For the biennium to date, WSDOT has advertised 280 improvement and preservation projects against an original schedule of 333 projects. WSDOT's project delivery schedule, according to the Capital Improvement and Preservation Program (CIPP), is shown on the adjacent chart for the quarter ending December 31, 2002. WSDOT is meeting the planned advertisement date on about 88% 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.

The delivery rate of meeting the scheduled advertisement dates has dropped this quarter, with 35 projects not advertised as planned. This drop can be attributed to the following factors:

- Projects deferred as the result of the Current Law Budget reduction. This accounted for 10 of the deferred projects this quarter. Two examples:
  - SR 9 / U.S. 2 Interchange in Snohomish. The project realigns two ramps, adds a signal, and constructs right turn lanes. Deferred to the 2003-05 biennium.
  - SR 530, Boulder Creek to Fortson Mill Road, West of Darrington. The project rehabilitates the existing pavement to preserve it and to prevent weight restrictions caused by freeze-thaw weather conditions. Deferred to the 2003-2005 biennium.
- Projects deleted from the program because the initial need for the project no longer exists. This accounted for one of the deferred projects this quarter. This project was:
  - U.S. 2 left turn lane project near Monroe. Access not needed due to closure of diary farm that required the access.
- Projects delayed as the result of combining with other projects in the vicinity including projects being developed

## Highway Construction Program Delivery

Planned vs. Actual Number of Projects Advertised  
2001-2003 Biennium, Quarter 6 Ending December 31, 2002



by other agencies. While this coordination does result in schedule delays, there is a positive benefit realized by minimizing traffic impacts and economies of scale. This accounted for 11 of the deferred projects this quarter. One example:

SR 520/Montlake Pavement Project, near the U.W. Delayed three months to combine with an adjacent ramp paving project.

- Project deferrals caused by including insufficient time for design work and delayed scoping and preliminary engineering of projects. This accounted for 13 of the deferred projects this quarter. Two examples:
  - SR 240/Yakima River Bridge Replacement at Richland. Delayed five months. Biological Assessment and other environmental documentation had to be reworked when failure of R-51 eliminated the construction of the bridge causeway.
  - SR 9 Pavement Project, in Snohomish. Delayed five months because of incomplete scoping due to unforeseen wetland impacts and design issues.

*These projects will continue to receive focused management attention to ensure project delivery during the remainder of the biennium.*

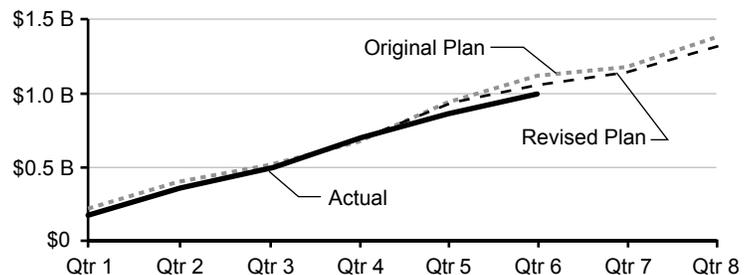
## Highway Construction Program Cash Flow

Expenditures through the quarter ending December 31, 2002, are on target, achieving approximately 97% of budgeted cash flow. Historically, WSDOT's cash flow for this program is 92% to 95% of budgeted cash flow. The chart reflects the newly revised plan due to budget cuts as explained above. The expenditure rate now slightly exceeds historical levels. This expenditure rate reflects:

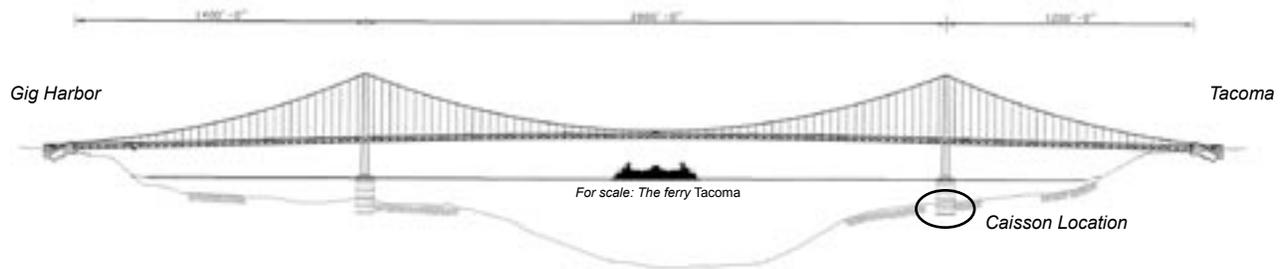
- A highway construction program that included a large number of new construction starts in Spring 2001. While these projects were actually started in the last quarter of the 1999-2001 biennium, this work has driven expenditures levels in the current biennium.
- The department's attention to getting projects to advertisement. This has been an important management focus and has been tracked throughout the year in the *Gray Notebook*.
- Activity in the regions, often with direct encouragement and support of local communities, in moving projects "to ad" given the prospects for project deferrals or cancellation in a period of expected budgetary stringency.
- Favorable construction weather, allowing contractors to speed their work.

## Highway Construction Program Cash Flow

Planned vs. Actual Expenditures  
2001-2003 Biennium, Quarter 6 Ending December 31, 2002  
Dollars in Billions



Sources for all charts: WSDOT Program Management Office.



## Tacoma Narrows Bridge Project

Construction of the new Tacoma Narrows Bridge on State Route 16, by the Tacoma Narrows Constructors design/build consortium, is now underway.

Work has begun at the bridge site demolishing buildings, mobilizing equipment and materials, and constructing a temporary concrete batch plant. Off-site, work has begun on the giant “cutting shoes” that will form the bottom of the two massive caissons that will be embedded into the soil and on top of which the towers will be built. The photo shows about one-quarter of one of the caisson cutting shoes under construction at Todd Pacific Shipyards Corporation, Seattle. The cutting shoes will be towed to Commencement Bay later this spring for initial concrete wall construction before eventual placement at the bridge site.

As of December 31, 2002, the project has attained 2.4% physical completion.



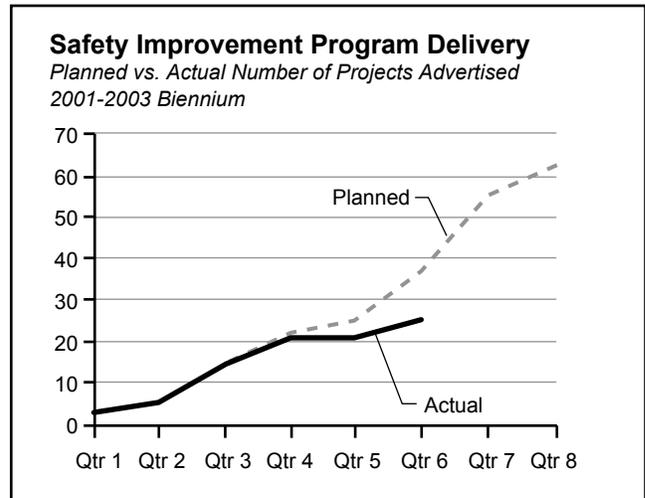
*Approximately one quarter of the first caisson “cutting shoe” is shown complete in this recent photo. It will be placed at the base of the tower indicated above.*

Activities scheduled for the next six months include additional mobilization of construction materials and equipment, further bridge and roadway design work, continued construction of the caissons, starting the 24th Street bridge overpass, and improvements to mainline SR 16. For the latest project information visit [www.wsdot.wa.gov/projects/sr16narrowsbridge/](http://www.wsdot.wa.gov/projects/sr16narrowsbridge/)

# Highway Safety Projects

Every WSDOT project includes safety elements. WSDOT also delivers construction projects specifically designed to improve safety on highways across the state. Four safety projects were advertised for bids as planned in the sixth quarter. But six scheduled projects were not advertised this quarter:

- **U.S. 2, Dairy Farm Access Vicinity, near Monroe.** Construct a left turn lane to the dairy farm and installs illumination. Project was deleted for reasons stated on [page 3](#).
- **I-5 Ramps at Michigan-Corson/Albro/Swift, in Seattle.** Rebuilds the shoulders. Existing loops and electrical boxes will be upgraded. Project deferred to 2003-05 biennium due to the 2002 Supplemental Budget Reduction.
- **I-5, Northgate Way to NE 175th Street, in Seattle.** Roadway widening to extend the southbound on-ramp acceleration lane. Project delayed seven months due to design changes.
- **SR 28, in Quincy, on road to Ephrata.** Construct left turn lanes and install illumination. Project deferred to 2003-05 biennium due to the 2002 Supplemental Budget Reduction.
- **SR 162, Voights Creek Vicinity, east of Orting.** Realign to correct substandard roadway curves at bridge ends. Project delayed four months for partnership coordination and the



- need to complete environmental documentation.
- **U.S. 12 / U.S. 730 Intersection Realignment, south of Wallula.** Signal installation and realign the lanes at the intersection. Project deleted and the work rescheduled to be merged with an adjoining paving project in order to achieve construction efficiencies.

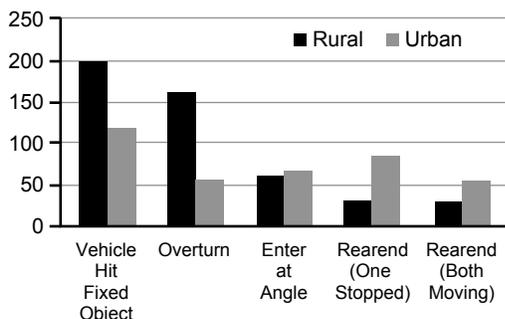
## Analyzing Fatal and Disabling Collisions

WSDOT and other agencies track collision data on urban and rural highways to help determine if a response action should be taken. In Washington, 85 percent (5,975) of state highway centerline miles are rural, while forty percent of total vehicle miles traveled on Washington highways are on rural highways.

This chart shows that the most frequent fatal and disabling accidents are vehicles running off the road into fixed objects or overturning. Run-off-the-road collisions and overturnings are most common on rural highways. On urban highways, there are more collisions involving multiple vehicles.

### Most Frequent Types of Fatal and Disabling Collisions on State Highways

Number of Collisions 1999-2001, Average per Year

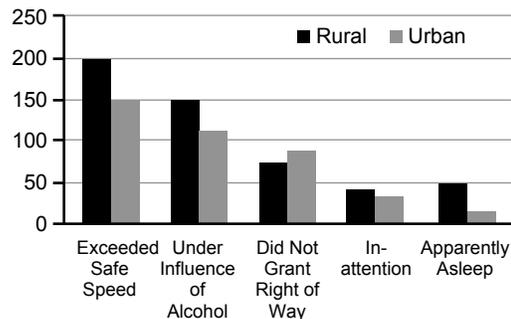


Source for all charts: WSDOT Transportation Data Office.

This chart shows the top five contributing causes to fatal and disabling accidents. On both rural and urban highways, speed and alcohol are the two top contributing factors.

### Most Frequent Circumstances in Fatal and Disabling Collisions on State Highways

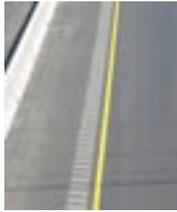
Number of Collisions 1999-2001, Average per Year



## Preventing Run-Off-the-Road Accidents

Approximately 40% of all fatal accidents occur when vehicles leave the roadway. Locations with high frequencies of cross median, left and right side encroachments have been improved with rumble strips or cable median barriers.

Continuous shoulder **rumble strips** are an inexpensive way to reduce run-off-the-road accidents. WSDOT continues to install rumble strips along rural interstates throughout Washington. When a vehicle strays onto a rumble strip, vibration and noise alert the inattentive or sleepy driver to the risk of leaving the highway. Rumble strips have been shown to reduce single vehicle run off the road accident by 30% to 40% on Washington's interstate system. Specific



designs have been developed on some state highways so that bicyclists are not hindered by rumble strips.

**Cable median barriers** are a design option used to reduce the risk of severe cross median accidents. Narrower road sections with limited median tend to be associated with severe head-on collisions. Locations that show a high probability of that kind of head-on accident are appropriate locations for cable median barrier installations. WSDOT now has three major runs of cable median barrier, all of which are located on Interstate 5. These installations are near Vancouver, Bellingham, and Fife.

## Community Corridor Safety Program Gets Results

The Corridor Safety Program is a partnership between WSDOT, the Washington Traffic Safety Commission, and the Washington State Patrol. Local collaboration improves safety in specific corridors, using low-cost approaches and building strong local partnerships. In each locale a committee representing a wide range of interested community members and groups coordinates the effort. The Corridor Safety Program was awarded Governor Locke's 2002 Governor's Award for Public Benefit.

### U.S. 97A between Wenatchee and Chelan

This 40-mile-long U.S. 97A corridor had a high number of single-vehicle accidents. Compared to similar highways in the region, 97A experienced

300% more wildlife collisions, 188% more alcohol-related collisions with 176% more fatalities and disabling injuries, as well as higher percentages of "failure to yield" and "driver inattention" collisions.



The project reduced collisions, injuries and deaths through the "Four Es" – education, enforcement, emergency services and engineering.

Highlights of these approaches include:

#### Education

- Presentations to community groups and schools
- Public Safety Announcements
- Project website (active through end of 2001)

#### Enforcement

- DUI emphasis patrols
- Coordinated multi-jurisdictional law enforcement
- Highway Watch Program

#### Emergency Services

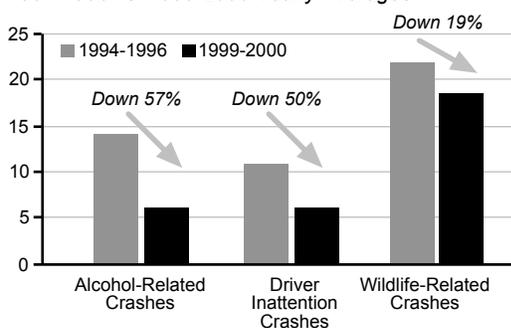
- Improved use of 911 system
- Development of more incident response teams
- GPS equipment to pinpoint emergency scenes

#### Engineering

- Additional warning and hazard signs
- Wildlife fences and reflectors
- Enhanced paint striping program
- Attention-getting signing ("Killed by Drunk Driver")

### U.S. 97A Reduction in Crashes

1994-1996 vs. 1999-2000 Yearly Averages



Source: WSDOT Traffic Office.

The program is cost-effective: every dollar invested saves approximately \$35 in societal costs.

## Reducing Pedestrian Fatalities

A key to roadway safety is protecting pedestrians. Washington's pedestrian fatality rate was 18th lowest nationally in 2001. A total of 74 pedestrian fatalities occurred on all roadways statewide with 28 fatalities on state highways. Accident trends in the frequency of pedestrian fatalities per 100,000 people have declined over the past six years.

Of the 175 pedestrian deaths on state highways from 1996 to 2001, alcohol intoxication\* was involved in roughly a third of the fatalities.

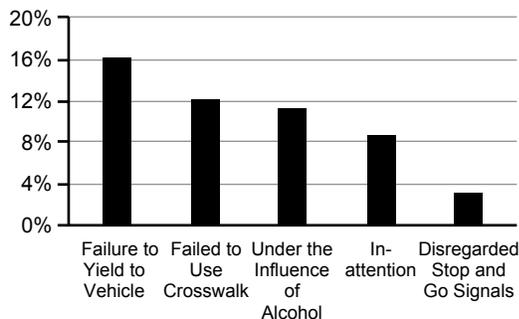
- In 57 fatalities, the pedestrian was drunk;
  - In 3 fatalities, the driver was drunk.
- \*Blood Alcohol Concentration (BAC) more than .10

The majority of the pedestrian deaths with alcohol involvement occurred in the greater Seattle area and, of those, many occurred on State Route 99. This corridor is also a major transit route. Research by the Washington State Transportation Center has shown that 80% of high pedestrian accident locations occur within 100 feet of a transit stop. Issues on SR 99 include roadway width, inadequate illumination, high volumes of traffic, and inadequate pedestrian facilities.

Evaluation of all pedestrian collisions, including injuries and disabling injuries, is necessary to understand pedestrian safety problems. The chart below shows the most frequent contributing factors for pedestrians in vehicle/pedestrian collisions. Contributing circumstances for drivers are not shown. Many collisions have no identified violation contributing to the accident. In these cases, further evaluation of environmental and other circumstances is needed.

### Most Frequent Pedestrian Factors in Vehicle/Pedestrian Collisions on State Highways

Percent of Pedestrian Accidents, 1996-2001



Future editions of the Gray Notebook will further examine pedestrian safety on state highways.

Source: WSDOT Transportation Data Office.

## 2001 Pedestrian Fatality Rates by State

Fatalities per 100,000 Population

Fatality Rank	State	Killed	Pedestrians Rate
1	North Dakota	3	0.47
2	Iowa	19	0.65
3	Nebraska	12	0.70
4	New Hampshire	9	0.71
5	Vermont	5	0.82
6	Wisconsin	45	0.83
7	Minnesota	43	0.86
8	Ohio	99	0.87
9	Kansas	24	0.89
10	Idaho	12	0.91
11	Indiana	56	0.92
12	Maine	12	0.93
13	Rhode Island	10	0.94
14	Alaska	6	0.95
15	Connecticut	33	0.96
16	Montana	9	1.00
17	Wyoming	5	1.01
18	Washington	73*	1.22
19	Massachusetts	79	1.24
20	Kentucky	53	1.30
21	Tennessee	78	1.36
22	Colorado	61	1.38
23	Virginia	101	1.41
24	Oklahoma	50	1.45
25	Utah	33	1.45
26	Missouri	83	1.47
27	Illinois	186	1.49
28	Arkansas	41	1.52
29	Alabama	68	1.52
30	Pennsylvania	188	1.53
31	West Virginia	28	1.55
32	New Jersey	132	1.56
33	Michigan	162	1.62
34	Oregon	58	1.67
	<b>U.S. Average</b>		<b>1.71</b>
35	Georgia	146	1.74
36	North Carolina	149	1.82
37	New York	347	1.83
38	Maryland	101	1.88
39	South Dakota	15	1.98
40	California	711	2.06
41	Mississippi	59	2.06
42	Texas	449	2.11
43	Delaware	17	2.14
44	Nevada	45	2.14
45	Louisiana	98	2.19
46	Hawaii	30	2.45
47	South Carolina	108	2.66
48	Florida	489	2.98
49	Arizona	159	3.00
50	New Mexico	72	3.94

\* This total does not include one pedestrian fatality reported in the state's collision reporting system.

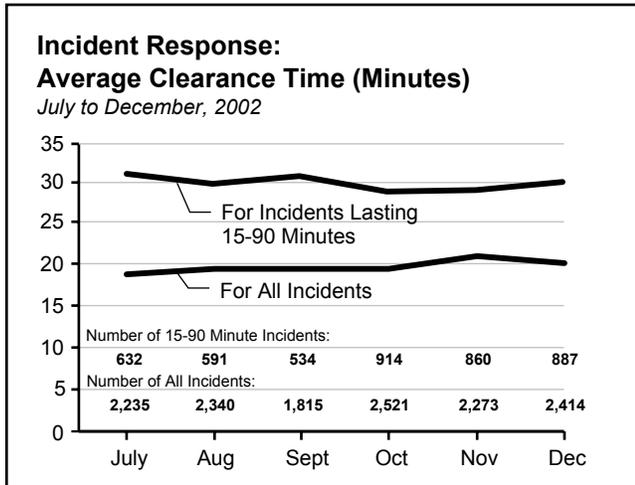
Source: National Highway Traffic Safety Administration.

# Incident Response: Quarterly Update

## New Baseline for Clearance and Response Times

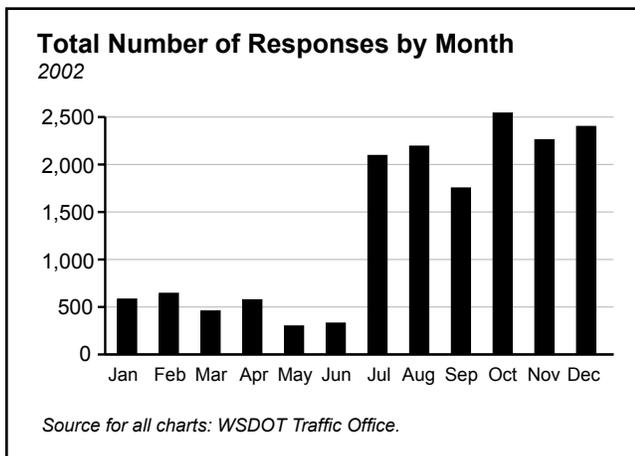
In the past, WSDOT measured the clearance time of an incident from the time an Incident Response (IR) unit arrived on the scene, to the time the IR unit left the scene. Now, WSDOT has revised its measurement of the clearance time and developed a new baseline. The new measurement is from the time the incident begins to when the incident scene is clear of all responders.

The chart below shows the new baseline that began in July 2002 with the rollout of the expanded IR program. WSDOT is also taking a closer look at incidents that last from 15 to 90 minutes.



See next page for description of over 90-minute clearances.

The chart below shows that the number of IR responses has increased since July 2002 with the expansion of the program.



## Non-Collision Responses

Stopped vehicles on freeways and major highways – in a travel lane or even on a shoulder – distract approaching drivers, delay traffic, cause back-ups, and pose safety hazards for approaching traffic and for the occupants of the stopped vehicles. Problems on the roadway that lead to stopped vehicles range from major pile-ups to minor stalls. Incident response is a continual task that WSDOT provides with the Washington State Patrol, local fire departments, and others. Every incident response helps limit delay and increase safety. “Helping drivers, clearing roads,” the motto of incident response, is a cost-effective highway management strategy – and WSDOT’s routine efforts also free up WSP resources for the enforcement activities uniquely in its competence.

## Snapshot of Response Types

October 1, 2002 – December 31, 2002

### Total Incidents = 7,221

- 1,067 Collisions
- 6,154 Non-Collisions

### Non-Collision Response Types\*

	Oct	Nov	Dec
Disabled Vehicles	1,461	1,315	1,327
Abandoned Vehicles	329	323	355
Blocking Debris	440	446	394
Fire	7	7	7
Hazardous Materials	3	3	0
Other Contacts	94	95	121

\*More than one type of assistance may have been provided for a single response.

## Customer Comments

WSDOT has provided IR “customers” a comment card to gauge the public’s response to the new program. Below are a few examples of comments received during the quarter.

**November 13, 2002**

*“This is a good use of my tax dollars. Car couldn’t be fixed at the time but he really tried and he got me off the road safely. Very pleasant and helpful, keep him. He is very good!”*

**December 13, 2002**

*“The WSDOT person was outstanding and ensured my safety. Gladly pay taxes to ensure this service!”*

**December 26, 2002**

*“Please keep this service, we need it bad. Thank you so much!”*



*This incident occurred between Parkland and Puyallup on State Route 512 near the Canyon Road interchange.*

## Monitoring the Program: Clearing Incidents Within 90 Minutes

As previously reported, WSDOT signed the “Joint Operations Policy Statement” (JOPS) with the Washington State Patrol on February 13, 2002, and adopted a joint performance goal: “WSP and WSDOT will collaborate to respond to incidents and coordinate all public and private resources in this effort to work toward clearing incidents within 90 minutes.” WSDOT continues to monitor its efforts to meet this goal.

### Examples of Incidents Over 90 Minutes

The following five incidents had the longest clearance times for the period between October 1, 2002 and December 31, 2002:

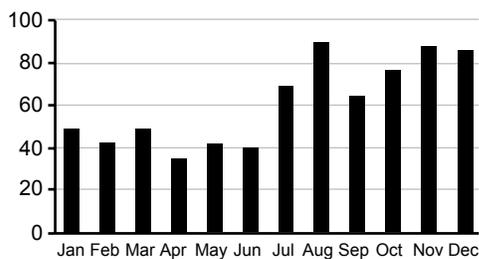
- **December 11** – A rail car fire beneath the SR 509 Puyallup River Bridge in Tacoma resulted in a total closure of

the highway. IR provided traffic control. It took 12 hours and 46 minutes to clear the scene.

- **November 14** – A semi truck rollover east-bound on SR 512 in Puyallup resulted in a lane and shoulder closure. IR provided traffic control. It took 9 hours and 29 minutes to clear the scene.
- **November 22** – A vehicle northbound on SR 9 near Clear Lake hit a power pole, collapsing it into the roadway. IR provided traffic control. It took 9 hours and 4 minutes to clear the scene.
- **November 8** – A pickup traveling northbound on SR 17 near Warden crossed the centerline and struck another pickup, killing both drivers. IR performed traffic control. It took 8 hours and 30 minutes to clear the scene.
- **November 3** – A fire between SR 14 and the Columbia River east of Stevenson caused a closure of the highway. IR performed traffic control. It took 7 hours and 55 minutes to clear the scene.

### Number of Incidents Over 90 Minutes

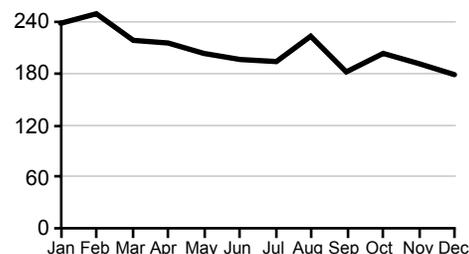
Statewide, 2002



Source for all charts: WSDOT Traffic Office.

### Average Clearance Time for Incidents Lasting Over 90 Minutes

Statewide, 2002 (In Minutes)



# Asset Management: Bridge Assessment, Annual Update

The WSDOT Bridge Assessment Program consists of four main program areas:

- **Inspection.** Inspect one-half of all WSDOT bridges every year.
- **Repair, rehabilitation, and replacement.** Remedy for deterioration and traffic impacts. Rehabilitation of mechanical and electrical operating systems on movable bridges.
- **Preservation.** Extend bridge service life such as painting of steel structures, overlays of bridge decks, replacement of floating bridge anchor cables.
- **Risk reduction.** Special efforts directed to seismic and flood risk.

## WSDOT Bridge Inventory\*

December 31, 2002

Bridge Type	Quantity	Area (sq ft)
Pedestrian Bridges	61	137,795
Railroad Bridges	84	na
Buildings or plazas	1	na
Structures < 20 feet in length	233	na
Culverts > 20 feet in length	77	na
Tunnels and Lids	41	870,858
Ferry Terminal Structures	41	223,811
Vehicular Bridges > 20 feet	2,960	42,826,734
<b>Total WSDOT Bridges</b>	<b>3,498</b>	<b>44,059,198</b>

\*This reflects an update of the March 31, 2002, Bridge Inventory, and includes bridge structures identified based on modified classification criteria. Source: WSDOT Bridge Office.

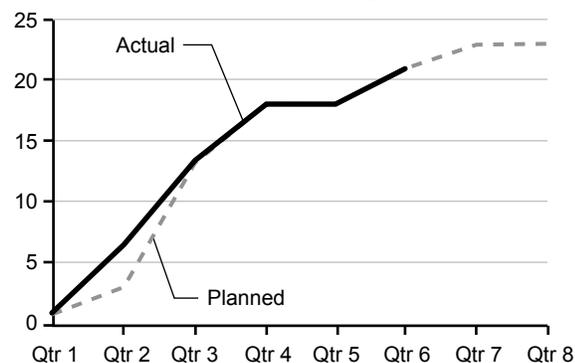


## Preservation: Steel Bridge Painting

On steel bridge elements, maintenance of protective coatings is essential to prevent corrosion and loss of structure capacity. Bridge painting can be a major project because of the length of the structures and the complexity of safety, environmental (lead paint removal and water quality protection), and other requirements.

### 2001-2003 Bridge Painting Projects

Planned vs. Actual Number of Projects Advertised  
2001-2003 Biennium, Quarter 6 Ending December 31, 2002



Source: WSDOT Program Management Office.

## 2002 National Bridge Comparisons

*Better Roads Magazine* publishes a comparison of bridge conditions using data it gathers from state engineering sources. The snapshot combines *functionally obsolete* (FO) as well as *structurally deficient* (SD) bridges. According to this data, Washington ranks 27th, up from 28th last year, with 21% of its state and interstate bridges in the SD/FO category, as compared to a nationwide figure of 22.5%. Other sources of comparisons include The Road Information Program (TRIP), which shows SD/FO information for all bridges (including locally owned) in each state. Washington ranks 24th with 27% SD/FO according to TRIP data. WSDOT's asset management strategy takes a broader approach (more emphasis on seismic and bridge deck condition, less on functional obsolescence; see the December 31, 2001, *Gray Notebook*). The *Better Roads* and TRIP data only serve as a cross-check on the big picture.

### Structurally Deficient/Functionally Obsolete (SD/FO) Bridges by State

Source: *Better Roads Magazine*, November 2002.

Ranking	State	Total State and Interstate Bridges	Total SD/FO Bridges	Percent SD/FO
1	Arizona	4,438	134	3%
2	Nevada	1,013	53	5%
3	North Dakota	1,108	63	6%
4	Nebraska	3,498	259	7%
5	Minnesota	3,800	390	10%
7	Wisconsin	4,877	598	12%
8	Indiana	5,613	747	13%
9	California	12,312	1,728	14%
13	Kansas	5,253	861	16%
15	Montana	2,316	404	17%
18	Delaware	825	146	18%
20	Idaho	1,252	235	19%
22	Arkansas	6,993	1,406	20%
23	Alaska	844	180	21%
<b>27</b>	<b>Washington</b>	<b>3,208</b>	<b>679</b>	<b>21%*</b>
30	Utah	1,791	392	22%
42	Oregon	2,680	820	31%
50	Rhode Island	600	332	55%
	<b>U.S. Total</b>	<b>284,311</b>	<b>63,950</b>	<b>22.5%</b>

## Risk Reduction: Seismic

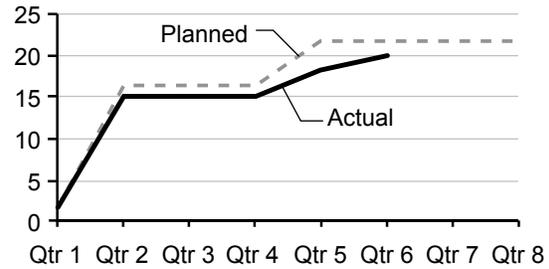
From 1980 to the end of December 2002, WSDOT has completed 393 full or partial seismic retrofit projects to meet current national standards. An additional 943 retrofits await programming. Retrofit priorities are based on seismic risk of a site, structural detail deficiencies, and route importance.

*This data represents an update to the March 31, 2002, Gray Notebook "Risk Reduction: Seismic" information. In the chart to the right the project delivery measurement is now based on "Advertisement" dates rather than "Award" dates.*

*The total number of seismic retrofits completed is now based on the number of projects and not the number of bridges. A bridge could have more than one retrofit need.*

## Bridge Seismic Retrofit Program

*Planned vs. Actual Number of Projects Advertised  
2001-2003 Biennium, Quarter 6 Ending December 31, 2002*



*Projects numbered 6 through 9 listed below have been deferred or delayed, as indicated by the chart above.*

## Top Ten Priority Bridges for Seismic Retrofit

*2001-2003 Biennium*

No.	City	Highway	Bridge Name or River	Planned Ad Quarter	Actual Ad Quarter
1	Longview	SR 433	Lewis & Clark Bridge over Columbia River	5	5
2	Seattle	I-5	Eastbound 6 <sup>th</sup> Ave. Ramp at Spokane St. Interchange	*	8
3	Seattle	I-5	Westbound 6 <sup>th</sup> Ave. Ramp at Spokane St. Interchange	*	8
4	Seattle	SR 99	Spokane Street Overcrossing	*	**
5	Seattle	SR 99	Aurora Avenue over Lake Union	*	7
6	Aberdeen	U.S. 12	Heron Street over Wishkah River	5	**
7	Aberdeen	U.S. 101	Chehalis River	5	6***
8	Hoquiam	U.S. 101	Riverside Avenue over Hoquiam River	5	7
9	Hoquiam	U.S. 101	Simpson Avenue over Hoquiam River	5	7
10	Elma	U.S. 12	Satsop River	5	5

*\* Did not have a planned advertisement in the current biennium.*

*\*\* Scheduled for advertisement next biennium.*

*\*\*\* Bids were rejected and bridge project will be readvertised.*

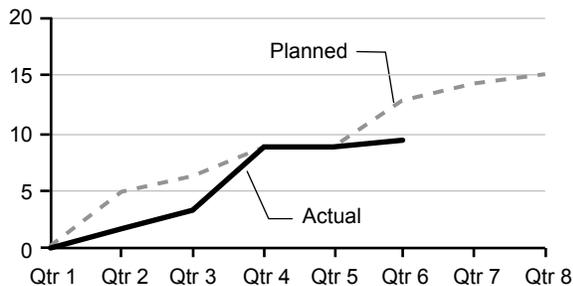
*Sources: WSDOT Bridge Office.*

## Preservation: Bridge Deck Protection

Concrete bridge deck deterioration has been the largest single bridge preservation problem in the country for years. WSDOT has been working since the early 1980s on a systemic program to repair bridge deck damage and provide durable protective concrete overlays. In the current biennium program, actual delivery lags behind planned because three bridges on the Interstate 5, NE 155th Street to NE 175th Street Southbound project were combined with another project in the area that begins in Quarter 7. The combined work will yield contracting efficiencies and lessen the impacts of the bridge work on the traveling public.

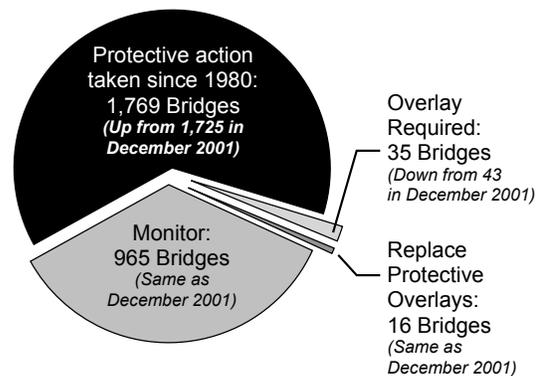
### 2001-2003 Deck Protection Projects

*Planned vs. Actual Number of Projects Advertised  
2001-2003 Biennium, Quarter 6 Ending December 31, 2002*



*Source: WSDOT Program Management Office.*

### Deck Program Overview



# Asset Management: Pavement Assessment, Annual Update

## Determining Pavements “Due” for Rehabilitation

WSDOT has been rating pavement condition since 1969. Pavement rated in good condition is smooth and free of defects. Pavement in poor condition is characterized by cracking, patching, roughness, and rutting. In a recent performance review FHWA stated that “WSDOT has an efficient data collection program using laser technology that provided high quality measurements for all road segments.” Pavements are rated on pavement structural condition (PSC), rutting, and roughness (see box below). WSDOT uses a combination of pavement ratings to determine when pavement is due for rehabilitation based on Lowest Life Cycle Cost (LLCC) management. If rehabilitation is done too early, pavement life is wasted. If rehabilitation is done too late, additional – and possibly very costly – repair work may be required if the underlying surface structure is compromised.



### Pavement Structural Condition (PSC)

A pavement will develop structural deficiencies (for example, cracking) for two reasons: truck traffic and cold weather. The PSC is a measure based on distresses, such as cracking and patching, which are related to the pavement’s ability to carry loads. PSC ranges from 100 (best condition) to 0 (worst condition). A roadway should be considered for rehabilitation when it falls within the PSC range of 40 to 60.



### Rutting

Rutting is caused by heavy truck traffic or studded tire wear. Ruts deeper than 1/2 inch have the potential to hold water, increasing the risk of hydroplaning for high-speed traffic. A roadway should be rehabilitated when the rut depth is greater than 1/3 inch.



### Roughness

The International Roughness Index (IRI) is a procedure to measure pavement ride. A full-sized van, with a laser-measuring device mounted on the front bumper, measures the roughness of the pavement. A roadway should be rehabilitated when the IRI value is between 170 and 220 inches per mile. WSDOT currently uses five categories for classifying pavement condition. For IRI these categories include very good (*IRI < 95 in/mi*); good (*IRI 95-170 in/mi*); fair (*170-220 in/mi*); poor (*220-320 in/mi*); and very poor (*> 320 in/mi*).

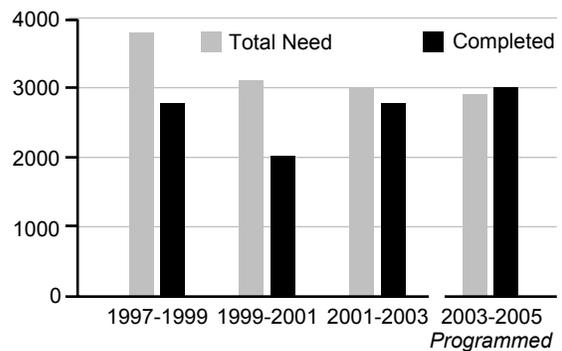
## Pavement Rehabilitation Needs

Using pavement condition measures, WSDOT is able to determine the number of lane miles of pavement due to be rehabilitated each year. Often, the funding level is not sufficient to address all of the pavements that are currently due for rehabilitation. The chart illustrates, by biennium, the number of miles due for rehabilitation (gray) and the number of miles actually rehabilitated (black). The difference is the number of due miles not addressed because of funding constraints or other program impediments. In the 1999-2001 biennium, 1,181 due and past-due lane miles were not addressed compared to 1,000 miles in 1997-1999. During 2001-2003, 292 due miles are not programmed for rehabilitation.

For the 2003-2005 biennium, the number of miles programmed to be paved slightly exceeds the number of miles due for rehabilitation. This slight increase (149 lane miles) is a result of more chip sealed miles being programmed and rehabilitated during the 2003-

## Pavement Rehabilitation

Lane Miles



Source: WSDOT Materials Laboratory.

2005 biennium. It is more cost effective to combine all chip seal roadway projects in a specific area in one biennium. This may result in more lane miles being rehabilitated than are actually required.

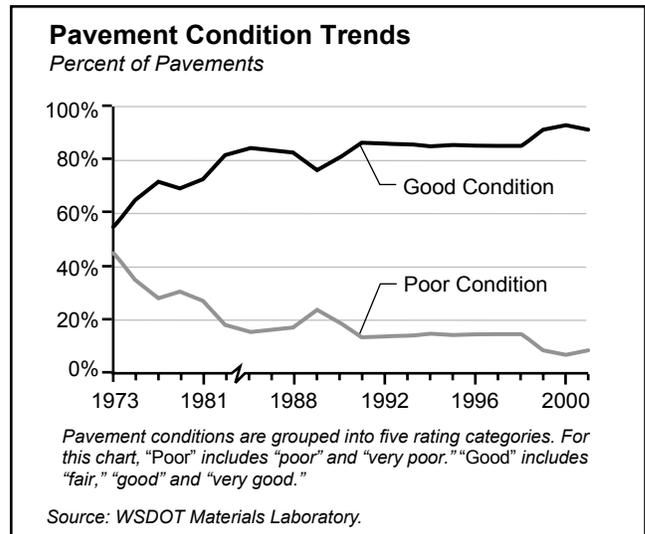
## Pavement Performance

WSDOT manages close to 18,000 lane miles of pavement surface. The goal for pavement is zero miles in “poor” condition. However, marginally good pavements may deteriorate into poor condition during the lag time between assessment and actual rehabilitation. As a result, a small percentage of marginally good pavements will move into the “poor” conditions category for any given assessment period.

The annual review also provides the basis for determining the extent of pavement “due” for rehabilitation under the LLCC methodology.

According to the most recent 2001 pavement rating, the percent of all pavement in “poor” condition increased from 6 percent in 2000 to 9 percent in 2001. This appears to be related to the backlog of “due pavement,” an increase in pavement roughness (IRI), a small increase in rutting for all pavement types, and some deterioration of PSC for asphalt and chip seal. For asphalt and chip seal pavements, the percent of pavements in “poor” condition increased from 6 percent in 2000 to 9 percent in 2001.

There was ominous news relating specifically to concrete pavements. Even though there was only a slight increase in the concrete pavements judged in “poor” condition (an increase of 3 lane miles), the percentage of concrete pavement “due” for rehabilitation jumped from 9 percent to 12 percent, an increase of about 70 lane miles (WSDOT rehabilitated 55 lane miles of concrete pavement in 2000 and 25 lane miles in 2001). This does not presage good news for the forthcoming 2002 pavement rating results. Concrete pavement rehabilitation is an area where more work has to be done.



## How Do Washington’s Pavements Compare Nationally?

The Federal Highway Administration (FHWA) publishes an annual report entitled Highway Statistics. Included in this report is information concerning pavement smoothness in each of the 50 states and the District of Columbia based on roughness\* only. To the right is a snapshot of the ranking table that shows the number of miles, by state, in poor condition according to smoothness. The total miles reported includes the interstate system and principal arterials owned by the state, cities, and counties, and a sampling of other functional classes. Washington state is ranked 17th in smooth roads (Washington was ranked 10th in 2000). This change reflects an increase of 80 miles of the total pavement rated as “rough” (from 131 miles in 2000 to 211 miles in 2001).

This publication can be viewed at [www.fhwa.dot.gov/ohim/hs01/index.htm](http://www.fhwa.dot.gov/ohim/hs01/index.htm)

\* This rating is based only on the International Roughness Index (IRI). In contrast, WSDOT measures pavement performance using all three ratings: pavement structural condition, rutting, and roughness. (See page 16.)

## Pavement Smoothness by State

Rank	State	Centerline Miles Reported	Miles Poor Condition	Percent in Poor Condition
1	Georgia	11,297	10	0.1%
2	Wyoming	4,417	23	0.5%
3	Alabama	7,706	43	0.6%
4	Nevada	2,954	32	1.1%
5	North Dakota	6,177	90	1.5%
6	Kentucky	5,192	90	1.7%
7	Florida	10,931	192	1.8%
8	Minnesota	11,673	238	2.0%
9	Kansas	8,830	217	2.5%
10	Montana	6,925	177	2.6%
11	Maine	2,390	66	2.8%
12	Idaho	3,842	107	2.8%
13	South Carolina	6,768	195	2.9%
14	Arizona	3,875	127	3.3%
15	Tennessee	7,717	258	3.3%
16	Oregon	6,291	240	3.8%
<b>17</b>	<b>Washington</b>	<b>5,396</b>	<b>211</b>	<b>3.9%</b>
18	Indiana	6,360	270	4.2%
19	Ohio	9,012	423	4.7%
20	New Hampshire	1,384	66	4.8%
49	California	20,416	5,338	26.1%
50	Massachusetts	3,298	998	30.3%

Source: Highway Statistics 2001, U.S. Department of Transportation.

# Highway Maintenance: Quarterly Update

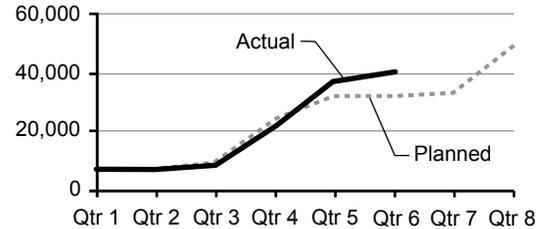
## Pavement Striping

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



## Pavement Striping

Miles of Roadstripe Painted



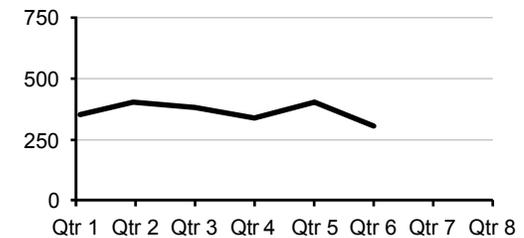
Note: The planned, annual miles of painted stripe was reduced to 24,260 due to the replacement of 255 miles of painted stripe with durable markings in 2001 that do not require annual re-painting.



## Litter Removal

Litter, debris, and animal carcasses must be regularly 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 the March 31, 2002, Gray Notebook for more details.)

## Tons of Litter Removed from State Highway Roadsides



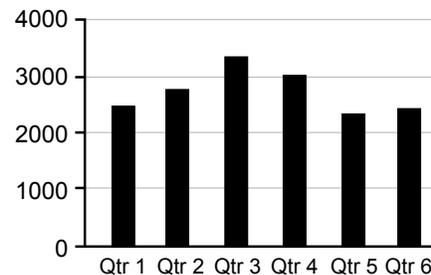
## Highway Sign Maintenance

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

Current Biennium (July 2001 to June 2003)

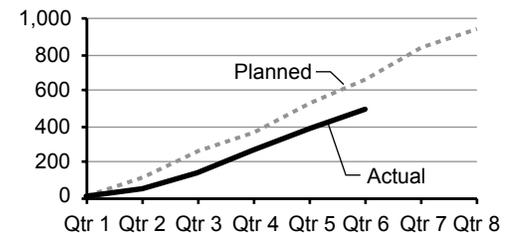


## Sign Bridges

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



Sources for all charts: WSDOT Maintenance and Operations Division.

## Annual Maintenance Performance Targets

The Maintenance Accountability Process (MAP) measures and communicates the outcomes of 34 distinct highway maintenance activities. Maintenance results are measured via field condition surveys and reported as Level of Service (LOS) ratings. LOS targets are defined in terms of the condition of various highway features (e.g., percent of guardrail on highway system that is damaged) and are set commensurate with the level of funding provided for the highway maintenance program. The following table shows 2001-2003 LOS targets for highway maintenance activities (in prioritized order), those targets that were achieved (Pass), and those activities whose targets were not achieved (Fail) during Calendar Year (CY) 2001. From CY 2001 to CY 2002, one maintenance activity (noted in the Target Level achievements in bold print) changed from “fail” status to “pass” status.

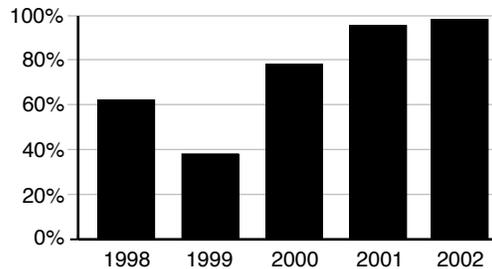
Maintenance Activity	Did WSDOT Achieve the Target Level for Highway Conditions Funded by the Legislature?	
	Pass	Fail
Pavement Patching & Repair	✓	
Snow & Ice Control Operations	✓	
<b>Traffic Signal System Operations</b>		✓
Movable & Floating Bridge Operations	✓	
Urban Tunnel Systems Operations	✓	
Keller Ferry Operations	✓	
Guardrail Maintenance	✓	
Noxious Weed Control	✓	
<b>Structural Bridge Repair</b>	✓	
Intelligent Traffic System Operations	✓	
Control of Vegetation Obstructions	✓	
Permits/Franchises	✓	
Maintain Culverts	✓	
Regulatory Sign Maintenance	✓	
Slope Repairs	✓	
Crack Sealing	✓	
Bridge Deck Repair	✓	
Safety Patrol	✓	
Rest Area Operations	✓	
Highway Lighting Systems Operations	✓	
Pavement Striping Maintenance	✓	
Maintain Catch Basins & Inlets	✓	
Raised/Depressed Pavement Markers	✓	
Sweeping and Cleaning	✓	
Nuisance Vegetation Control	✓	
Maintain Ditches	✓	
Shoulder Maintenance	✓	
Detention/Retention Basins	✓	
Litter Pickup	✓	
Guide Sign Maintenance	✓	
Landscape Maintenance	✓	
Guidepost Maintenance	✓	
Bridge Cleaning	✓	
Pavement Marking Maintenance	✓	

## Analysis of “Failed” Maintenance Activity Target for 2002

### Traffic Signal Systems

WSDOT is working to improve performance for traffic signal maintenance. Currently, performance is measured by the number of annual repairs needed for each traffic signal. WSDOT has almost completed a tracking system to monitor signal maintenance needed and maintenance completed, as well as including, for the first time, preventive maintenance. By tracking preventive maintenance tasks, WSDOT will have a more complete system for judging “level of service,” or how well the signal systems are working. Additionally, this new tracking system will account for different types of signals and add a weighted rating for their varying complexity of operation, which will help explain the different types of maintenance each requires.

**Percentage of Legislatively Funded Targets Achieved for 1998-2002**



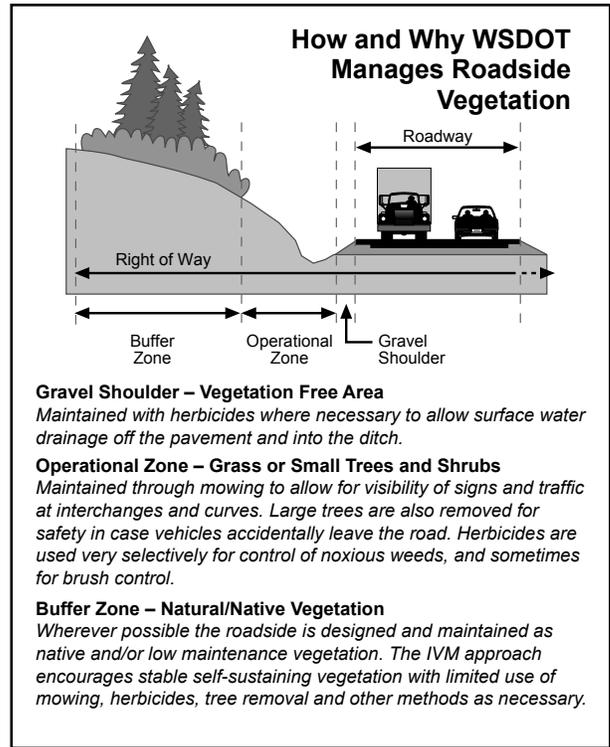
Source: WSDOT Maintenance and Operations Division.

# Integrated Vegetation Management: Update

WSDOT continues to develop components of an Integrated Vegetation Management (IVM) program. One component is an update of the herbicide toxicology risk assessment originally conducted as part of the *1993 Environmental Impact Statement on Roadside Vegetation Management*. Another component is an analysis of comparative benefit and cost between WSDOT's practice of roadside vegetation management, including some use of herbicides, and the no-herbicide practice employed by several counties. WSDOT is also developing roadside management and information tracking systems for the I-5 corridor as well as highways in Clallam County. These components will be used beginning in May and throughout the summer when many vegetation management activities take place. Information on these activities will be available on WSDOT's website [www.wsdot.wa.gov/biz/maintenance/htm/roadside\\_maint.htm](http://www.wsdot.wa.gov/biz/maintenance/htm/roadside_maint.htm) and will be referenced in future editions of the *Gray Notebook*.

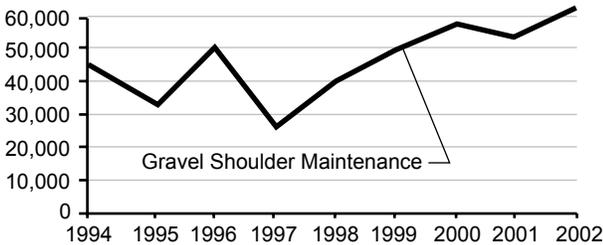
## Updated Herbicide Use

WSDOT has updated the information presented in the [March 31, 2002, edition of the Gray Notebook](#) with totals for the years 2001 and 2002. The [next page](#) contains more information about these trends.

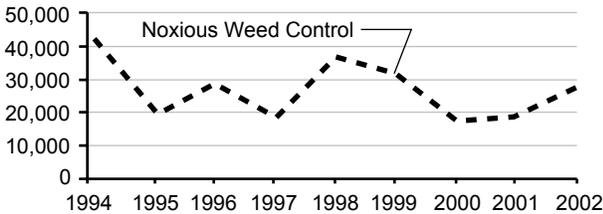


## Major Herbicide Products: Overall Usage Trends

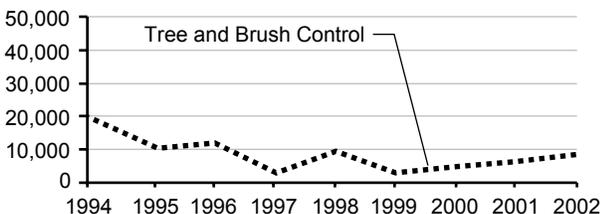
Pounds of Active Ingredient Applied Annually, 1994-2002



Products Used	Concerns with Use	Trends and Fluctuations
Herbicides are used to eliminate all vegetation immediately adjacent to the pavement. Products used suppress seed germination and control any existing foliage. Major products are: Roundup, Diuron, Krovar, and Oust.	Applications must be made under proper weather conditions. Movement off target can result from high wind and rainfall.	Variation in 1994 - 1998 resulting from fluctuations in available budget. Increase since 1998 as a result of higher rates per acre used to achieve greater effectiveness and longer term control. Rates used are still well below the maximum allowable on product labels.



Herbicides used control only targeted weeds within stands of desirable vegetation. Applications are made only to areas infested with undesirable vegetation. Major products include: Weedar 64, Weedmaster, Veteran 720, Vengeance and Telar.	Some of these products contain 2,4-D which can move off target if temperatures exceed the labeled limits. Small amounts of 2,4-D have been known to cause damage to certain crops including grapes in Eastern Washington.	If applications are made consistently from year to year as part of IVM programs, infestation levels decrease and the required usage decreases over time. However, if control measures are reduced in any given year, weed infestations will spread requiring increased levels of use in succeeding years.
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Herbicides as used in combination with mowing and cutting tools to selectively trim or remove trees and brush encroaching on highway operational functions. Major products used include: Garlon, Banvel and Escort.	Use of these products in the spring and summer may result in an undesirable visual effect referred to as "brown out". Applications are typically made in the late summer and fall to avoid this.	Consistent control of these problems from year to year will result in minimization of herbicide use. If control measures are reduced in any given year or series of years, herbicides are typically used as the quickest and most cost effective means of regaining control of rapid regrowth of undesirable trees and brush.
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Data compiled for this graph includes the major products used by WSDOT between 1994 and 2002. The product use shown accounts for approximately 98% of total use.

Source: WSDOT Maintenance and Operations Division.

## Herbicide Usage Trends

The largest end use for herbicide is Gravel Shoulder Maintenance and since 1997, the data indicates a trend of increasing use. This is not a result of increase in the area covered, but rather an increase in product application (Diuron) rates per acre to achieve more effective and longer-term weed suppression on gravel shoulders. Maintenance personnel found that the low rates of Diuron being applied were not very effective. Improved effects have been found at the current application rate of six to seven pounds per acre. This is well below the EPA-approved maximum application rate of 12 pounds per acre. WSDOT will assess the risk and benefit/cost aspects of this increase to determine if adjustments in agency policy and procedures are advisable.

## The Ecology Embankment: A New Way to Protect Water Quality

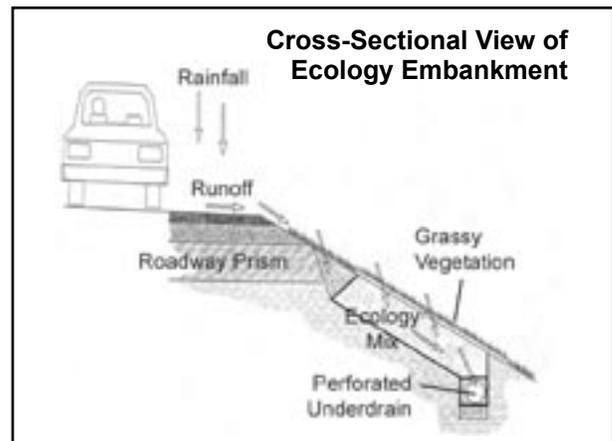
How can nearby streams and wetlands best be protected from the possibility that highway runoff will transport pollutants from the roadway?

Vegetation that serves as a natural filter for pollutants is an important component of WSDOT's IVM program. In addition to maintaining filtering road-side vegetation, WSDOT's array of stormwater Best Management Practices (BMPs) includes grass-lined swales, detention ponds and other facilities designed to mitigate the effects of wet weather runoff. However, these facilities can be expensive to install and maintain, especially in urban settings where land is scarce.

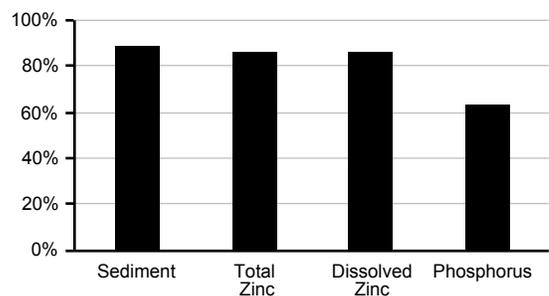
WSDOT is studying another management practice that may be useful and cost-effective. Bob Winter, a WSDOT hydraulic engineer, has coined the term "Ecology Embankment" for the design illustrated to the right. The key is the under-grass compost mix that serves as a compact and highly effective filter prior to runoff entering the perforated underdrain (see diagram). Shoulders too narrow for incorporation of other pollution protection techniques might use the Ecology Embankment to good effect.

### Case Study Analysis: State Route 167, Auburn

The effectiveness of an Ecology Embankment was studied in 2001-2002. Runoff was sampled during nine storms between August and April. Samples of untreated water were collected at the edge of the pavement and compared to treated samples that were collected at the embankment drain outlet. The study found that this design removed a high proportion of the pollutants found at these roadsides. The Ecology



### State Route 167 Ecology Embankment: Average Pollutant Removal from Roadsides 2001-2002, Percent Removed

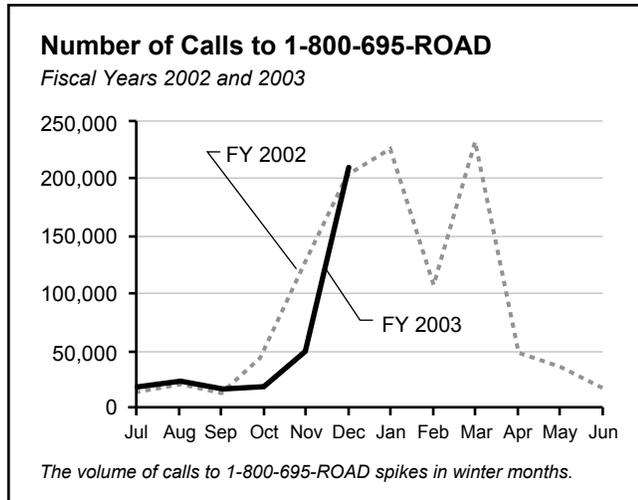


Source: WSDOT Environmental Affairs Office.

Embankment's effectiveness, especially for dissolved metal and phosphorus removal, compares favorably to other technologies while significantly reducing land requirements and maintenance costs. WSDOT is requesting approval from the Department of Ecology to add the Ecology Embankment to the list of accepted stormwater BMPs.

# Traveler Information

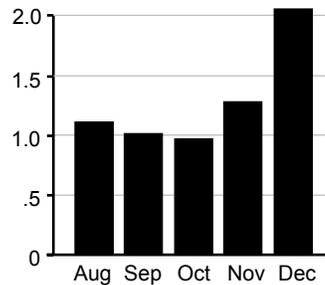
WSDOT supplies traveler information in several ways, including on the Internet, via changeable message signboards, highway advisory short-wave radio, over the phone at 1-800-695-ROAD, and via the television and radio news statewide that broadcast WSDOT information. [For an overview, see the September 30, 2002, edition of the Gray Notebook.](#)



## On the Web

WSDOT continues to monitor and establish a baseline of customer usage of WSDOT's traveler information on the Internet. As expected, usage increased as winter set in.

**Traveler Website Daily Usage**  
Average Daily Page Views, in Millions



Average page views per day in December 2002 were 2.1 million. Two notable spikes occurred in December. The first major snow storm on December 11 brought total page views for that day to 3.76 million. The wind storm on December 27 generated 5.5 million page views that day – the highest on record since WSDOT began establishing a baseline in August of 2002.

Sources for all charts: WSDOT Communications Office.

## Traffic Cameras

WSDOT owns 375 cameras on state highways, many of which are available to the public over the WSDOT website. Here's a look at the most popular cameras from December. Note the prominent ranking of the mountain pass cameras during this period:

Rank	Dec.	Sep.	Camera Location
1	10		Interstate 90 at Snoqualmie Pass, West Summit
2	1		SR 520 at 148th Ave NE, Bellevue/Redmond area
3	NR*		U.S. 2 at Stevens Pass
4	2		SR 520 at West Lake Sammamish Parkway
5	9		Interstate 90 at Snoqualmie Pass, Hyak West
6	7		U.S. 12 at White Pass
7	4		SR 520 Evergreen Point Floating Bridge, East Highrise, Bellevue
8	3		SR 520 at Bellevue Way NE
9	NR		Interstate 5 at NE 45th near the University of Washington, Seattle
10	NR		SR 520 at 92nd Avenue near the Evergreen Point Floating Bridge, in Clyde Hill
11	NR		SR 520 at Redmond Way, Redmond
12	6		U.S. 97 at Blewett Pass

\* NR = Not Ranked in top camera sites last quarter.

## WSDOT Website Feedback

Below is a sample of recent traveler website feedback:

### October 21, 2002

"I am very impressed with your mountain pass report website... keep up the good work."

### November 21, 2002

"Let me say this... your department runs the best government website I've ever seen. Sometimes I think your road crews have way too many people just standing around not doing anything. And sometimes I don't think you spend money wisely. But your website is clear, concise, and to the point. It is also FULL of information! Nice job folks!"

### December 16, 2002 (referring to mountain pass website)

"GREAT web page – Outstanding display of locations and options! I am very impressed. THANKS for the great site."

### December 18, 2002

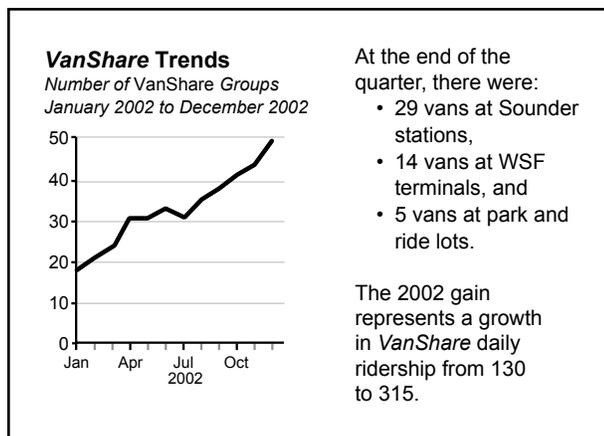
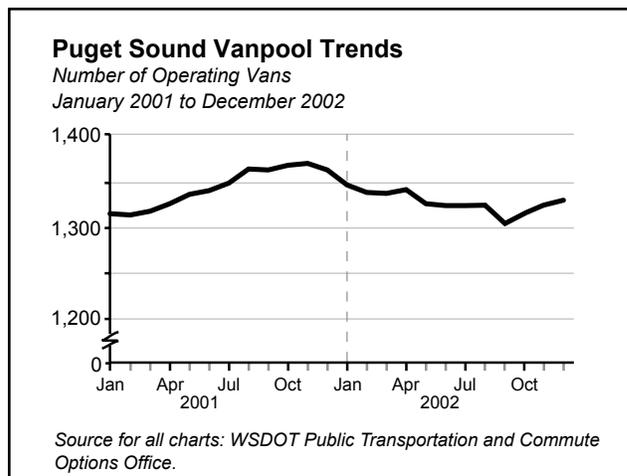
"I would like to commend you on the vast information that you provide to people about your highways and road conditions. The highway cameras are great and very helpful. I am planning a trip out to Oak Harbor to visit my son this weekend and the information on your website was very helpful."

# Commute Trip Reduction: Quarterly Update

## Vanpools in the Puget Sound Region

Vanpooling in the Puget Sound Region ended the year on a slight upward trend for the quarter, though the total number of vans on the road was down 2 percent since January 2002.

The number of vanpools on the road continued to be buoyed by very strong growth in the number of King County Metro *VanShare* groups. Twelve new *VanShare* groups formed this quarter. *VanShare* vans support multimodal commuting for employees in the Puget Sound Region by providing a connecting service for commuters.



## Van Shuttle Successes

The Employer Services Grants contract administered for WSDOT by Commuter Challenge, a King County non-profit, has four projects that demonstrate the innovative use of van vehicles as short-distance connector service to work sites.

Continental Mills in Kent, Group Health Cooperative Administrative Campus in Tukwila, and the Washington State Department of Ecology in Bellevue are employing the *VanShare* program provided through King County Metro to transfer employees from train stations, park and ride lots and the downtown bus tunnel to their work sites.

Continental Mills, partnering with King County Metro, currently provides a *VanShare* vehicle at

the Kent Sounder Station. Using two *VanShare* vehicles, Group Health Cooperative's Administration Campus in Tukwila has been shuttling employees from the Tukwila Sounder Station and park and ride lot to the campus. And the Department of Ecology, with one *VanShare* vehicle, has been offering transport from the Eastgate park and ride lot.

Harborview Medical Center in Seattle has contracted with a private provider for shuttle service that has 15-minute headways during early and late hours to and from the Colman Ferry dock, King Street Station, and the downtown bus tunnel. The service was developed to meet the hospital's unique early morning and late night staffing needs, enabling workers to commute without their cars.

## Puget Sound Park and Ride Lot Capacity Needs

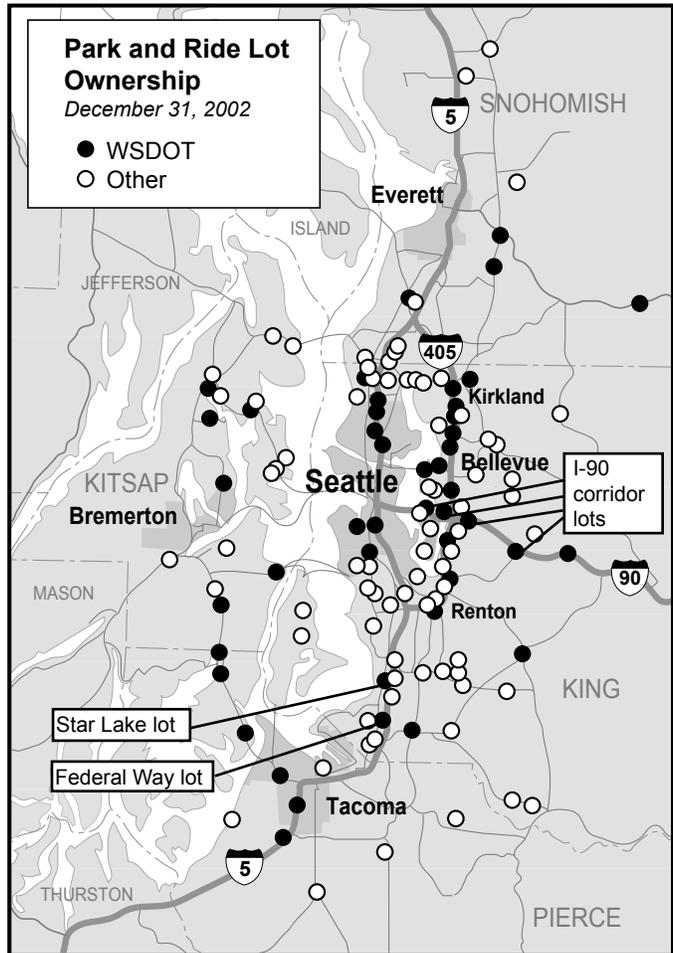
Park and ride lots in Washington are built, owned, and operated by various transit agencies and other governmental bodies. Location, access, and the quality of associated transit service make some lots more popular than others.

The most crowded lots are located along the most congested corridors, such as Interstate 5, Interstate 405, State Route 520, and Interstate 90. Many of the park and ride lots surpass the target occupancy of 70%\*. Several lots in King and Snohomish Counties are overcrowded despite the weak economy and a decline in transit ridership.

In the last year, occupancy dropped from 101% to 93% in Federal Way and dipped from 94% to 76% at Star Lake. These drops in occupancy probably reflect shifts in travel patterns as commuters switch to new lots added by Sound Transit in the last several months (1,135 spaces in South King County) and the 2,400 parking space expansion at the Tacoma Dome Station garage.

By comparison, in areas where no capacity has been added, overcrowding continues to be a problem. Lots on or near the I-90 corridor in Issaquah, Mercer Island, and South Bellevue continue to exceed 100% capacity. Eastgate averages 95% occupancy.

*\*At occupancy levels above 70%, the risk of not finding a parking space becomes an issue for potential users and discourages expanded use of vanpooling and transit.*



Source: Puget Sound Regional Council.

This map is a representation of the major park and ride lots in the central Puget Sound. Some lots, including leased lots and those not served by transit, are not shown. PSRC expects to update this inventory later this year.

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

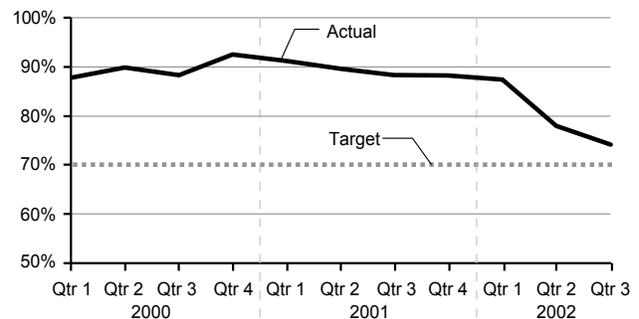
During the third quarter of 2002\*, occupancy of the 8,500 parking spaces in the 32 WSDOT lots\*\* in King County averaged 74%, continuing the decline in usage over the previous two quarters. About 53% of WSDOT's park and ride lots in King County surpassed the target of 70% occupancy during the quarter, down from 56% last quarter. Parked cars exceeded maximum capacity at six lots.

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

*\*\*Note: WSDOT began measuring usage of its new park and ride lot at Twin Lakes last quarter.*

## WSDOT-Owned King County Park and Ride Lots

Percent of Capacity Used: 1999-2002\*



Source: WSDOT analysis of King County Metro data.

# Washington State Ferries: Quarterly Update

Washington State Ferries (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 database cross tabulation and analysis.



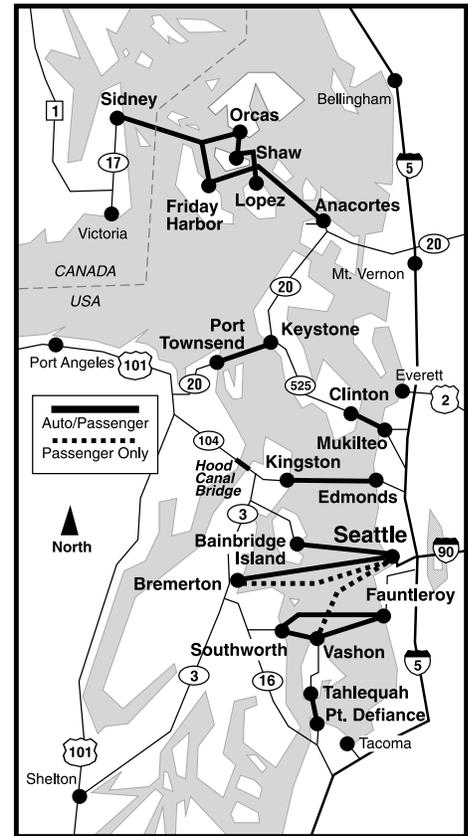
The ferry Quinault.

The charts show trends in the data for the last four fiscal years and the first two quarters of fiscal year 2003 (July 1 - December 31, 2002).

Customer complaints in the second quarter were down 34 percent from the preceding quarter.

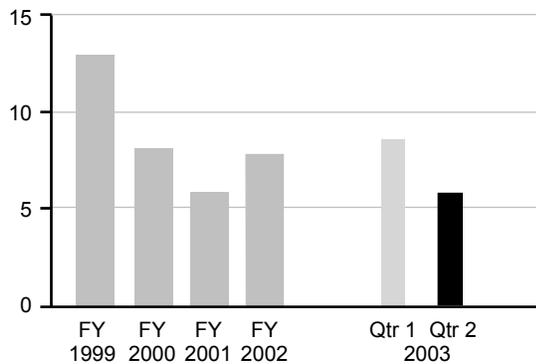
Complaints related to bicycle issues were up more than 300 percent (22 complaints) from the preceding quarter. These complaints centered on WSF loading practices. WSF is working on resolving these issues.

On a positive note, complaints were down in nearly every other category. Food service complaints were down 83 percent, schedule-related complaints were down 52 percent, and ticket issues were down 30 percent.



## Total Customer Complaints

Complaints per 100,000 Customers\*

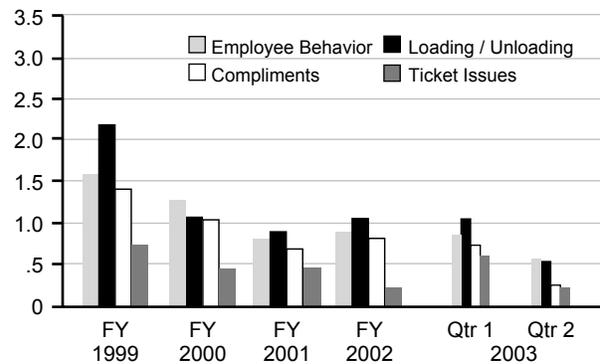


\*Does not include compliments or suggestions.

Source for all charts: WSDOT / Washington State Ferries.

## Most Common Customer Comments

Top Four Comment Types per 100,000 Customers



## On-Time Performance

WSF has been collecting on-time performance data since June 2001. The table below compares WSF on-time performance across the system for the second quarters of fiscal year 2002 and 2003. Overall, performance improved slightly from the previous year. Schedule changes on the Seattle/Bainbridge Island route resulted in significant on-time improvements on that route. The on-time performance improvement on the international route was the result of typical seasonal reductions in ridership for the fall quarter. Construction on the Fauntleroy and Southworth terminals was completed on October 11 and was the primary cause for on-time performance impacts on those routes.

### On-Time Performance Delivery

Route	Second Quarter Fiscal Year 2002			Second Quarter Fiscal Year 2003		
	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	6,493	88%	3.5 minutes	6,443	94%	2.7 minutes
International Route	180	79%	6.4 minutes	176	84%	3.7 minutes
Edmonds/Kingston	4,452	96%	2.8 minutes	4,564	94%	3.1 minutes
Passenger-Only: Seattle/Bremerton	1,660	95%	2.8 minutes	1,564	95%	2.8 minutes
Passenger-Only: Seattle/Vashon	1,026	98%	2.1 minutes	1,041	94%	2.4 minutes
Fauntleroy/Vashon/Southworth	10,489	93%	3.3 minutes	9,534	91%	4.3 minutes
Keystone/Port Townsend	1,688	95%	2.8 minutes	1,852	96%	2.4 minutes
Mukilteo/Clinton	6,487	99%	1.6 minutes	6,178	98%	2.0 minutes
Point Defiance/Tahlequah	3,060	91%	3.3 minutes	2,708	93%	4.0 minutes
Seattle/Bainbridge Island	4,025	89%	4.6 minutes	4,031	96%	2.8 minutes
Seattle/Bremerton	2,469	98%	2.4 minutes	2,563	98%	2.7 minutes
<b>Total</b>	<b>42,029</b>	<b>93%</b>	<b>3.0 minutes</b>	<b>40,654</b>	<b>94%</b>	<b>3.0 minutes</b>

*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).*

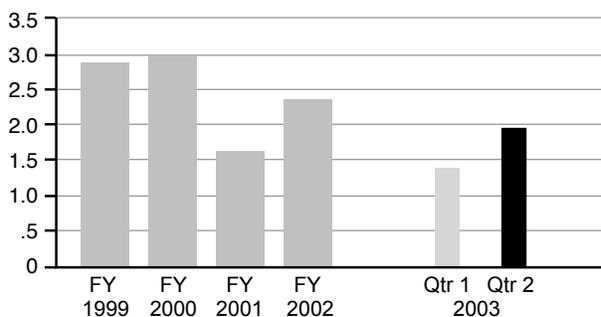
## Trip Reliability

WSF scheduled 43,216 trips during the 2nd quarter of fiscal year 2003. Of these trips, 210 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 1.9 ferry trips would be cancelled. This rating represents a 47% poorer reliability rating than the preceding quarter. However, the rating this quarter is an 18% improvement over the same period last year.

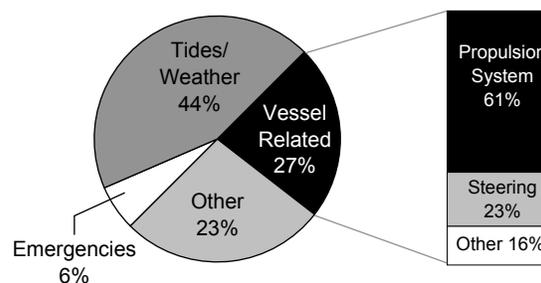
### Trip Reliability Index

Missed Trips per 400 Sailings



### Most Common Trip Cancellation Causes

Second Quarter, Fiscal Year 2003



*The apparent decline in performance as compared to the preceding quarter is an annual pattern associated with increased weather and tide conditions. In fact, weather- and tide-related cancellations were up 189% over the preceding quarter and were a major factor in the apparent decline in reliability. Vessel-related cancellations were actually down 32% from the preceding quarter. Tide- and weather-related cancellations were down 7% this year compared to the same period last year.*

$$\text{Trip Reliability Index Number} = \frac{\text{Cancelled Trips}}{\text{Total Scheduled Trips}} \times 400 \quad (\text{Average Annual Number of Commute Trips})$$

Source: WSDOT / Washington State Ferries.

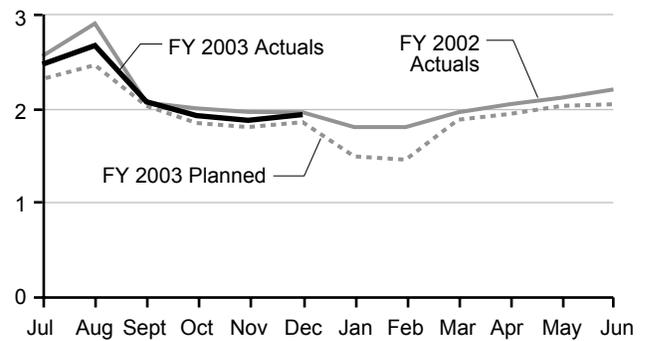
## Ridership and Revenues

The Legislature's Joint Task Force on Ferries (JTFF), 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 approved tariff increases of 20 percent in June 2001 and 12.5 percent in May 2002.

New tariffs have been designed to recover higher total revenues even though the number of riders may fall slightly when the price of the trip goes up. As shown above, WSF anticipates ridership will fall from the previous year because of the fare increase, but the value of total fares will go up. However, repeating the pattern from fiscal year 2002, through the second quarter of fiscal year 2003, WSF has experienced higher than projected ridership (6 percent higher) and higher than projected revenues (5.6 percent higher).

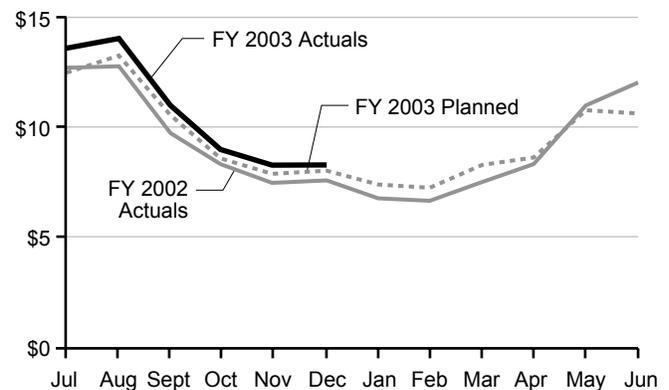
### Ferries Ridership by Month

In Millions



### Ferries Farebox Revenues by Month

Dollars in Millions



### Capital 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 program supports the ferry system's delivery of responsible and reliable marine transportation services.

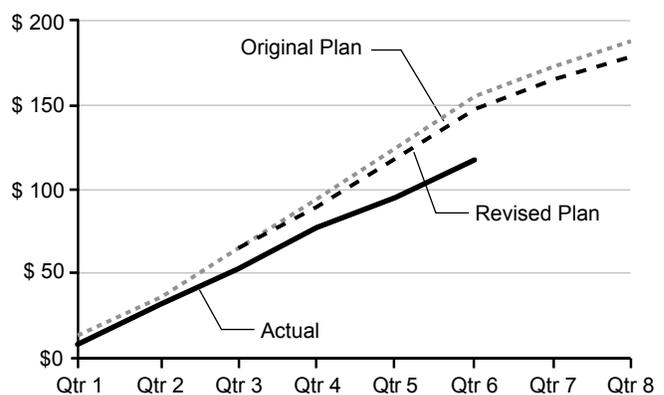
At the end of the sixth quarter of the 2001-2003 biennium, the program spent \$116.5 million (79%) compared to its plan of \$147.2 million. This is because of the decision not to acquire a replacement vessel for the *MV Kalama* and *MV Skagit* and the deferral of the *MV Elwha* Propulsion Control Project to the 2003-2005 biennium.

*"Original Funds Available"* are based on the Capital Improvement and Preservation Program adopted by the Transportation Commission in October 2001.

*"Planned Biennial Expenditures"* reflect a \$10 million appropriation reduction enacted by the 2002 Legislature.

### WSF Construction Program Expenditures

2001-2003 Biennium, Quarter 6 Ending December 31, 2002  
Planned vs. Actual



Program expenditures are grouped into spending on terminal construction, vessel construction, and emergency repairs of terminals and vessels.

Sources for all charts: WSDOT / Washington State Ferries.

# State-Supported Amtrak Cascades Service: Update

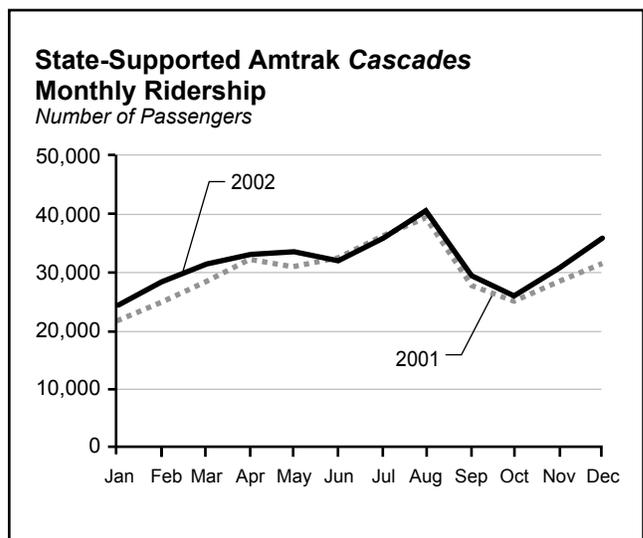
## Ridership

Ridership on state-supported Amtrak *Cascades* trains was 90,777 for the last three months of 2002. This represents a 5.4 percent increase over the same period in 2001. A major factor driving this quarterly increase was the growing popularity of the service with holiday travelers. Ridership in November and December 2002 was the highest ever for state-supported trains, due in large part to more than 26,000 people using the service during the weeks of Thanksgiving, Christmas, and New Year's.



## Annual Ridership

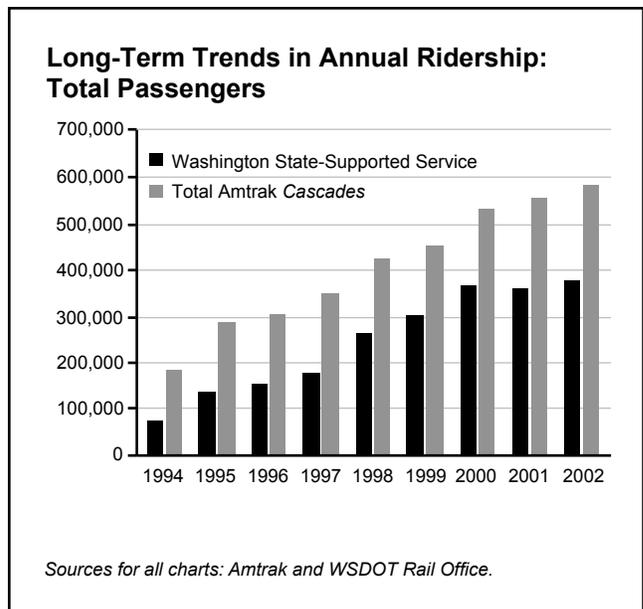
Ridership on state-supported Amtrak *Cascades* trains was 379,001 for 2002. This was a 5.5 percent increase over 2001. Total ridership on all Amtrak *Cascades* trains – including trains sponsored by Amtrak and the state of Oregon – was 584,346. This represents a 4.3 percent increase over 2001. Despite the sagging economy in the Pacific Northwest and reduced demand for intercity travel, 2002 marked the eighth consecutive year of ridership increases. The overall increase in ridership is largely attributable to the Amtrak *Cascades* stronger than usual ridership from January through May 2002.



## Fourth Quarter Highlights

A number of important things occurred in the last quarter of 2002:

- In November, the Amtrak *Cascades* began service at the new Everett Station. The facility also hosts Greyhound, local and regional transit, an employment services office, and satellite classrooms for several state universities. The new facility will serve as a major transportation hub for Snohomish County and is intended to support community revitalization efforts in the area between downtown Everett and I-5.
- WSDOT's Schools on Trains program scheduled 104 school groups between



October and December. This is an all-time record for the award-winning program.

- Installation of the new Passenger Information Display System commenced, and testing will begin in early 2003. The new system will allow travelers at the Vancouver, WA and Kelso stations access to real-time train arrival and departure information. The system will be extended to more stations when funding is available.

### On-Time Performance

On-time performance for state-supported Amtrak *Cascades* trains averaged 71.0 percent in October, 75.4 percent in November, and 79.2 percent in December 2002. The quarterly average of 75.2 percent was 1.2 percent higher than that of the same period in 2001. The primary cause of delays during the quarter stemmed from reduced train speeds where workers were installing the new rail traffic control system between Seattle and Tacoma that will support expanded *Sounder* commuter service.

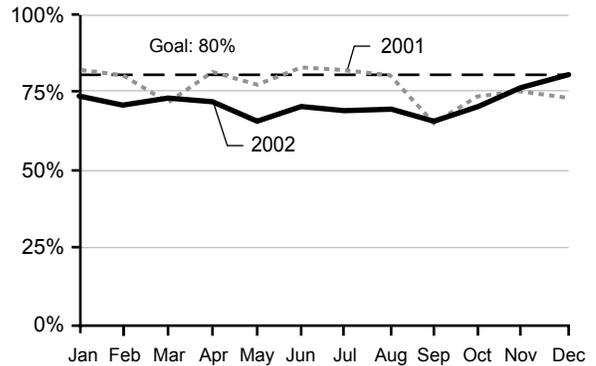
WSDOT's 2001-2002 operating contract with Amtrak included performance incentives and disincentives for the first time. For the 2001-2002 federal fiscal year (FFY), Amtrak *Cascades* on-time performance fell below the performance threshold of 75 percent. As a result, WSDOT will receive a \$50,000 reimbursement from Amtrak that will be applied toward operating expenses in 2003. The FFY 2002-2003 operating contract also contains this performance clause.

### State-Supported Amtrak Cascades Farebox Recovery

The farebox recovery rate per train measures the percentage of total annual operating costs generated through ticket fares. The average farebox recovery rate for eight Amtrak *Cascades* trains in Washington declined to 42.95 percent in federal fiscal year 2002, down from 44.02 percent in FFY 2001. While total revenues generated by state-supported trains increased 6.1 percent in FFY 2002, total operating expenses increased 8.7

### State-Supported Amtrak Cascades On-Time Performance

2002 vs. 2001 Percent On-Time  
2001 Average: 76.3%; 2002 Average: 70.8%

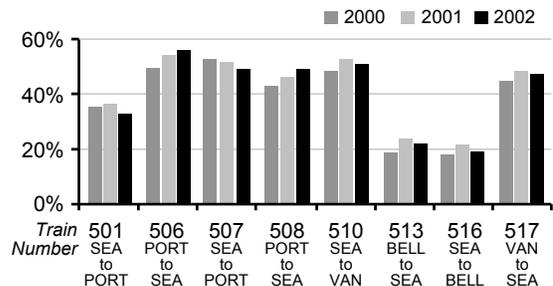


The on-time performance goal for the Amtrak Cascades is 80%. A train is considered on-time if it arrives at its final destination within 10 minutes or less of the scheduled arrival time.

Source: Amtrak and WSDOT Rail Office.

### State-Supported Amtrak Cascades Farebox Recovery by Train

Federal Fiscal Years 2000, 2001, and 2002  
Percentage of Total Operating Costs Covered by Farebox Revenues



Notes: The December 2001 *Gray Notebook* listed the total farebox recovery for all eight state-supported Amtrak *Cascades* trains as 38.5% in FFY 2000, and 41.65% in FFY 2001. While the farebox performance for each individual train was correct, the total farebox recovery for all trains was incorrect. The total farebox recovery for all eight state-supported Amtrak *Cascades* trains in FFY 2000 was 40.61%, and the total for FFY 2001 was 44.02%.

In October 2002, train numbers for the Amtrak *Cascades* were changed. The 700 series – formerly assigned to Washington and Oregon – are now being used for expanding passenger rail service in California.

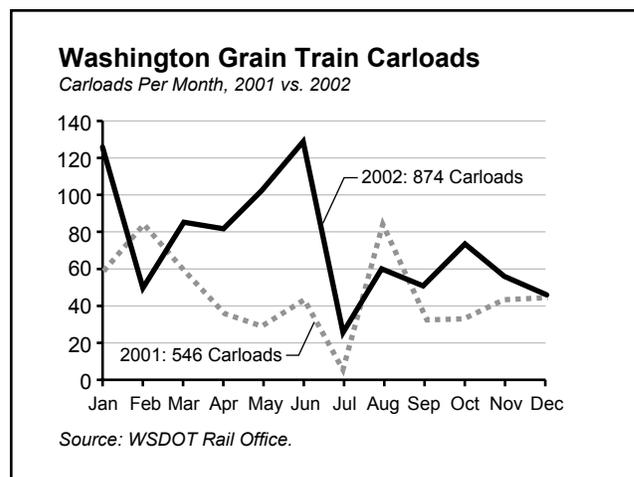
Source: Amtrak and WSDOT Rail Office.

percent over the preceding year. Factors that led to the escalation in operating expenses include double-digit increases in insurance premiums (also experienced by nearly all U.S. businesses after 9/11), and the carry-over of some labor and fuel costs not billed to the state by Amtrak at the end of FFY 2001.

## Washington Grain Train Update

In the fourth quarter of 2002, the state-owned Grain Train carried 106 carloads of Washington grain to Columbia River ports. This represents an 18 percent increase over the last quarter of 2001. The total number of Grain Train carloads – including the cars owned by the Port of Walla Walla – was 170. This represents a 43 percent increase over the last quarter of 2002.

In December 2002, 29 used grain cars were purchased from the revenues generated by the existing 47-car fleet. After cleaning and minor refitting in Iowa, these cars will be delivered to WSDOT at no charge by the Burlington Northern Santa Fe. They will eventually be positioned on the 75-mile branch of the Palouse and Coulee City Railroad between Marshall



and Pullman and be placed in service in early 2003, under the management of the Port of Whitman County.

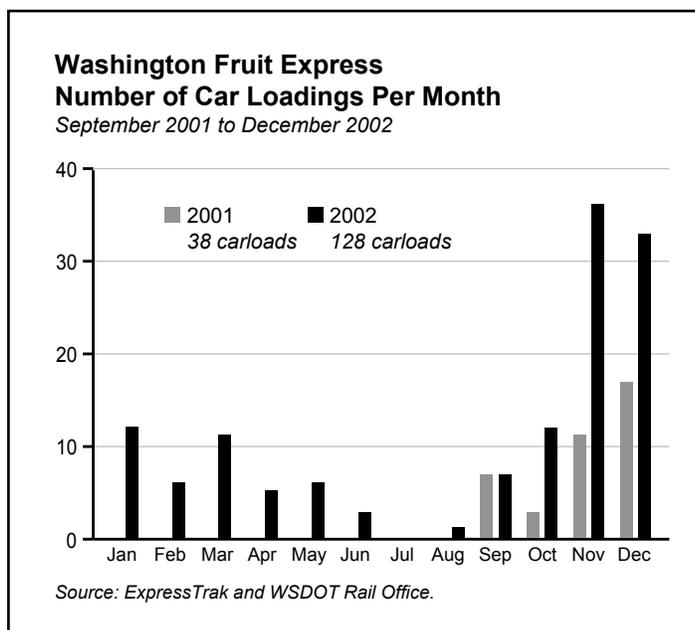
## Washington Fruit Express Update

The Washington Fruit Express transports Washington's fresh fruit and produce from Wenatchee on railcars hauled on existing Amtrak passenger trains. WSDOT initiated the program in September 2001 to address the recurring peak-season trucking shortage that had been hindering Washington's fresh produce industry from reaching lucrative east coast markets.

In 2002, the Washington Fruit Express carried 128 carloads of apples and pears to markets in Boston, New York, Philadelphia, and Florida. These rail shipments were equivalent to over 250 truckloads. During the peak 2002 shipping season (September thru December), loadings increased 132 percent over the preceding year. The Wenatchee Valley Traffic Association indicated that the Washington Fruit Express helped transport produce valued at over \$250,000 in mid-December that would not have been shipped if express rail service was not available.

Late last year, however, Amtrak President David Gunn announced that Amtrak intends

to discontinue express freight service. Whether WSDOT, shippers, and growers will be able to continue to develop the Washington Fruit Express-type service to support the state's agricultural community, therefore, has been thrown into doubt.



# Gray Notebook Subject Index

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

Edition Key:

1 = Quarter 1, March 31, 2001, 2 = Quarter 2, June 30, 2001, 3 = Quarter 3, September 30, 2001, 4 = Quarter 4, December 31, 2001, 5 = Quarter 1, March 31, 2002, 6 = Quarter 2, June 30, 2002, 7 = Quarter 3, September 30, 2002, 8 = Quarter 4, December 31, 2002

<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
Comparison: State Bridge Ratings .....	8
Deck Protection Program Overview .....	4, 5, 8
Deck Protection Program: Planned vs. Actual Projects .....	4, 5, 8
Inspection Program .....	4
Inventory of WSDOT Bridges .....	4, 5, 8
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, 8
Seismic Retrofit Program: Top 10 Priority Bridges .....	4, 8
Steel Bridge Painting: Planned vs. Actual Projects .....	4, 5, 8
<b>Commute Trip Reduction</b>	
Commuting Patterns and Gasoline Use in Washington State, 1990 and 2000 .....	7
Commuting Trends at CTR Work Sites and Work Sites in General .....	4
“Drive Alone” Commuting Rates: State 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 and Ride Lot Occupancy Rates: Central Puget Sound .....	4
Park and Ride Lot Occupancy Rates: King County .....	3, 5, 6, 7, 8
Park and Ride Lot Security .....	5
Park and Ride Lot Puget Sound System .....	8
Vanpool Operation in the Puget Sound Region .....	2, 3, 4, 5, 6, 7, 8
Vanpooling Share of Daily Puget Sound Area VMT .....	2
VanShare Trends .....	8
<b>Congestion on State Highways</b>	
Benchmark Policy Goals for Congestion: Analysis .....	5
Congestion Measurement Principles .....	5, 6
Daily Vehicle Hours of Delay per Mile, Sample Commutes Measured by Delay, Time of Day Distribution of Delay, and Travel Rate Index .....	2, 5
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

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<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, 7
CIPP Value of Advertised & Deferred Projects by Subprogram.....	4, 5
Construction Program Cash Flow: Planned vs. Actual Expenditures.....	4, 5, 6, 7, 8
Construction Program Delivery: Planned vs. Actual Advertisements.....	1, 2, 3, 4, 5, 6, 7, 8
Construction Program Quarterly Highlights.....	6, 7
Contracts Awarded: Engineer's Estimate to Award Amount.....	6
Contracts Completed: Final Cost to Award Amount.....	6
Contracts Completed: Final Cost to Engineer's Estimate.....	6
Safety Construction Program: Planned vs. Actual Advertisements.....	3, 6, 8
Tacoma Narrows Bridge Update.....	8
<b>Design</b>	
Value Engineering.....	6
<b>Environmental Stewardship</b>	
Compost Use.....	7
Construction Site Erosion and Runoff Protection.....	4, 6
"Ecology Embankment" Pollutant Removal.....	8
Fish Passage Barriers.....	4
Herbicide Usage Trends.....	5, 8
Recycling Aluminum Signs.....	7
Wetland Mitigation and Monitoring.....	5
<b>Ferries (WSF)</b>	
Construction Program Expenditures: Planned vs. Actual.....	4, 5, 6, 7, 8
Customer Comments.....	3, 4, 5, 6, 7, 8
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, 7, 8
On-Time Performance.....	3, 4, 5, 6, 7, 8
Operating Costs Comparison: WSF to Other Ferry Systems.....	3
Ridership by Month.....	3, 4, 5, 6, 7, 8
Trip Reliability Index and Trip Cancellation Causes.....	3, 4, 5, 6, 7, 8
<b>Highlights and Special Features</b>	
Highlights of WSDOT Program Activities.....	1, 2, 3, 4, 5, 6, 7, 8
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, 8
Anti-Litter Campaign.....	5
Costs of State Highway Maintenance.....	4
Customer Satisfaction with WSDOT Highway Maintenance Activities.....	3
Debris Pusher Maintenance Attachment.....	6
Herbicide Usage Trends.....	5, 8
Highway Sign Bridges: Planned vs. Actual Repairs.....	3, 4, 6, 8
Highway Signs: Number of Maintenance Actions.....	6, 8
Integrated Vegetation Management.....	5

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<b>Topic</b>	<b>Edition</b>
<b>Maintenance of State Highways (continued)</b>	
Litter Removal from State Highways .....	5, 6, 8
Mountain Pass Highway Closures .....	7
Pavement Striping: How Do They Paint the Stripes So Straight? .....	6
Pavement Striping: Planned vs. Actual Miles Painted.....	3, 4, 6, 8
Road Kill on State Highways .....	5
Salt Pilot Project .....	7
Snow and Ice Control Operations .....	4, 7
Survey on Pass Travel Conditions and Anti-Icer Use.....	2
Traffic Signals: Annual Energy Costs and Incandescent Bulb Conversion .....	3
Winter Overtime Hours and Snowfall Amount.....	7
Vortex Generators .....	5
<b>Pavement Conditions on State Highways</b>	
Condition by Pavement Type .....	2
Determining Pavements “Due” for Rehabilitation.....	2, 4, 8
Long-Term Condition Trends.....	4, 8
Lowest Life Cycle Cost.....	2
Pavement Types on the State Highway System .....	2
Rehabilitation Needs .....	4, 8
Smoothness Rankings by State .....	4, 8
<b>Rail: Freight</b>	
Grain Train Carloads .....	5, 6, 7, 8
Grain Train Route Map .....	5
Washington Fruit Express: Car Loadings Per Week .....	5, 8
<b>Rail: State-Supported Amtrak Cascades Service</b>	
Amtrak’s Future .....	5, 6, 7
Capital Improvement Program and WSDOT Service Goals.....	2
Customer Satisfaction .....	2, 3, 4, 7
Farebox Recovery: Percentage by Train.....	4, 8
Internet Reservations and Automated Ticketing.....	6
Investment in Intercity Rail Comparison.....	5
On-Time Performance .....	2, 3, 4, 5, 6, 7, 8
Operating Costs .....	4
Ridership by Month .....	2, 3, 4, 5, 6, 7, 8
Ridership by Year: Long-Term Trends.....	2, 4, 8
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>	
Corridor Safety Program .....	8
Driving Speeds on State Highways.....	4
Fatal and Disabling Collisions: Circumstances and Type.....	8
Fatal and Disabling Crashes and VMT, percent change .....	3, 7
Fatalities Involving High Blood Alcohol Concentration: State Comparison .....	7
Fatality Rates: State Highways, All State Public Roads, & U.S. ....	3, 7
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
Pedestrian Fatality Rates by State .....	8

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1 = Quarter 1, March 31, 2001, 2 = Quarter 2, June 30, 2001, 3 = Quarter 3, September 30, 2001, 4 = Quarter 4, December 31, 2001, 5 = Quarter 1, March 31, 2002, 6 = Quarter 2, June 30, 2002, 7 = Quarter 3, September 30, 2002, 8 = Quarter 4, December 31, 2002

<b>Topic</b>	<b>Edition</b>
<b>Safety on State Highways (continued)</b>	
Pedestrian Factors in Vehicle/Pedestrian Collisions .....	8
Safety Construction Program: Planned vs. Actual Project Advertisements.....	3, 6, 7, 8
Safety Laws: Booster Seats and Mandatory Seat Belts.....	5
Safety Projects Completed This Quarter.....	7
Shoulder Belt Use: State Comparison .....	7
<b>Traffic Operations on State Highways</b>	
Freeway Operations Efficiency Initiatives .....	3
Incident Response Calls Responded to by Region.....	2
Incident Response Clearance Times .....	2, 3, 4, 5, 8
Incident Response Customer Comments .....	8
Incident Response Non-Collision Responses .....	8
Incident Response Service Actions Taken .....	7
Incident Response Teams Go to the Olympics .....	5
Incident Response Teams: Location and Type.....	7
Incident Response Timeline .....	6
Incident Response Times .....	2, 3, 4, 5
Incident Response: Total Number of Responses by Month .....	7, 8
Incidents with Clearance Times Over 90 Minutes .....	6, 7, 8
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
<b>Traveler Information</b>	
Calls to 1-800-695-ROAD .....	8
Camera Views .....	8
Traveler Information Services Overview .....	7
Website Feedback.....	8
Website Usage.....	7, 8
<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, 7, 8
Ferry Vessel Workers Recordable Injuries.....	2, 3, 4, 5, 6, 7, 8
Highway Engineer Workers Recordable Injuries.....	2, 3, 4, 6, 7, 8
Highway Maintenance Workers Recordable Injuries.....	1, 2, 3, 4, 5, 6, 7, 8
Highway Maintenance Workers Safety Training.....	5, 6, 7, 8
Human Resources Training for all WSDOT Employees.....	7, 8
Workforce Levels.....	5, 6, 7, 8



### **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.

### **Other WSDOT Information Available**

The Washington State Department of Transportation has a vast amount of traveler information available (including Puget Sound area traffic, mountain pass reports, highway closures, ferry schedules, and more).

Call the WSDOT statewide toll-free number: *1-800-695-ROAD*.

In the Seattle area: (206) DOT-HIWY [368-4499].

For additional information about highway traffic flow and cameras, ferry routes and schedules, Amtrak *Cascades* rail, and other transportation operations, as well as WSDOT programs and projects, visit

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

For this or a previous edition of the *Gray Notebook*, visit

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