Washington State
Department of Transportation

Measures, Markers and Mileposts

Gray Notebook Special Excerpt

Transportation Benchmarks 2005 Report

In 2002, the Legislature passed RCW 47.01.012, instituting the transportation benchmarks. The benchmarks require WSDOT to track data related to nine policy elements: safety; roadway pavement condition; bridge condition; traffic congestion; driver delay; per capita vehicle miles traveled; non-auto share of commuter trips; administrative costs as a percentage of transportation spending; and public transit agency cost efficiency.

The benchmarks track transportation performance at a high level, reflecting social goals that are important to the health and safety of Washington State citizens, and to the efficiency of our state's transportation system. WSDOT does not have control over some benchmarks, for instance, the number of people who travel alone to work, nor the number of miles they drive. However, the department can and does strive to offer people alternative methods to reach their destination. Similarly, WSDOT works in multiple ways to improve roadway, bridge, congestion, and safety conditions.

This folio is a shortened edition of the complete benchmarks report, available in the *Gray Notebook* for the quarter ending June 30, 2005.

2005 Benchmarks Report Overview

Benchmark Area	Measurement	2003 Report	2004 Report	2005 Report
Safety	Number of Fatalities	658[1]	601	569
Safety	Fatalities Per One Million Vehicle Miles Traveled	1.2[1]	1.1	1.02
Pavement	Percent of State Highway Pavement in Poor Condition	8.9%	9.3%	10.1%
Pavement	Percent of Local Arterial Pavement in Poor Condition	N/A[2]	N/A[2]	16%
Bridges	Percent of Bridges in Poor Condition	3%	3%	2%
Bridges	Bridges Needing Seismic Retrofit (out of 937 total)	N/A[2]	N/A[2]	731
Non-Auto Share of Commute Trips	Percent of Commuters Driving Alone	74.37%	74.71%	73.79%
Per Capita Vehicle Miles Traveled	Miles per Person per Year (baseline is 9,133 miles, from 2000)	8,982	9,021	9,026
Administrative Efficiency	General Administrative Cost as a Percent of Other Expenses	6.8	5.1	5.9
Congestion and Delay	Peak Travel Times, Volume, "Slow Travel Days", and 95% Reliable Travel Time for 20 Commutes[3]			
Transit Cost Efficiency	Operating Cost per Hour, Boardings per Hour, Cost per Passenger Mile, Cost per Boarding[4]			

[1] These numbers were not included in the original report; however the data was tracked and is provided for reference.

[2] These measures were not reported on in 2003 or 2004.

[3] See Sept. 2005 GNB for details

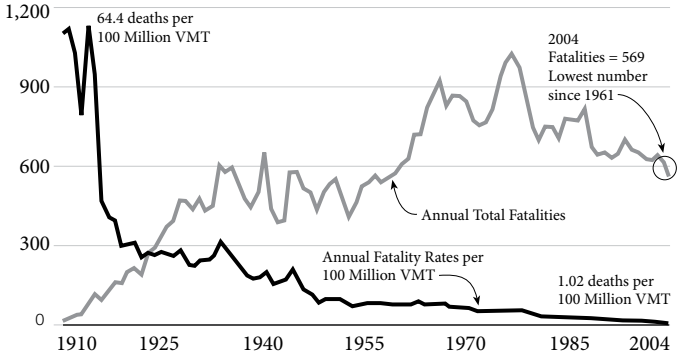
[4] See June 2005 GNB for details

Safety Goal

The benchmark law established a goal to improve safety. While many criteria and measures are used to track safety on the state transportation system, the Transportation Commission and WSDOT use the state motor vehicle fatality rate to determine progress. The 2004 fatality rate was 1.02 deaths per 100 million vehicle miles traveled (VMT) on all Washington roadways. The fatality count shows 567 people killed in motor vehicle collisions and two people killed in pedalcylist/pedestrian fatalities in which a moving motor vehicle was not involved, for a total of 569 fatalities.

The fatality count has generally been trending downward in recent years. Some of the reasons include enforcement, highway engineering, driver education, and better vehicle design. There also have been significant air bag and vehicle crash improvements. Washington has focused on DUI reduction, safety improvement projects, and seatbelt usage. In 2003 (the most recent year for which state-by-state data is available) Washington ranked as the 6th lowest state in the nation for road fatalities, averaging 1.09 deaths per 100 million VMT. By comparison, the national average was 1.48 fatalities per 100 million VMT.

Washington Motor Vehicle Total Fatalities and Fatality Rates
1910-2004



Source: WSDOT

Non-Auto Share of Commute Trips Goal

The benchmark law established a goal to increase the non-auto share of commute trips. WSDOT and the Transportation Commission interpret this benchmark as the measure of the combined ability of many different transportation agencies to provide alternatives to driving alone. In 2003, 73.79% of commuters drove alone.

Slight changes from year to year in the commute trip distribution do not constitute a trend, because these changes generally are not statistically significant unless indicated. Washington's 2003 commute trends, according to the American Community Survey (ACS), showed a statistically significant growth in walking as a means of traveling to work, compared to the 2000 ACS commute trends. The drive alone share of commuting in 2003 was not significantly different than the share in 2000.

Washington State Commuting Patterns - Workers 16 and Over 2000 - 2003

	2000 Percentages	2001 Percentages	2002 Percentages	2003 Percentages	Change from 2000-2003	Statistically Significant?
Total Workers 16 yrs & Older	2,753,377	2,729,113	2,760,912	2,793,978	1.5%	
Drive Alone	73.78%	74.37%	74.71%	73.79%	0.01%	no
Carpool	11.52%	11.48%	11.40%	11.28%	-0.24%	no
Public Transportation	5.14%	5.53%	4.64%	5.00%	-0.14%	no
Walked	2.38%	3.12%	3.03%	3.16%	0.78%	yes
Other means	2.38%	1.71%	1.75%	2.15%	-0.23%	no
worked at home	4.81%	3.79%	4.47%	4.61%	-0.20%	no

Source: American Community Survey

Congestion and Delay Goals

These two benchmarks require that congestion and driver delay on Washington State highways be significantly reduced, and be no worse than the national mean. Congestion is a topic of national conern; however, there is no nationally agreed-upon standard of how to measure it. WSDOT has been tracking congestion through multiple measures for several years, choosing measures that describe both traffic performance, such as volume and throughput, and driver experience, such as peak travel times and 95% Reliable Travel Time (see the next page of this special excerpt for more information). At the same time, sophisticated data collection techniques are limited to the Puget Sound region and a few other urban areas.

For these reasons, it is difficult to compare Washington's performance to a national standard. The Texas Transportation Institute (TTI), a transportation research agency affiliated with Texas A&M University, publishes an annual report that is the closest thing to an industry standard on congestion measures. Their 2005 Urban Mobility Report ranked Seattle as the 12th most congested city in the U.S. based on their "Travel Time Index" measure, a measure of how much more slowly traffic moves during peak hours than during other times. However, there is no state-by-state comparison available.

Included here is an excerpt from the 14-page Measuring Delay and Congestion report. Please refer to the September 30, 2005 *Gray Notebook* for the full report.

Key Commutes: Travel Time Performance 2002 to 2004

Routes in this table are ranked by the % change column below from the largest percent improvement to the largest percent deterioration.

					Peak Travel Time (in minutes)				Traffic Volume	Percent of "Slow Travel Days": Days When Travel Times Exceeded Twice the Time Associated with Freeflow		95% Reliable Travel Time (in minutes)			
Ranking	**Route**	**Route Description**	**Peak time**	**Length (Miles)**	**2002**	**2004**	**Change**	**% Change**	**% Change since 2002**	**2002**	**2004**	**2002**	**2004**	**Change**	**% Change**
1	SR 167	Renton to Auburn	5:20 PM	9.8	20	17	-3	-15%	1%	39%	21%	38	33	-5	-13%
2	I-5	Seattle to SeaTac	4:10 PM	12.9	20	19	-1	-5%	5%	20%	4%	32	25	-7	-22%
3	I-90/I-5	Issaquah to Seattle	7:40 AM	15.5	23	23	0	0%	1%	6%	7%	31	32	1	3%
4	I-5/I-90	Seattle to Issaquah	5:35 PM	15.7	23	23	0	0%	5%	9%	12%	33	35	2	6%
5	I-405/I-90/I-5	Bellevue to Seattle	7:45 AM	10.7	15	15	0	0%	0%	5%	7%	21	23	2	10%
6	SR 520/I-405	Redmond to Bellevue	7:50 AM	7.1	10	10	0	0%	2%	1%	4%	11	13	2	18%
7	I-405/I-90	Bellevue to Issaquah	5:35 PM	9.3	16	16	0	0%	2%	18%	14%	21	21	0	0%
8	I-5/SR 526	Seattle to Everett	4:45 PM	23.7	42	43	1	2%	-1%	26%	28%	62	66	4	6%
9	SR 520/I-5	Redmond to Seattle	7:40 AM	14.8	22	23	1	5%	2%	6%	10%	30	33	3	10%
10	I-90/I-405	Issaquah to Bellevue	7:45 AM	9.5	17	18	1	6%	2%	21%	35%	25	27	2	8%
11	I-5/SR 520/I-405	Seattle to Bellevue	5:35 PM	10.6	17	18	1	6%	0%	18%	29%	26	31	5	19%
12	I-405/I-90	Bellevue to Tukwila	4:30 PM	13.5	26	28	2	8%	0%	33%	59%	36	39	3	8%
13	I-405/SR 520	Bellevue to Redmond	5:45 PM	6.8	13	14	1	8%	-3%	33%	54%	17	22	5	29%
14	I-5	SeaTac to Seattle	7:45 AM	12.9	23	25	2	9%	2%	4%	28%	28	34	6	21%
15	SR 526/I-5	Everett to Seattle	7:20 AM	23.7	44	48	4	9%	1%	35%	52%	66	74	8	12%
16	I-5/SR 520/I-405	Seattle to Bellevue	5:35 PM	10.1	18	20	2	11%	-1%	29%	43%	28	31	3	11%
17	I-405/SR 520/I-5	Bellevue to Seattle	7:50 AM	10.5	17	19	2	12%	-1%	14%	34%	24	27	3	13%
18	I-405	Tukwila to Bellevue	7:45 AM	13.5	32	36	4	13%	-1%	73%	80%	51	52	1	2%
19	SR 167	Auburn to Renton	7:25 AM	9.8	15	17	2	13%	-1%	7%	17%	22	26	4	18%
20	I-5/SR 520	Seattle to Redmond	5:35 PM	14.7	26	30	4	15%	-1%	30%	49%	37	43	6	16%

Source: WSDOT Traffic Operations and Washington State Transportation Center (TRAC) at the University of Washington

Routes with Improvement

The two routes with the greatest improvements were:

Renton to Auburn, SR 167 afternoon commute. Peak travel time fell by three minutes, from 20 minutes in 2002 to 17 minutes in 2004. The percent of Slow Travel Days decreased by 18 percentage points, from 39% to 21%, while the 95% Reliable Travel Time had a five minute reduction. This improvement was related to a $40,000 restripe project SR 167 - 15th St. NW Restripe just north of the SR 18 interchange (a major back-up spot) that effectively eliminated a bottleneck and improved traffic flow around the interchange.

Seattle to SeaTac, I-5 afternoon commute. The travel time reduction was only one minute, but with a 16-percentage point decrease in the Slow Travel Days and a seven minute reduction in the 95% Reliable Travel Time. The number of vehicles driving the route during the peak period increased by 5%. The improvement seems to have been linked to the I-5/Pierce County Line to Tukwila Stage 3 HOV project.

Routes with Deteriorated Travel Condition

There were eight commutes (ranking number 12, and 14 through 20) for which travel times increased by two minutes or greater. On these commute routes, Slow Travel Days also increased significantly (almost doubling for some commutes), and there were large increases in the 95% Reliable Travel Times.

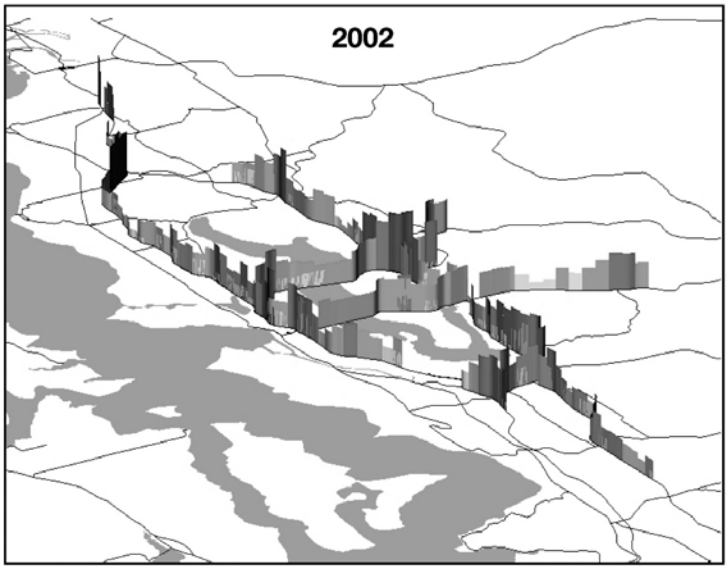
The route with the worst deterioration was the 13.5-mile *Tukwila to Bellevue I-405 morning commute*. Average travel time increased by four minutes. Slow travel days prevailed most weekdays (73% in 2002 and 80% in 2004). The 95% Reliable Travel Time, however, changed by just one minute. The actual *travel time per-mile* for this stretch was the worst of all the 20 commutes.

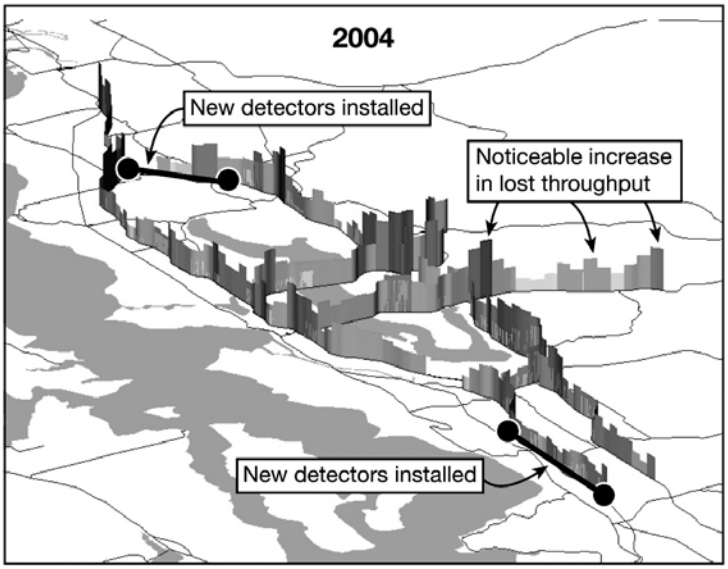
Congestion and Delay Goals Continued: Lost Throughput Efficiency

Congestion causes lost efficiency on the roadway system. That is, under congested conditions, even though the road is "full" of cars, they are moving so slowly that fewer vehicles can actually pass any given point on the road. The maximum throughput of vehicles on a freeway, about 2,000 vehicles per lane per hour, occurs at speeds of 45-50 mph. As demand increases, congestion causes a drop in speeds and the efficiency of the highway is reduced dramatically. When congestion causes drivers to lower their speeds to 30 mph, the throughput (volume of flow) on a freeway may fall to as low as 700 vehcles per lane per hour. When cars are stuck in congestion, the difference between the intended capacity of the roadway and the actual number of cars that the road is serving is called "lost throughput".

The maps below show average weekday loss of throughput on Central Puget Sound freeways during the most congested periods in 2002 and 2004. The height of the bars in the graphs indicates percentage of throughput loss: the higher the bars, the higher the lost throughput. The highest spikes depicted on the map are located at the interchange of I-5 and I-90 in Seattle, I-405 in Renton, and I-405 in downtown Bellevue where up to 60% of the throughput was lost during the peak travel period. (That is, the road served only 40% of the vehicles it ought to be able to serve.)

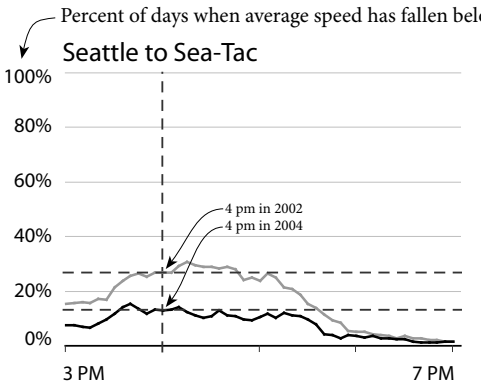
Average Weekday Throughput Loss During Heaviest Congestion for 2002 and 2004





Slow Traffic Days

How has commute speed worsened or improved from 2002 to 2004? The diagram to the right shows how to read a "stamp graph" of slow traffic days for the *Seattle to SeaTac, I-5 afternoon commute*. See the stamp graphs on page 61 of the September 30, 2005 *Gray Notebook* for answers to this question for the 19 other key Central Puget Sound commutes.



At 4:00 pm in 2002, you had about a 26% chance that traffic would be moving less than 35 mph. In 2004, the situation was better (black line below the gray line); your chance that traffic would be moving more slowly than 35 mph was about 12%.

Overview of 2005 Congestion Performance Measures

Peak Travel Time. This peak five minute interval for congestion and delay is calculated from the weekday average of travel times for the time listed.

Percent Change in Traffic Volume. The change in the number of vehicles driving along the route during peak times.

Percent of Days When Travel Times Exceeded Twice Free Flow (Slow Travel Days). The percentage of days that a rush hour trip would take twice as long when compared to a trip during which there was no traffic congestion.

The 95% Reliable Travel Time. A measure for travel times. Unlike *average* travel time, it is an estimated travel time with 95% certainty. It is the "safe bet" time for travel planning. For example, if you travel during peak time five days a week for a four-week period (i.e., a total of 20 weekdays), you will get to the destination within the time indicated by the 95% Reliable Travel Time 19 days out of those 20 days (i.e., 95% certainty).

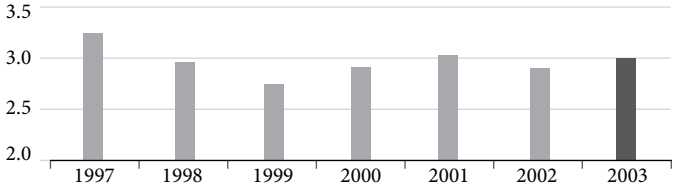
Throughput. A measure of the number of vehicles that can pass through a roadway segment during a given time period, typically measured for one hour.

Other Congestion Measures. Other measures of congestion include HOV Lane Performance, and Before and After Case Studies of roads that have had improvements for congestion. WSDOT also takes part in ongoing studies by the University of Washington.

Transit Cost Efficiency Goal, Boardings per Revenue Hour (Continued)

Boardings per revenue hour for demand response service have remained near 3.0 for the past six years. In 2003 it was exactly 3.0 boardings per hour. The nature of the service makes it difficult to significantly improve this measure. The slight increases in this measure since 1999 are related to the reduction in service areas and the elimination of least productive service routes by some transit agencies. As these least productive fixed-route services, usually serving low-density suburban or rural areas, are eliminated, the complementary demand response service is also discontinued. Demand response trips in these areas tend to have long trip lengths and are difficult to group with other rides.

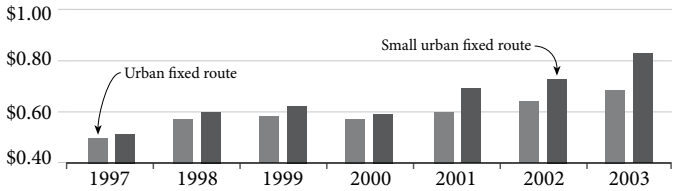
Demand Response Service: Average Boardings per Revenue Hour
Washington State Average for All Transit Systems 1997-2003



Cost per Passenger Mile

The trend for this measure generally reflects inflationary cost increases. The cost per passenger-mile increased sharply for small urban systems from 2000 to 2001, due to significant service reductions and fare increases during 2000 by several systems in this category. Passenger-mile data is not collected by rural transit systems.

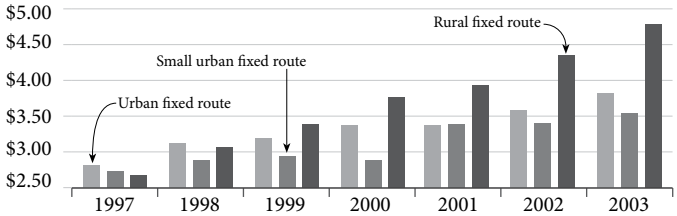
Fixed Route Service: Average Cost per Passenger Mile
Washington State Average by Transit System Size, 1997-2003



Cost per Boarding

Cost per boarding increased at approximately the rate of inflation for urban systems. Rural and small urban systems saw the cost per boarding increase at a much higher rate. Small urban systems saw a significant increase from 2000 to 2001, as service reductions increased the cost per hour of service and higher fares led to fewer passengers. This leveled off from 2001 to 2002. Rural systems faced inflation too and were hit particularly hard by increased health care and other employee costs.

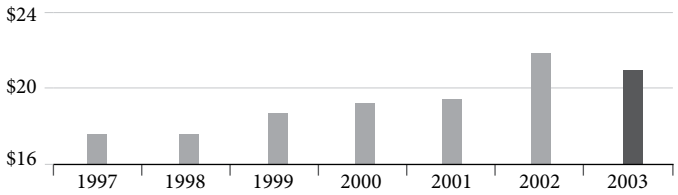
Fixed Route Service: Average Cost per Boarding
Washington State Average by Transit System Size, 1997-2003



Costs increased due to inflation and increased employee costs since 1999. For 2003, the average urban fixed route cost per boarding was $3.82, the average small urban fixed route cost per boarding was $3.53, and the average rural fixed route cost per boarding was $4.76. The average cost for demand response service was $21.51 per boarding, approximately six times the cost per boarding for fixed-route service. This difference relates to the ability of fixed route service to get an economy of scale that demand response service cannot. In addition, the growth and aging of the suburban population of Washington is driving increased demands and costs for demand response service.

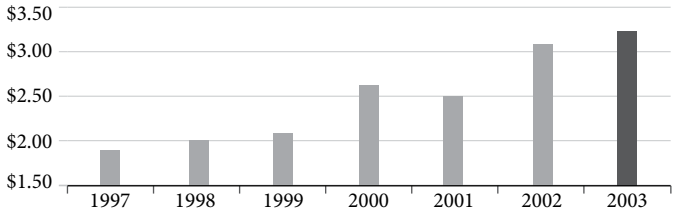
Community Transit in Snohomish County showed an increase in hours and a decrease in boardings in 2003 as compared to 2002, driving up urban fixed route costs. The increase for small urban systems is below the level of inflation. The rural system cost per boarding increase is driven primarily by Skagit in 2002 and 2003 and by LINK in 2003. The numbers in this category are small enough that a change in a single system can affect the entire category. The loss of over 700,000 boardings by Skagit between 2001 and 2003 and of 215,000 riders by LINK from 2002 to 2003 represents almost 20% of the total rural ridership.

Demand Response Service: Average Cost per Boarding
Washington State Average for All Transit Systems 1997-2003



The average cost per boarding in 2003 for the Vanpool system was $3.24. The cost-effectiveness of vanpooling is particularly impressive when one considers average trip lengths and that in many systems the vanpool passenger fares cover a substantial portion of the operating and capital cost of the program. Some systems choose to subsidize vanpool fares to make the service as attractive as possible.

Vanpool Service: Average Cost per Boarding
Washington State Average for All Transit Systems 1997-2003



Transit Cost Efficiency Goal

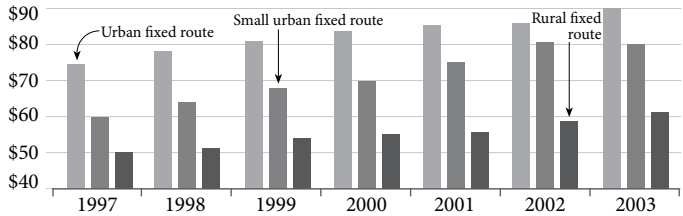
The benchmark law required the Transportation Commission to establish a cost efficiency benchmark for the state's public transit agencies. To accomplish this mandate, the Commission worked with the Washington State Transit Association (WSTA), which proposed four measures to address cost efficiency, cost effectiveness, and service effectiveness. This report, prepared by WSTA, updates these four measures with 2003 data. The transit summary data for 2004 has not yet been finalized.

WSDOT's annual Washington State Summary of Public Transportation Systems provides an overview of each system and is a data source for the transit benchmarks calculated by WSTA. This report is available online at www.wsdot.wa.gov/Transit/.

Operating Cost per Total Hour

Costs are directly related to the size of the transit system and the nature of the area served. This is because larger transit systems are more complex than smaller systems, and therefore incur additional costs for fixed facilities (transit centers, park-and-ride lots, etc.), security, and in other areas. They also operate larger equipment and operate in metropolitan areas with higher wage structures than smaller systems.

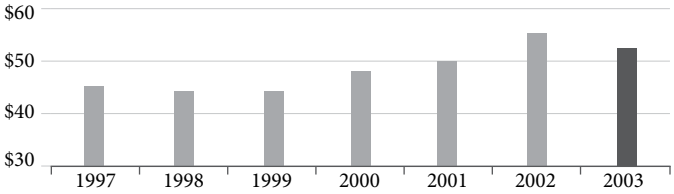
Fixed Route Service: Average Cost per Total Hour
Washington State Average by Transit System Size, 1997-2003



In 2003, the urban fixed route cost per hour was $90.18, the small urban fixed route cost per hour was $80.90, and the rural fixed route cost per hours was $61.99.

The urban categories have experienced cost increases of approximately 22%, or 3% per year, from 1997 to 2003, in line with inflation over this period. Rural systems have seen a 29% increase, while the small urban systems experienced a 40% rate of cost increase over this period. This appears to be due to significant service reductions by small urban systems in 2000 and 2001 after the loss of the Motor Vehicle Excise Tax (MVET) funding, resulting in fixed costs being spread over fewer service hours. By 2003, most small urban systems had either completed service reductions or passed measures to increase the sales tax and thereby the service hours. For these reasons an otherwise upward trend leveled out from 2002 to 2003.

Demand Response Service: Average Cost per Total Hour
Washington State Average for All Transit Systems 1997-2003



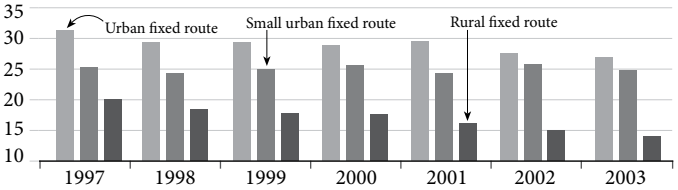
In 2003, the average demand response transit cost per hours for all systems was $52.36, significantly lower than the fixed-route average cost. This is primarily due to the contracting out of this service to private agencies that provide lower wage rates to demand response drivers.

Boardings per Revenue Hour

This measure illustrates the importance of the characteristics of the area served on a transit system's performance. Boardings[1] per revenue hour generally depend on density and service type – local, urban service performs better than express service. Performance on this measure has been relatively constant for the urban and small urban systems but has dropped among rural systems. This and other measures illustrate the extreme difficulties facing many of the rural transit systems. The loss of both sales tax equalization and MVET funding and the general economic downturn in rural Washington have forced systems to reduce service levels and increase fares.

In 2003, the average urban fixed route boardings per hour were 26.8, the average small urban fixed route boardings per hour were 24.9, and the average rural fixed route boardings per hour were 14.4. Although both urban and small urban boardings increased, the actual boardings per revenue hour decreased because the number of hours of service increased as well. It is generally expected that productivity will increase slightly as new service is added. However, the new service cannot be expected to immediately result in boarding levels equal to established service. The market for new service tends to be riders who own autos, but who choose to take the bus, rather than those who do not own autos and are already using the service.

Fixed Route Service: Average Boardings per Revenue Hour
Washington State Average by Transit System Size, 1997-2003



In the graph above, the decline in boardings per hour shown in urban urban is primarily driven by King County Metro, which showed a decrease from 2001 to 2002 and was stable from 2002 to 2003.

The rural numbers are strongly affected by Skagit Transit and by LINK in Chelan and Douglas counties. LINK and Skagit Transit are two rural systems especially affected by the loss of MVET funding. Neither of these systems has been able to increase local sales tax to make up for the loss of this funding. Instead, they have made significant service reductions: LINK by over 45% (91,000 hours of service in 1999 to 49,000 hours in 2003) and Skagit Transit with an over 65% reduction (70,800 hours in 1998 to 24,800 today). Both of these systems were also fare-free systems, which now charge fares. This also affected ridership negatively. These are two of the larger rural systems and changes with these systems affect the entire category.

[1]"Boardings" are the total number of times a person boards a bus. For example, a person taking one bus and transferring to another bus to reach his destination would represent two boardings.

Bridge Condition Goal

The benchmark law established a goal for no bridges to be structurally deficient, and for safety retrofits to be performed on those state bridges at the highest seismic risk levels. WSDOT tracks bridge condition but does not use the "zero deficient bridge" goal, as this standard would promote cheap and fast fixes that would ultimately be counterproductive. WSDOT adhers to its Bridge Management System (BMS), which preserves bridges to get optimum service life. WSDOT's policy is to maintain 95% of its bridges at a structural condition of at least fair, meaning all primary structural elements are sound.

Bridge Condition Results

This report provides data for fiscal years 2004 and 2005. Since 2000, there has been a slow but steady increase of bridges in the "good" category. In 2004, 3% of bridges showed a condition rating of "poor". In 2005, only 2% were rated as "poor". WSDOT credits this improvement to preventative measures such as structural or scour repair, painting, and bridge deck overlays, which are keeping some of the "fair" bridges from crossing over into the "poor" category. Also, the building of new bridges has increased the proportion of total bridges in the "good" category.

No bridge currently rated as "poor" is unsafe for public travel. Bridges rated as "poor" may have structural deficiencies that restrict the weight and type of truck traffic allowed. Any bridge determined to be unsafe is simply closed to traffic. In 2004 and 2005, WSDOT did not close any bridges due to unsafe conditions.

Bridge Seismic Retrofit Program

WSDOT's Bridge Seismic Retrofit Program prioritizes state bridges for seismic retrofit, performing these retrofits as funding permits.

Bridges in the Seismic Retrofit Program (1991-2005)

Completely retrofitted	191
Partially retrofitted	162
No work done to date	569
Under contract for work	15
Total	**937**

Source: WSDOT Bridge Office

In 1991 a total of 937 bridges were classified as needing retrofitting and included in the Seismic Retrofit Program. Retrofit priorities are based on seismic risk of a site, structural detail deficiencies, and route importance. From 1991 to the end of June 2005, WSDOT has fully or partially retrofitted 368 bridges: 191 are completely retrofitted, 162 are partially retrofitted, and 15 are under contract to be retrofitted.

As of June 30, 2005, 569 bridges still need complete retrofits, in addition to the 162 needing partial retrofits. These two groups combine for a total of 731 bridges left to be retrofitted for earthquake safety.

For the 2005-07 biennium, seismic work is planned for 28 bridges. The 2005 Transportation Funding Package includes funding for the retrofit of 172 bridges that are located on major routes in the Puget Sound area.

Bridge Structural Condition Ratings

The condition rating data shown at right is based on the structural sufficiency standards established in the FHWA "Recording and Coding Guide for the Structural Inventory and Appraisal of the Nation's Bridges." This structural rating relates to the evaluation of bridge superstructure, deck, substructure, structural adequacy and waterway adequacy.

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

Source: WSDOT Bridge Office

Administrative Efficiency Goal

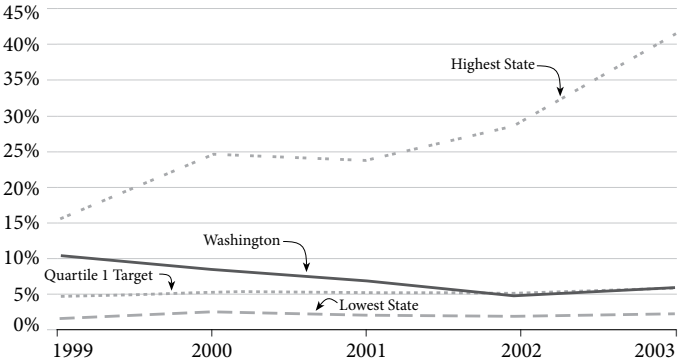
The benchmark law established a goal that WSDOT's administrative cost as a percentage of transportation spending achieve the most efficient quartile nationally. Finding common ground for comparisons of administrative efficiency among state Departments of Transportation (DOTs) is very difficult. Each state's DOT accounts and tracks for expenditures in different ways. Also, state DOTs vary widely in structure, size, and function, resulting in little direct comparability among the "administrative" activities.

The best national source of financial information is the Federal Highway Administration's (FHWA's) annual Highway Statistics report. WSDOT uses the general administration cost (line item A.4.a.) as a percentage of capital outlay, maintenance, and operations expenditures to make the national comparison.

In 2003, Washington's administrative cost was 5.9%, putting it at 12th lowest nationally and just inside the first quartile for the 50 states. This is a slight increase from the 5.1% figure in 2002. Major drivers of the cost increase include: an increase of $2.8 million during the ferry system reorganization; a systems development cost increase of $900,081; IT Operations increase of $998,915; and a Program Management Development and Support increase of $523,025. The lowest state, Louisiana, was at 2.5%, and the highest state, Delaware, was at 41.2%.

Washington Administrative Cost Target

Percent of Capital Outlay, Maintenance, and Operations Expenditures, 1999-2003



Source: FHWA

Pavement Condition Goal

The benchmark law enacted in 2002 established a goal that no interstate highways, state routes, and local arterials be in poor condition. This report covers calendar years 2003 and 2004.

State Highway Pavement

WSDOT has been rating pavement condition since 1969. WSDOT uses Lowest Life Cycle Cost (LLCC) analysis to manage two types of pavements for preservation, chip seal and Hot Mix Asphalt. The principles behind LLCC are that if rehabilitation is done too early, pavement life is wasted; if rehabilitation is done too late, very costly repair work may be required, especially if the underlying structure is compromised. WSDOT continually looks for ways to balance these two basic principles.

Pavement Condition Rating 2000-2004

Percent of Pavement in Poor Condition

2000	2001	2002	2003	2004
6.1	8.9	9.3	10.0	10.1

Source: WSDOT Materials Lab

Pavement is in "good" or "fair" condition if it is smooth and has few defects. Pavement rated in "poor" condition is characterized by cracking, patching, roughness, and rutting. WSDOT's policy goal for the 03-05 biennium was to maintain 90% of all pavement types in "fair" or better condition. In 2003, the percent of all state highway pavements in "poor" condition increased to 10%, or 1,774 lane miles, up from 9.3% as reported in the 2002 pavement survey. In 2004, 1,797 or 10.1% were considered "poor". Since 2000, WSDOT has seen an increase of 729 lane miles in "poor" condition.

In 2003, 79 more chip seal lane miles fell into "poor" condition, bringing the total to 3.3% of all state highway lane miles. For 2003, the increase in "poor" condition of hot-mix asphalt (HMA) was 51 lane miles, a total of 5.8% of state highway lane miles. Total lane miles of concrete in poor condition remained the same from 2002 to 2003.

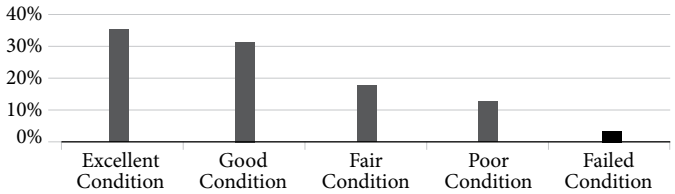
From 2003 to 2004, 21 more chip seal lane miles fell into "poor" condition; total chip seal lane miles in "poor" condition were 3.4%. The condition of hot-mix asphalt (HMA) improved from 2003 to 2004: 162 fewer lane miles were in "poor" condition, or 4.9% of total lane miles. Total lane miles of concrete in "poor" condition increased to 152 miles, or 1.8% of the total. This is attributable to more faulting and cracking in the concrete leading to an increase in roughness of ride. As noted in the December 31, 2004 Gray Notebook, WSDOT is working with the University of Washington to develop a method to predict when concrete pavement will need rehabilitation and is hoping to have an explanation for this sudden deterioration by the end of 2005.

Local Arterial Road Pavement

For the 2003-2005 biennium, Washington State's cities and towns are required to provide data on at least 70% of the total arterial road network in the state. In 2004, 27 cities provided WSDOT data on the condition of 1,598.61 centerline miles[1] of arterial roads. These miles represent 80% of the city and town arterial network. This is the first time that this data has been available to report in the Benchmarks Report.

2004 Local Arterial Pavement Conditions

Percentage and Condition



Source: WSDOT

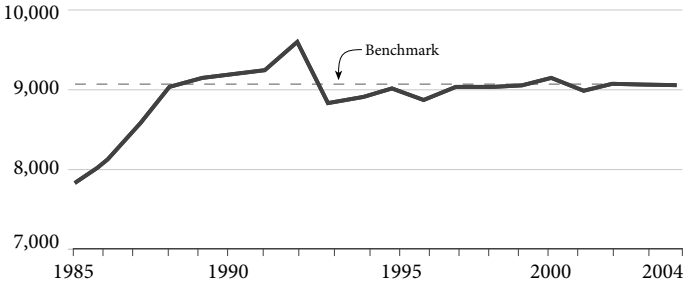
In 2004, 1,336 centerline miles, or 83.6% of arterial roads included in the Arterials Condition Report, were found to be in "fair" or better condition. For more information on arterial road conditions, please see Washington's City Arterials Condition Report 2004, available at http://www.wsdot.wa.gov/TA/T2Center/Mgt.Systems/Pavement-Technology/.

[1] *One centerline mile is one mile of pavement measured along the center line of the road.*

Per Capita Vehicle Miles Traveled Goal

The benchmark law established a goal for Vehicle Miles Traveled (VMT) per person to be maintained at 9,133, the level it was when the benchmarks were developed in 2000. In calendar year 2004, Washington State's citizens traveled 9,026 vehicle miles per person on all roadways, up slightly from 9,021 in 2003 but below the benchmark level of 9,133 miles per person. Since the late 1980s, annual VMT per person in Washington has stayed at roughly 9,000 miles per person. VMT is influenced by a range of trends in population, economy, land use, and employment, as well as investment in the transportation system. (The drop from 1992 to 1993 is due to a change in the way VMT is calculated).

Annual Vehicle Miles Traveled per Capita
1985 to 2004*



*The method for calculating VMT changed in 1993 as more complete data became available. This accounts for the apparent decrease from 1992 to 1993.

Source: WSDOT

Benchmarks Report

This folio is a shortened edition of the complete benchmarks report, available in the Gray Notebook for the quarter ending June 30, 2005. Previous version of the benchmarks report can be found on the electronic subject index: www.wsdot.wa.gov/accountability/graybookindex.htm.

For a history of the benchmarks' development and implementation, visit www.wsdot.wa.gov/accountability/benchmarks/Benchmarks ImplementationReport.pdf

For more information contact:
Daniela Bremmer
WSDOT Strategic Assessment Office
310 Maple Park Avenue SE
P.O. Box 47374
Olympia, WA 98504-7374
Phone: 360-705-7953, **E-mail:** bremmed@wsdot.wa.gov