Transportation Asset Management Case Studies

Presented by

U.S. Department
of Transportation
**Federal Highway
Administration**

COMPREHENSIVE TRANSPORTATION ASSET MANAGEMENT

The Washington State Experience

The existing (right) Tacoma Narrows Bridge and the new bridge span under construction.

A comprehensive, fully integrated Transportation Asset Management System weaves together information on all asset inventories, condition and performance databases, and alternative investment options.

Source: FHWA Asset Management Primer

FRONT COVER PHOTO:
A WSDOT ferry with Mt. Rainier in the background.

Note From the Associate Administrator

With factors such as an aging national infrastructure, increasing congestion and limited funds weighing heavily on transportation agencies, State departments of transportation (DOTs) are looking for innovative ways to manage their transportation dollars.

One tool that is providing great benefits is Transportation Asset Management (TAM), a strategic approach that strives to provide the best return for each dollar invested by maximizing system performance, improving customer satisfaction and minimizing life-cycle costs.

TAM endeavors vary from State to State and include efforts in the areas of data integration, economics in asset management, the utilization of Highway Economic Requirements System – State Version (HERS-ST), life-cycle cost analysis (LCCA), preservation, and pavement and bridge management, among others.

Because each State's experience is unique – and because FHWA believes that transportation agencies work more efficiently when information on one another's successes is shared – the Office of Asset Management is continuing its series of TAM case study reports begun in 2002.

On behalf of the Office of Asset Management, I am pleased to add this case study on comprehensive TAM to the series. I believe that each of the five case studies generated this year (one on LCCA, two on HERS-ST and two on comprehensive TAM efforts) will help transportation agencies meet the increasingly complex challenges facing them today.

King W. Gee
Associate Administrator for Infrastructure
April 2007

Note to the Reader

The TAM case study series is the result of partnering between State departments of transportation and the Federal Highway Administration's (FHWA's) Office of Asset Management. FHWA provides the forum, and the States furnish the details of their experiences with asset management.

For each case study, FHWA representatives interview State transportation staff and compile the information, and the State approves the resulting material. Thus, the case study reports rely on the agencies' own assessment of their experience. Readers should note that the reported results may not be reproducible in other organizations.

WSDOT's SR-520 Floating Bridge in Seattle.

Executive Summary

The Evergreen State, as Washington is called, is the 18th largest State in the Nation and the only State named after a president. It is bordered by Canada to the north, Oregon to the south, Idaho to the east and the Pacific Ocean to the west. The highest point in the State is Mt. Rainier at 14,410 feet above sea level; the lowest, the coastline (at sea level).

Only 360 miles long and 240 miles wide, Washington State contains six distinct geographic areas: the Olympic Mountains, the Coast Range, the Puget Sound Lowlands, the Cascade Mountains, the Columbia Plateau and the outlying sub-range of the Rocky Mountains. The State's climate ranges from a wet marine environment that receives as much as 160 inches of precipitation annually to a rain shadow area east of the Cascades that averages only six inches of precipitation a year. These features – and a rapidly expanding population of over six million – make managing transportation assets in this ruggedly beautiful State a challenge.

The Washington State Department of Transportation (WSDOT) has long utilized data collection and analysis to help manage its transportation assets. Beginning in 1990, a series of legislative efforts helped WSDOT enhance its programming process and refine its data collection efforts. Performance measures and targets have been developed for all major asset categories and have become a major component of WSDOT's TAM program.

Effective data management systems and innovative reporting methods also play a vital role in WSDOT's asset management efforts. The department's central performance publication is "Measures, Markers and Mileposts: WSDOT's quarterly report to the Governor and the Washington State Transportation Commission on transportation programs and department management." This report, also known as "The Gray Notebook," links WSDOT's performance measures to the agency's strategic objectives as well as the governor's Priorities of Government goals and legislative funding priorities. Information on "The Gray Notebook" is available online at http://www.wsdot.wa.gov/accountability/default.htm.

Unlike many other DOTs where TAM programs are centralized, WSDOT relies on a distributed method where everyone in the agency is responsible for the effective management of transportation assets. Key steps include determining the lowest life-cycle cost for transportation corridors and gleaning as much efficiency as possible out of the State's existing systems. The department's goal is optimization of the entire network.

AGENCY FACTS

WSDOT had its beginnings under the State Highway Board, which was created on March 13, 1905. A State for only 16 years, Washington had fewer than 1,000 miles of State roads – most of them unpaved – and 600,000 residents. The Board's initial biennial budget was $110,000.

A cabinet agency since 2005, WSDOT plans, constructs, operates and maintains a multimodal system that includes over 20,000 lane miles of State roadways, more than 3,000 bridges and the Nation's largest ferry fleet, with 28 ferries that carry more than 26 million riders to 20 ports of call each year. WSDOT also provides assistance to 129 general aviation airfields and to special passenger and freight rail services. Just over 6,900 full-time employees, plus additional temporary, seasonal and part-time staff, work at WSDOT headquarters, seven regional offices, and 21 ferry terminals. Approximately 1,500 maintenance staff work at 116 area and section maintenance facilities across the State. The department's current biennial budget is $4.7 billion.

A governor-appointed Secretary of Transportation serves at the helm of WSDOT and is responsible for the agency's daily operations. The seven-member Washington State Transportation Commission provides the forum for the development of transportation policy and coordinates State transportation plans with national and local policy.

WSDOT's mission is "to keep people and business moving by operating and improving the State's transportation systems vital to our taxpayers and communities." The agency accomplishes this through six strategic initiatives:

1. Manage and operate State transportation facilities to improve the safety and reliability of State transportation systems for the benefit of travelers, shippers and communities.
2. Maintain structures, facilities, support systems and services to optimize their short-term and long-term usefulness and enhance environmental performance in highway and ferry operations.
3. Deliver asset and rehabilitation projects to preserve the State's existing infrastructure assets and utilize lowest life-cycle approaches to extend their useful life.
4. Deliver high-quality capital projects that add to and improve the State's transportation systems on time and on budget.
5. Communicate transportation system performance and WSDOT agency performance to the public through clear and consistent project delivery and program management reporting.
6. Assure the capability, efficiency and safety of WSDOT's workforce.

These objectives complement 1) the governor's long range Priorities of Government, a statewide approach that utilizes agency results as the basis for budget and decision-making, and 2) the short range Strategic Action Plan, the State's performance reporting effort for 2007. The Cabinet Strategic Action Plan has set the following goals for WSDOT to accomplish by December 31, 2007:

- Complete 90 percent of highway projects on time and within budget.
- Preserve 97 percent of bridges and 90 percent of roads in good or satisfactory condition.
- Reduce congestion by clearing highway accidents quickly; in coordination with the Washington State Patrol, reduce the average duration of "over-90 minute incidents" by five percent.
- Reduce highway fatalities by four percent (in coordination with the Washington State Patrol).

A typical travel day in Seattle.

SETTING THE STAGE

What Did Washington State Have?

WSDOT has long been a proponent of research and analysis. From its first pavement conditions survey in 1969 to a Federal earmark in 1983 to build and maintain its own pavement management system (PMS), the agency has repeatedly demonstrated its commitment to data collection. By the late 1980s numerous data collection efforts were underway, but there was little correlation between analysis and programming.

The transformation to a unified approach began in 1990, when the Washington State Legislature directed WSDOT to perform a Programming and Prioritization Study (PAPS) to evaluate the agency's programming process from both a technical and a policy perspective. WSDOT worked with two consultants to complete the study. In their January 1992 summary of findings and recommendations, the firms identified six steps for WSDOT to incorporate into its programming process:

1. Clearly communicate need and strategy.
2. Identify the projects.
3. Define methods for project prioritization.
4. Establish performance measures.
5. Examine the investment tradeoffs and choices available.
6. Establish means for allocation to districts.

And more changes were imminent. The legislature had passed the State's Growth Management Act in 1990, linking State and local transportation policies with land use and environmental quality. The Intermodal Surface Transportation Efficiency Act (ISTEA) was enacted in 1991, restructuring the Federal-aid Highway Program and promoting a multimodal approach. Then, in 1994, the State legislature passed Revised Code of Washington (RCW) 47.05.

This groundbreaking highway legislation, says the December 1995 "Programming Brief Book," replaced "the earlier, highly structured, formulaic process with one that allows more flexibility in the prioritization, justification and selection of projects, while still preserving accountability for decisions on project ranking and selection. Considerable emphasis is placed not only on better information on both project costs and benefits, but also on the need for explicit analyses of tradeoffs in allocating the available funds between the Preservation and the Improvement programs, and between the highway construction and the highway maintenance programs overall."

RCW 47.05 had a profound impact on WSDOT's programming process. Under the legislation, WSDOT had 16 months to inventory its systems for the 1995-97 program. Life-cycle costing – determining the point at which a pavement/corridor has the lowest life-cycle cost – became a vital part of the process, as did performance outcomes and the ability to move dollars around to meet the most pressing needs. "We were a base-level budget prior to 1995," says System Analysis Manager Pat Morin. "Allocations were seen as an entitlement. It was hard to move the dollars around."

Even as the department became more adept at maximizing system performance, a rapidly increasing population, mounting system needs, funding shortages and WSDOT's lack of regular communication with State leaders and residents was leading to additional change. First came the appointment of a 47-member Blue Ribbon Committee on Transportation (BRCT) in 1998. Within 18 months the committee identified a $50 billion project backlog and possible funding scenarios, along with eleven system benchmarks it considered key to the effective management of transportation assets. The situation climaxed two years later, when the legislature requested that WSDOT demonstrate how it was achieving lowest life-cycle costs on transportation infrastructure in order to consider additional funding.

What Did Washington State Want?

WSDOT had spent years refining its programming and life-cycle costing processes but wasn't communicating this information to the State's leaders and residents. Now the department needed to convey these performance results and demonstrate that it was managing the State's transportation assets judiciously because the department's reputation –and the allocation of State revenue – was at stake. A change in agency leadership in 2001 provided further momentum to enhance performance measurement, transparency and accountability.

HOW DID WASHINGTON STATE GET THERE?

WSDOT institutionalized numerous changes as it enhanced its credibility and transitioned to the TAM agency it is today.

With the change in project selection and prioritization processes put in place after RCW 47.05 was passed, WSDOT was able to improve the prioritization of projects rather quickly. The next step, which has taken longer to fully implement, was changing the focus of the solutions/projects being proposed so that they embrace the comprehensive transportation asset management philosophy WSDOT embodies.

First, the agency made optimization of the entire network its mantra when programming projects, implementing tiered solutions wherever possible. Oftentimes this means looking at low-cost options such as the addition of new intelligent transportation system (ITS) technologies, the use of auxiliary lanes between interchanges and/or the addition of storage capacity on urban ramps. The goal is to reach the point where the system can't handle any more traffic. Because congestion is a major factor for travelers, WSDOT is moving away from level of service (LOS) as its measure. The agency sees enhancing system reliability and maximizing throughput, which it defines as traffic moving at 70 to 85 percent of the posted speed, as a more appropriate means of benchmarking and measuring system performance.

Second, it demolished internal silos and adopted what agency planners term a transparency mode. Prior to 2000, says Accounting Chief Marcy Yates, the various sections of the department tended to view their areas as isolated "silos" rather than interdependent units and simply didn't talk to one another. In order to move forward with effective asset management, staff needed to understand that everyone was equally responsible for the success of the department. It took time, but eventually staff acclimated to the notion that, if one succeeds, all succeed and, if one fails, all fail. The idea that the department was "transparent" – that nothing should or would be hidden – assisted greatly with that process.

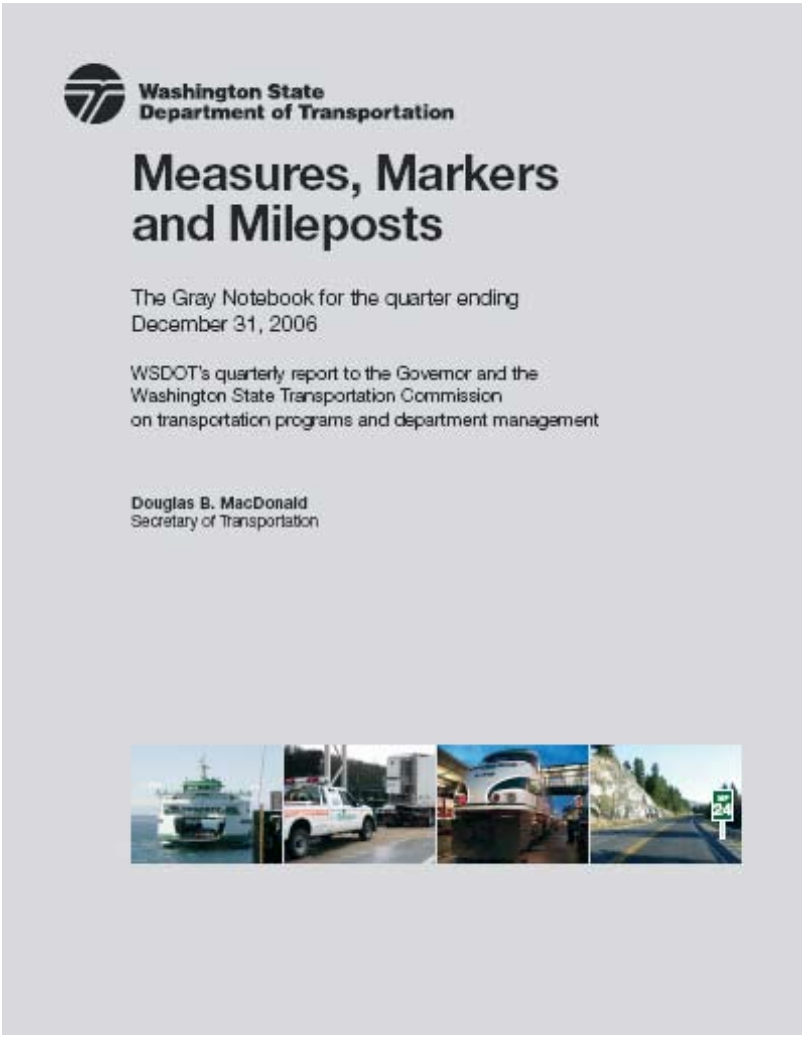
Third, the department dedicated additional resources to developing programs that could consolidate transportation asset data. The first generation of data accessibility, says Morin, was via Excel spreadsheets, which were distributed manually from office to office. By the late 1990s, WSDOT had developed the Priority Array Tracking System (PATS), a mainframe system that cross-referenced fields via various data sorts in order to generate the desired reports. Not content with such a laborious system, the program development division volunteered in 2000 to work

with the geographic information services (GIS) unit on moving to a GIS-based program. The idea of the GIS Workbench is to plot the whole State utilizing a 1,000-foot view that provides multiple layers of data. "Every two years we have 450 new projects worth about $5 billion to scope," Morin says. Establishing a linear reference system that can provide a crosswalk between databases will accomplish this. WSDOT's system isn't optimized yet, but the department's goal is to have Workbench functional in its regional design offices within a year.

Finally, the department developed a comprehensive performance report, "The Gray Notebook," as its central reporting tool; adopted a series of performance measures and benchmarks; and began reporting its progress in detail to legislators and the public each quarter.

After the BRCT recommended the establishment of numerous benchmarks, WSDOT and the Washington State Transportation Commission formed a committee to guide the implementation of benchmarks for the key categories recommended by the BRCT. The legislature ratified WSDOT's use of nine system performance benchmarks in Engrossed Substitute House Bill 2304, Part I, in January 2002. (Note: at time of printing these statutory benchmarks were being reconsidered by the 2007 Legislature. Instead of legislating specific benchmarks and measures into statute, the governor, the legislature and WSDOT recommend the adoption of six high-level policy goals, allowing for the flexibility to periodically establish or revise measures and benchmarks to reflect changing State priorities, funding scenarios and system needs.)

With benchmarks and performance measures in place, the agency turned its attention to progress reporting and detailed asset condition reports. Sharing of information is accomplished via a number of efforts, including the presence of legislative and gubernatorial staff at the department's quarterly regional project delivery meetings. The central information dissemination tool, however, remains "The Gray Notebook." This bulletin links WSDOT's performance measures to the department's strategic objectives; reports on the agency's capital project delivery programs and cross-cutting management issues; and provides quarterly updates on worker safety, workforce level and training, congestion, and all facets of the State's transportation assets. The importance of quarterly progress reporting has become even more evident since WSDOT transitioned from an allocation- to a needs-based system during the 2003-05 biennium.



Cover of "The Gray Notebook," WSDOT's central performance publication.

WHERE IS WASHINGTON STATE TODAY?

WSDOT's enhanced efforts to assess and communicate system and agency performance helped support two recent funding increases, a five-cent gas tax increase in 2003 and a nine-cent gas tax increase in 2005. This makes continued performance communication and system evaluation even more paramount. WSDOT's annual, detailed asset management reports demonstrate the State's commitment to show taxpayers the return on their investments. Plus, the agency continues to expand its analysis and asset management capabilities through a variety of department-wide efforts.

For example, when WSDOT moved from an allocation- to a needs-based system during the 2003-2005 biennium, the pavement division sent the list of locations selected by the PMS to the regions for their buy-in on what was due for rehabilitation. State Pavement Engineer Linda Pierce says this step was critical in 1) getting a handle on local programming needs, and 2) obtaining concurrence on the PMS list, especially since the regions had expressed some doubt about the accuracy of a "computer-generated" list. The result? The regions concurred with 90 percent of the projects on the PMS list. Previously, the concurrence rate was 75 percent.

A similar effort is underway in bridge management. Bridge preservation needs such as concrete bridge deck repair, steel bridge painting and special bridge repairs are identified through the bridge inspection program using bridge management system elements. The bridge office then determines needs based on deterioration criteria for each need. For example, when a concrete bridge deck has 2.5 percent deterioration, it is added to the list of needs for a repair and overlay. WSDOT also has two bridge risk reduction categories: bridge scour and bridge seismic retrofit. The bridge scour program uses bridge inspection information, along with scour critical assessments, to develop a list of bridges over waterways that require action to prevent a river from scouring the bridge foundations. The bridge seismic retrofit program, begun in the early 1990s, first provided superstructure retrofits on bridges with simple spans. The next phase provided steel jackets to bridges supported by single concrete columns. In 2005, WSDOT prioritized bridges with multiple columns within the State's highest seismic zones. WSDOT will begin design for the retrofits to these structures after July 2007.

Similarly, WSDOT's Ferry Construction Program preserves existing terminals and vessel systems utilizing a Life Cycle Cost Model (LCCM)

to ensure the capability to deliver reliable marine transportation services to over 11 million vehicles and 24 million passengers yearly. A 2001 performance audit validated the LCCM methodology and further suggested the addition of preservation performance standards and an economic condition rating element. This approach was subsequently implemented and is used to prioritize investments and forecasts future investment needs to preserve terminal and vessel systems. Like with bridge and pavement assets, performance assessment and reporting is a high priority and WSDOT publishes Category One and Category Two terminal and vessel preservation results in the Gray Notebook.

WSDOT uses an innovative process known as the Maintenance Accountability Process (MAP) to maintain its highway system assets. MAP utilizes performance measures and LOS ratings to provide key information on the condition of highway system assets as determined by bi-annual field surveys on a representative sample of the entire system. LOS ratings are used to budget and plan maintenance work, while performance measures quantify the results of these activities. LOS ratings are also used to help manage assets during the time between preservation and re-construction work.

WSDOT is continuing to refine its collection methods in order to automate the capturing and transmittal of information. The department utilizes global positioning system (GPS) technology to collect data on roadside fixed objects, with the data uploaded every night using a data mart. Data collection efforts are also underway for State-owned culverts as well as other drainage and electrical features. The department's long-term goal is to refine the statewide GIS system, the Workbench, so that all of the information collected can be accessed from anywhere in the department.

An integrated reporting system that utilizes data marts aids greatly in WSDOT's asset management process by exchanging information nightly on allocation expenditures. Such reporting efforts, says staff, are crucial to the success of WSDOT's TAM program. "This is part of who we are and how we do business," says Strategic Assessment Director Daniela Bremmer.

Asset Management: Pavement Assessment Annual Update

Pavement Conditions for 2005

This report is an annual update on pavement conditions. WSDOT maintains approximately 20,099 lane miles of highway, including ramps, collectors and special use lanes. WSDOT uses three major pavement types, which are described below and in more detail on p. 57. Each pavement type has an associated pavement life, rehabilitation treatment, and rehabilitation cost.

Increase in the Percentage of Pavement in Good Condition in 2005

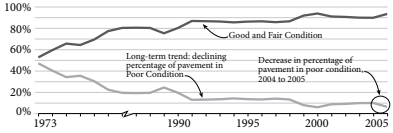
According to the 2005 pavement condition survey, the percentage of all pavements in the "good" category increased from 89.9% in 2004 to 93.5% in 2005, an overall increase of 3.6%.

The decrease in "poor" condition pavements is attributable to a reduction of 119 lane-miles of poor condition portland cement concrete (PCC) pavements, a reduction of 212 lane-miles of poor condition chip seal pavements and a reduction of 307 lane-miles of hot mix asphalt (HMA) pavements in poor condition.

Technologically Advanced Approach to Pavement Condition Data Collection

WSDOT is one of a few states to perform its pavement condition survey using an automated pavement condition vehicle on 100% of the surveyed lane. This allows WSDOT to complete an evaluation of all state highways (many states conduct sample surveys from a given mile of pavement). WSDOT's vehicle travels at highway speeds and collects data through the use of high-resolution digital imaging to determine the amount of cracking and patching, pavement roughness and rutting annually on all state highways. Cameras view the driver perspective, the right shoulder, and the pavement surface. The digital images are played back on special workstations at slow speeds and surface distresses are identified and rated by trained technicians. Quality control checks are applied throughout the rating process to verify and validate the accuracy of the distress data.

State Highway Pavement Trends, 1973-2005



Data Source: WSDOT Materials Lab

Rear view of pavement survey vehicle.

Pavement Type	Total Lane Miles[1]	Annual VMT[3] 2005 (Billions)[2]	Pavement Rating	2004	2005	2005-07 Dollars Programmed (Millions)[2]		2007-09 Dollars Programmed (Millions)[2]	
Chip Seal Pavements A chip seal is a durable surface that provides six to eight years of performance life at approximately $12,000 per lane-mile	4,314	1.1	Good	86%	91%				
	23.5%	3.6%	Poor	14%	9%	$31.3	15.1%	$32.3	9.0%
Hot Mix Asphalt Pavements Hot mix asphalt pavements surface life, between rehabilitation treatments, ranges from six to 18 years (based on actual pavement performance) at approximately $123,000 per lane mile for due miles and $156,000 for past due miles	11,645	21.7	Good	92%	95%				
	63.4%	68.6%	Poor	8%	5%	$154.2	74.5%	$198.2	78.5%
Portland Cement Concrete (PCC) Pavements WSDOT has experienced PCC pavement life ranging from 25 to 45 years with an approximate cost of $330,000 per lane mile for dowel bar retrofit and $1 million per lane mile for full replacement.	2,388	8.8	Good	85%	91%				
	13.0%	27.8%	Poor	15%	9%	$21.5	10.4%	$22.0	8.7%
			Good	15965	16617				
Total	18,347	31.6	Poor	1797	1162	$207.0		$252.5	

[1]Data Source: State highway Log Planning report 2005 - includes all lane miles
[2]Data Source: Transportation Data Office - excludes ramps, collector - distributors or frontage roads.
[3]Vehicle Miles Traveled: A measure of the amount of vehicular travel. One vehicle traveling one mile = 1 VMT

Snapshot of an annual summary page from "The Gray Notebook."

Asset Management: Bridge Assessment Annual Update

Bridge Inventory

WSDOT Bridge Structures
as of June 30, 2006

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

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

Bridge Inventory: Changes in 2005

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

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

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

Annual Bridge Condition Update

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

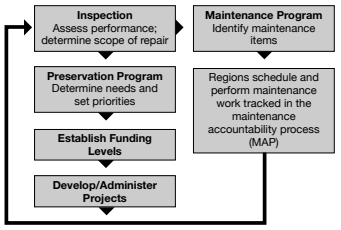
Bridge Structural Condition Ratings
Condition Ratings by Fiscal Year

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

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

WSDOT Preservation Program Overview

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



WHAT HAS WASHINGTON STATE LEARNED?

WSDOT staff has encountered two major challenges in developing its comprehensive TAM program.

The first is delivering WSDOT's program statewide utilizing the available workforce. The department has addressed this concern by tracking and reporting on the available workforce every quarter so that this information can be shared with the public and the legislature. Having this information available has proven a valuable tool during the analysis of tradeoffs that WSDOT conducts as part of its project scoping process.

The other major challenge falls to the regional offices, which are tasked with delivering programmed projects on time and on budget while prioritizing future needs and preparing proposals for the upcoming biennium. Finding the resources to do so is a juggling act, but WSDOT is committed to making it happen. Use of tools such as the Workbench will help by minimizing the time regional planners spend searching for and correlating data.

Even as it juggles to meet these demands, WSDOT says it is happy with the distributed method of asset management, where everyone is responsible for managing the department's assets wisely. "This design is intentional," says Bremmer. "There are too many moving parts for one expert."

WHAT'S NEXT?

WSDOT is focused on refining the Workbench and other management systems – and on preparing for the next biennium. Scoping a $9 billion program while delivering the current $7 billion program might seem like a daunting task, but WSDOT staff says it is up to the challenge.

"In light of ever-changing conditions, we are focused on meeting those performance goals we hold near and dear," says Yates. "Our goal is to keep moving forward."

A roadway in eastern Washington State.

Additional information is available from the following:

Daniela Bremmer
Strategic Assessment Director
WSDOT
360-705-7953
bremmed@wsdot.wa.gov

Pat Morin
Systems Analysis Manager
WSDOT
360-705-7141
morinp@wsdot.wa.gov

Francine Shaw-Whitson
Transportation Manager and Leader, Evaluation & Economic Investment Team
FHWA, Office of Asset Management
202-366-8028
fshaw-whitson@dot.gov

Photography Credit
All photos courtesy of WSDOT.

U.S. Department
of Transportation
**Federal Highway
Administration**

**Office of Asset Management
Federal Highway Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590**

**Telephone: 202-366-0392
Fax: 202-366-9981
www.fhwa.dot.gov/infrastructure/asstmgmt**

FHWA-IF-07-011