



**Washington State
Department of Transportation**

The Gray Notebook

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

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2001-2011
A decade of transparency

GNB 43

**Quarter ending
September 30, 2011**

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[www.wsdot.wa.gov/
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Executive Summary



On this quarter's cover (from top):

A birdcage? Spiderman? No, it's a worker tying rebar for the abutment at the south end of the new southbound SR 99 bridge.

A small plane waits on the tarmac of Olympia Regional Airport, one of the oldest public airports in America.

The Lewis & Clark Bridge emerges from a bank of fog.

Replacing the roof of the Anacortes Ferry Terminal.

Workers install brackets on the east side (facing westbound traffic) on the east highrise of the SR 520 bridge.

This page: High water in high summer: Christine Falls in Mt Rainier NP.

Performance highlights in this edition of the *Gray Notebook*

Since 2001, WSDOT's quarterly *Gray Notebook* (also called the *GNB*) has served as one of the agency's primary accountability reporting tools. It contains quarterly, semi-annual, and annual updates on a wide range of agency activities, programs, and capital project delivery.

This edition of the *Gray Notebook* presents information on WSDOT's performance for the quarter ending September 30, 2011, as well as five annual and two semi-annual reports. Selected highlights from this edition include:

- **Analysis of 29 highway safety projects showed they helped reduce serious injury and fatal collisions by 14%.** All collisions that resulted in any degree of injury or fatality were reduced by 19%. (*Highway System Safety: Focus on Before and After Results*; pp. 5-8)
- **WSDOT prioritizes repairs and improvements to its 288 primary buildings to maximize its investment returns.** About 66% of all primary buildings are more than 25 years old, and 40% are in 'poor' condition. The backlog of repairs and improvements that would make them safer, more durable, or more operationally efficient is estimated to cost \$142.7 million. (*Capital Facilities Annual Report*; pp. 10-14)
- **WSDOT awarded 43 grants to help fund projects at public airports across the state in FY 2011.** Federal, state, and local contributions brought the value of awarded grants to almost \$9.3 million. (*Aviation Annual Report*; pp. 16-18)
- **WSDOT estimates that the economic benefit to businesses and the traveling public from the assistance provided by the Incident Response program was about \$11 million in the third quarter of 2011.** Analysis presents the incident clearance times along with the cost of delay by incident type and duration. (*Incident Response Quarterly Report*; pp. 19-23)
- **WSDOT's noise reduction research sees varied degrees of success.** Quieter asphalt paving has not shown consistent, long-lasting results, while tests of quieter concrete surface texturing treatments show promise. WSDOT continues to research cost-effective solutions. (*Noise Quality Annual Report*; pp. 30-34)
- **WSDOT works hard to help improve Puget Sound area air quality, as ferries and other vessels contribute to regional maritime emissions.** Solutions include using more carbon-neutral biodiesel, more efficient operation of ferry boats, and retrofits to engine components. (*Air Quality Annual Report*; pp. 35-37)
- **WSDOT has completed Endangered Species Act documentation for 21% of projects scheduled for advertisement in the 2011-2013 biennium.** (*Endangered Species Act Documentation Annual Report*; pp. 38-40)
- **Both Grain Train and produce rail car use continued to rise in the third quarter of 2011, as Washington farmers and growers took advantage of the state-sponsored freight rail services.** (*Freight Rail Semi-Annual Report*; pp. 42-44)
- **As of September 30, 2011, WSDOT has delivered 310 of 421 Nickel and Transportation Partnership Account (TPA) projects valued at \$4.1 billion,** on target with the funding provided in the 2012 Transportation Budget. To date, 87% of completed projects have been delivered early or on time and 93% have been on or under budget. As of September 30, 2011, 43 projects were under construction. (See the *Beige Pages* for a quarterly report of WSDOT's *Capital Project Delivery Program*; pp. 48-61.)
- **As of September 30, 2011, 212 of 219 Recovery Act highway projects have been completed,** and WSDOT continues to move forward on High Speed Rail projects worth more than \$766 million. The *Recovery Act Special Report* (pp. 46-47) includes project employment data through September 2011.

Performance Dashboard



Policy goal/Performance measure	Previous reporting period	Current reporting period	Goal	Goal met	Progress	Comments
Safety						
Rate of traffic fatalities per 100 million vehicle miles traveled (VMT) statewide (annual measure, calendar years: 2009 & 2010)	0.87	0.80	1.00			The rate of highway fatalities continues to decline (a lower rate is better)
Rate of strains and sprains / hearing-loss injuries per 100 WSDOT workers ¹ (calendar quarterly measure: Q2 2011 & Q3 2011)	3.4/ 0.8	2.0/ 0.0	2.4/ 0.4	—		Both strains/sprains and hearing loss met their goals for the quarter, but not for the year to date
Preservation						
Percentage of state highway pavements in fair or better condition (annual measure, calendar years: 2008 & 2009)	94.7%	93.0%	90.0%			Recovery Act-funded projects helped with backlog, but does not address all long-term needs
Percentage of state bridges in fair or better condition ⁷ (annual measure, fiscal years: 2010 & 2011)	98.0%	95.0%	97.0%	—		Deck code ratings added to criteria contributed to the change
Mobility (Congestion Relief)						
Highways: annual weekday hours of delay statewide at maximum throughput speeds ² (annual measure: calendar years 2008 & 2010)	34.8 million	31.7 million	N/A	N/A		Reduction of 21% driven by both reduced demand due to the economy and increased capacity
Highways: Average clearance times for major (90+ minute) incidents on 9 key western Washington corridors (calendar quarterly measure: Q2 2011 & Q3 2011)	165 minutes	162 minutes	155 minutes	—		Average clearance time improved for the quarter, but did not meet the goal
Ferries: Percentage of trips departing on time ^{3, 7} (quarterly, year to year: FY11 Q1, FY12 Q1)	82.9%	93.7%	90%			Performance is higher than the same quarter a year ago
Rail: Percentage of Amtrak <i>Cascades</i> trips arriving on time ^{4, 7} (quarterly, year to year: FY11 Q1, FY12 Q1)	73.6%	71%	80%	—		WSDOT and Amtrak continue to evaluate projects and other means to improve on-time performance
Environment						
Cumulative number of WSDOT stormwater treatment facilities constructed or retrofitted ⁵ (annual measure: calendar years 2008 & 2009)	Over 800	Over 1,037	N/A	N/A		Stormwater facilities will now be constructed under a new permit, with new requirements
Cumulative number of WSDOT fish passage barrier improvements constructed since 1990 (annual measure: calendar years 2008 & 2009)	226	236	N/A	N/A		Ten additional retrofits were completed in 2009
Stewardship						
Cumulative number of Nickel and TPA projects completed, and percentage on time ^{6, 7} (quarterly: FY11 Q4, FY 12 Q1)	304/ 89%	309/ 89%	90% on time	—		Performance did not improve this quarter and did not meet goal
Cumulative number of Nickel and TPA projects completed and percentage on budget ^{6, 7} (quarterly: FY11 Q4, FY12 Q1)	304/ 94%	309/ 94%	90% on budget			Competitive bidding and construction environment contribute to controlling costs
Variance of total project costs compared to budget expectations ^{6, 7} (quarterly: FY11 Q4, FY 12 Q1)	under-budget by 1.0%	under-budget by 1.0%	on budget			Total Nickel and TPA construction program costs are within 1% of budget

Data notes: N/A means not available: new reporting cycle data not available or goal has not been set. Dash (—) means goal was not met in the reporting period.

1 Sprains/strains and hearing loss are current high priority focus areas for WSDOT. Hearing loss rate based on preliminary data.

2 Compares actual travel time to travel time associated with 'maximum throughput' speeds, where the greatest number of vehicles occupy the highway system at the same time (defined as 70%-85% of the posted speeds).

3 'On-time' departures for Washington State Ferries includes any trip recorded by the automated tracking system as leaving the terminal within 10 minutes or less of the scheduled time.

4 'On-time' arrivals for Amtrak *Cascades* are any trips that arrive at their destination within 10 minutes or less of the scheduled time.

5 Number of estimated facilities in permitted counties: Clark, King, Pierce, and Snohomish.

6 Budget and schedule expectations are defined in the last approved State Transportation Budget. See page 48 for more information on capital projects in the current 2011 Legislative Transportation Budget.

7 Washington's fiscal year (FY) begins on July 1 and ends on June 30. FY12 Q1 refers to the quarter ending September 30, 2011.

Asset Management: Capital Facilities Annual Report

Capital Facilities Program

Capital Facilities Highlights

40% of primary buildings are in “poor” condition and need significant repairs.

66% of primary buildings have been identified as more than 25 years old, with a \$142.7 million backlog of necessary work.

92% of identified ADA deficiencies have been corrected, with the remaining to be completed in 2011-13.

New for this report in 2011:

- WSDOT 2011-2013 capital facilities budget, see page 10.
- Improved method for developing repair backlogs in 2012, see page 11.
- Capital facility minor works projects for the 2011-2013 biennium, see page 12.
- 2010 preventative maintenance workload by criticality data, see page 14.
- ADA transition plan update, see page 14.

The capital facilities program is responsible for the maintenance, operations, improvement, and preservation of 966 department-owned buildings and structures at 296 separate sites across the state. These ‘facilities assets’ are valued at more than \$1 billion dollars; they serve the needs of WSDOT’s programs that construct, maintain, and operate state highways.

Facilities assets, which contain many unique uses and complex building systems, include region headquarters complexes, traffic management centers, maintenance crew facilities, commercial vehicle repair, welding and fabrication shops, project engineer offices, testing laboratories, materials storage, and wireless communications sites.

\$3.7 million available to preserve facilities assets in the 2011-2013 biennium

WSDOT’s budget for capital facilities in the 2011-13 biennium is \$30.85 million, with \$25.4 million for operations and \$5.4 million for capital expenditures. Of the \$5.4 million, \$3.7 million is available to repair and preserve facilities assets, and \$0.4 million is available to comply with storm-water permit requirements. At the current funding level, 2% of identified building repairs can be performed each year.

This article presents methodologies for identifying facilities needs and priorities that the capital facilities program has in place to implement the strategies presented in Business Directions, WSDOT’s 2011-2017 Strategic Plan.

Identifying high priority preservation and improvement needs

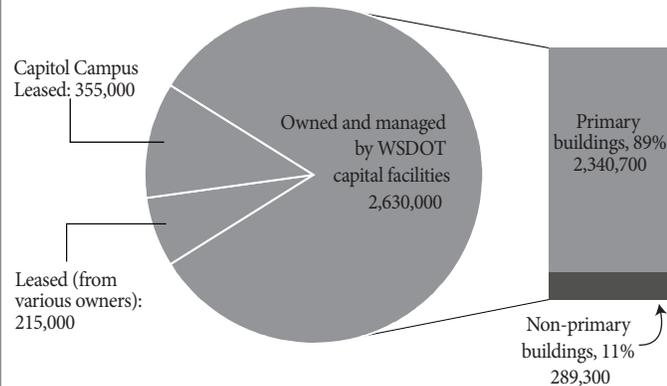
Of the 3.2 million square feet of buildings that WSDOT occupies, 2.6 million square feet are managed by the Department’s capital facilities program. About 89% (2.3 million square feet) of this building space is contained in 288 “primary buildings:” office and crew space that support a majority of the department’s staff and provides storage space for vehicles and equipment. For more information on why WSDOT now focuses on primary buildings see *Gray Notebook* 38, page 9.

40% of primary buildings are rated “poor”

In 2010, 113 of 288 primary buildings were rated in poor condition. This is up from 100 buildings rated poor in 2008, a 13% increase. Since 2008, the capital facilities program has focused on high priority preservation and improvement projects for the 288 primary buildings. For more information on the condition, age, and backlog of these facilities, see page 11.

WSDOT occupied building space

As of October 2010; Square footage (excludes Ferries and Safety Rest Areas)



Data source: WSDOT Computer Aided Facility Management (CAFM) System Building Inventory.

WSDOT primary building condition rating

Number of primary buildings by condition rating

Condition	2008	2010
Good	31 (11%)	24 (8%)
Fair	142 (52%)	150 (52%)
Poor	100 (37%)	113 (40%)
Total¹	273	288

¹ Differences in building numbers are due to new construction or additions to the Capital Facilities program from another WSDOT program.

Data source: WSDOT Capital Facilities Office.

Capital Construction Program

Primary buildings are a focus for high priority preservation and improvement projects. In order to prioritize needs among these buildings, WSDOT assesses impacts to department operation through biennial Facility Condition Assessments (FCA).

FCAs use building industry standards and are conducted every two years. Unlike some of its other asset management programs, WSDOT does not conduct these assessments annually, as results do not change significantly every year. The condition of individual building systems is evaluated, and used to identify repair backlogs and to determine facility replacement priorities.

The FCA rates the building system on a scale of 1–5, with 1 being good and 5 being poor. If a building system is found to be deficient, it is rated 4 or 5 and a preliminary repair cost is estimated. The sum of building system ratings is the total building rating, this is used to define its condition as good, fair, or poor. Preliminary repair cost estimates for buildings are then used to define the statewide repair backlog.

In 2012, WSDOT will improve the way it estimates repair backlogs

The method for developing the statewide repair backlog has been modified for the next round of backlog information submittals, due on January 30th, 2012 from the regions. An estimating spreadsheet has been created using RSMeans as the source for building out repair cost estimates. The intent is to make repair cost estimating consistent statewide. The 2012 estimates will contain updated repair backlog costs and building condition ratings. This information will be reported in a future edition of the *Gray Notebook*.

191 aged and obsolete primary buildings need preservation and replacement

The main cause of the preservation and repair backlog is the steady aging of buildings: 66% of primary buildings are more than 25 years old, with a \$142.7 million dollar backlog, and 27% exceed 50 years old. Major building systems – such as heating, plumbing, lighting, roofing, and structural elements – require substantial repair or replacement after 20 or 25 years. Older buildings are more likely to be inefficient or unsuitable for today’s operations, with problems that range from an inadequate number of vehicle bays and bay sizes too small for modern trucks, to insufficient crew facilities and material storage.

Based on 2010 condition assessments, WSDOT faces an accelerating repair backlog at each building as facility age increases.

The 288 primary buildings add up to a total deficiency backlog of \$160 million. The table shows the backlog per building by age group for primary buildings.

WSDOT primary building age and backlog

As of October 2011; Dollars in millions

Age	Number of buildings	Backlog per building	Backlog total
25 years or less	97 (34%)	\$0.18	\$17.2
26 to 50 years	112 (39%)	\$0.77	\$85.7
50 years or more	79 (27%)	\$0.72	\$57.0
Total	288		\$159.9

Data source: WSDOT Capital Facilities Office.

The total deficiency backlog for all facilities has increased \$8.3 million (4%) since 2008, increasing from \$188 million to \$196.3 million. Primary buildings make up \$159.9 million, or 82%, of the 2010 backlog.

A building replacement backlog of about \$280 million has been identified in the 2010 Capital Facilities Strategic Plan. This 16-year plan was finalized in October 2010 and will be updated each biennium.

Prioritizing projects - Minor works

Based on condition assessment data, region facility managers request prioritization of minor works projects valued under \$1 million. Projects generally consist of building system and structural repair, roofing, paving, siding, lighting and electrical improvements, and radio tower installation.

Minor works projects are prioritized into three categories (occupant, preservation, and operational) with occupant projects addressed first.

- **Occupant** projects are those that contain hazardous site or building conditions that may jeopardize health and safety of staff, the public, and the environment, and/or are immediate violations of local, state, or federal regulations.
- **Preservation** projects replace and preserve failing buildings systems or elements that have a high risk of failure and require constant corrective maintenance.
- **Operational** projects correct insufficient building space, provide wireless communication, and/or improve facility components that impact ‘mission critical’ operations.

Asset Management: Capital Facilities Annual Report

Emergent Needs

Select capital facility minor works projects: 2009 – 11 *Completed in the 2009 - 2011 biennium*

	Project budget	Description
Projects addressing occupant safety		
Electric City Ridge Radio Tower Replacement	\$139,000	S/CC
Union Gap Sign Shop Ventilation Repairs	\$19,000	S/CC
Raymond Prewash Pad and Treatment System Improvements	\$46,600	EC
Goldendale Drainage Improvements	\$27,500	EC
Hyak Prewash Building	\$471,500	EC
Colville Vehicle Storage Environmental Improvements	\$57,300	EC
Projects addressing preservation		
Corson Ave. Mats Lab Roof Replacement	\$174,800	BP
Mottman Modular Roof/HVAC Replacement	\$262,000	BP
Woodland Roof Replacement	\$95,300	BP
Projects addressing operations		
Wandermere Vehicle Storage Building	\$292,800	EN

Data source: WSDOT Capital Facilities Office.

Note: Description codes indicate S/CC – Safety/Code Compliance; EC – Environmental Compliance; BP – Building Preservation; EN – Emergent Need (Facility failure or immediate operational need).

Select capital facility minor works projects: 2011 – 13 *Planned for completion in the 2011 - 2013 biennium*

	Project budget	Description
Projects addressing occupant safety		
Arlington Sand Shed Replacement	\$121,000	S/CC
Dayton Ave. Electrical Distribution System Assessment	\$16,500	S/CC
Central Park ADA Compliance	\$65,300	S/CC
Packwood Creosote Loading Dock Removal	\$6,600	EC
Bullfrog Pre-Wash Pad and Treatment System Improvements	\$106,000	EC
Projects addressing preservation		
Tumwater Materials Lab Roof Replacement	\$114,800	BP
Dayton Ave. Boiler Replacement	\$340,000	BP
Okanogan Well Improvements	\$74,300	BP
Chehalis Floor Moisture and Wall Repairs	\$464,000	BP
Olympic Region 06 Bldg Roof Replacement	\$105,000	BP
Projects addressing operations		
Shuksan Radio Tower	\$225,000	O
Schrag Radio Building	\$75,000	O

Data source: WSDOT Capital Facilities Office.

Note: Description codes indicate S/CC - Safety/Code Compliance; EC - Environmental Compliance; BP - Building Preservation; O - Operational.

Accommodating emergent need projects

The prioritized list of minor works projects is affected when new unexpected projects are identified. These unplanned projects typically arise because an existing system has failed, or an immediate operational need has emerged. These projects are generally paid for through the deferral of other funded projects.

Chehalis siding project

As work was under way to correct floor moisture issues at the Chehalis area maintenance facility/project engineering office building, workers found extensive moisture damage and mold within the wall systems and repairs to correct the damage was required. The damage to the walls was caused by failures to the building's exterior systems. About \$240,000 in prioritized minor works projects must be deferred to fund this emergent need.



Chehalis AMF/PE office building. Above: damaged walls can be seen throughout. Right: repairs to the damaged walls are under way.

Asset Management: Capital Facilities Annual Report

Operating Program

Major upgrade and replacement projects

Facility projects range from minor remodels to large-scale site acquisition and commercial development. Projects valued at \$20 million or more are typically Regional Complex replacement projects, such as the Olympic Region Headquarters and the Vancouver Light Industrial Replacement project. Projects valued at more than \$5 million are generally large maintenance facility such as the Northwest Region maintenance facility replacement project. Projects under \$5 million are smaller scale, such as replacement of the Hazel facility and the Sekiu building.

Projects over \$1 million are typically regarded as facility replacement or major upgrade projects needing line item appropriation; they are generally requested separately using OFM pre-design study guidelines. No facility replacement or major upgrade projects are planned for 2011-13.

Capital facility replacement costs

Estimated costs as of June 2010

Project type	Value
Projects worth less than \$5 million	\$42,294,000
Projects worth between \$5 and \$19 million	\$121,041,000
Projects worth more than \$20 million	\$117,100,000

Data source: WSDOT Capital Facilities Office.

Operating program addresses facilities maintenance

Daily operations and maintenance activities help keep WSDOT buildings and structures open for use. Implementation of a coordinated statewide facility maintenance system has allowed WSDOT to benchmark and identify critical equipment and systems, outline required maintenance schedules, and develop predefined levels of service. Elements of this program are used to evaluate, quantify, and provide funding to each region for daily facility maintenance and operational needs.

To further refine and prioritize work, WSDOT reassessed levels of service and developed methods to measure work performance. For example, quarterly preventative maintenance activities achieved are compared to planned activities, allowing WSDOT to better understand completion rates. This data will allow the agency to prioritize future allocation and workforce needs.

Preventive maintenance

Preventive maintenance is regularly scheduled maintenance work necessary to prevent equipment breakdown and to maintain proper facility and equipment operations.

Inspection, calibration, adjustment, cleaning, lubrication, and parts replacement are all components of preservation work. The most important aspect of such maintenance is that it is planned work: identifying need, then maintaining and replacing items before a failure occurs.

To mitigate equipment failures and manage preventive maintenance, WSDOT uses a Computerized Maintenance Management System (CMMS). Each building system and/or piece of equipment associated with a site or building is inventoried and maintained in the CMMS system with an assigned level of priority, or criticality. Assigning a criticality level to systems and equipment helps WSDOT prioritize preventive maintenance activities and assists in communicating which activities are funded.

Criticality levels are prioritized by nine categories (see table below). Failure to complete life safety (10) or code compliance (9) activities could jeopardize employee health or safety, while categories 8, 7, and 6 ensure operation of critical systems. Categories 5 and below are not funded within the current budget.

Preventative Maintenance Criticality Matrix

Funded criticality	Activities
10 - Life safety	Hazardous building or site conditions that jeopardize life safety of occupants and impacts building occupancy
9 - Code compliance	Mandated compliance with local, state or federal building regulations
8 - Critical systems	Prevention of serious facility deterioration and significantly higher costs if not immediately addressed
7 - Environmental compliance	Mandated compliance with local, state, or federal environmental regulations, which do not impact building occupancy
6 - Primary systems	Required to support primary systems and equipment. Comprises the majority of site and building equipment and systems

Unfunded criticalities and activities

5 - Secondary systems	Work required to support secondary systems and equipment
4 - Long-term cost effective measures	Energy or functional conservation measures with a rapid return on investment
3 - Non-structural maintenance	Prevents facility component deterioration and/or potential loss of use or affects economies of operation
2 - Appearance	Required to maintain the image of WSDOT facilities

Data source: WSDOT Capital Facilities Office.

Asset Management: Capital Facilities Annual Report

Other Program Highlights

Corrective maintenance

Corrective maintenance is one-time, emergency, breakdown, or corrective work, such as repairs to equipment bay doors, roofs, or plumbing, or replacing heating and ventilation equipment. These unexpected, urgent repairs require immediate response with labor and materials.

Increases in corrective maintenance costs are often linked to decreases in preventive maintenance efforts. Preventive maintenance should typically account for the largest part of a maintenance budget, and deferral of preventive activities tends to change that balance. Additionally, increasing failure rates of aging equipment and systems results in increased effort to replace and repair those components, which impacts the resources available maintain all equipment and systems.

Preventive maintenance workload by criticality

2008-2010

Criticality	2008	2009	2010
10	12%	8%	8%
9	12%	14%	10%
8	27%	29%	28%
7	1%	3%	4%
6	48%	46%	50%
Total	100%	100%	100%

Data source: WSDOT Capital Facilities Office.

The table identifies the relatively consistent levels in WSDOT's facility maintenance efforts, by criticality. The results were derived by evaluating completed service requests on equipment or systems within a criticality and compared to the overall effort. WSDOT expends the largest effort in facility maintenance on equipment in criticality 6, which contains the most equipment in our inventory, and includes HVAC, lighting, and air compressors. By contrast, criticality 7 has fewest equipment/systems in the inventory (criticalities 6 – 10) and receives the smallest investment in effort.

Other program highlights

Agency energy performance

All state agencies are required to report energy consumption, strategize energy conservation measures, and benchmark facility energy performance. WSDOT completed benchmarking its reporting public facilities, submitted strategies to reduce emissions by 2020, and has engaged in annual emissions reporting.

In its effort to track, measure and report energy reductions, the WSDOT is developing tools that will enable the agency to calculate energy savings related to projects. These tools can be applied to most projects, and will enable better quantification of how established reduction goals and emission reduction strategies are being met.

ADA transition plan update

In the 2007-2009 biennium, WSDOT hired a team of consultants to assess WSDOT-owned public access buildings statewide for compliance with the Americans with Disabilities Act.

As a basis, the 2009 WSDOT Statewide Capital Facilities ADA Transition Plan identified 221 non-compliant capital facilities items with an estimated cost of \$167,000 needed to bring them up to code. Sixty of these items were addressed operationally or were determined to be not applicable.

With the addition of four items at the Central Park Maintenance Facility, 19 items remain, and they will be complete before July 31, 2012.

WSDOT Facilities and Lease Board

In the 2011-13 biennium there is a requirement under Section 604 of the final Transportation Budget Bill (ESHB 1175), which requires a plan to be developed to improve the oversight of departmental facilities assets including owned, leased, tunnel, bridge, maintenance, traffic management centers, and ferries facilities. The plan must be submitted to the governor and the joint transportation committee by September 1, 2012.

To improve oversight of department facilities, WSDOT has created a Facilities and Lease Board to ensure that the department is transparent and proactive in identifying and implementing cost-effective solutions for ongoing and future facilities needs. WSDOT Executive Order E 1079.00 details the purpose and responsibilities of the Facilities and Lease Board.

Included in this effort is the considerations of the Workforce Business Strategy impact on facilities, which details WSDOT's future plans to eliminate a number of regional offices over the next several years. This is expected to have a low impact on WSDOT owned capital facilities, as most of the offices to be closed are leased space. As these leases are terminated, some staff may be consolidated into remaining WSDOT owned spaces.

Noise Quality Annual Report

Noise Program Highlights

WSDOT's new state noise policy will affect where and when noise walls will be constructed.

Updated noise policies and procedures can be found at www.wsdot.wa.gov/Environment/Air/noise.htm

Since 2008, nine of 15 noise walls constructed were for noise retrofit (Type 2) projects.

Preliminary results in the Ship Canal Bridge noise study indicate that actual noise reductions are not as large as anticipated by the expert review panel.

The quieter asphalt test pavements have not been effective at reducing tire pavement noise after about 6 months of being open to traffic.

Quieter asphalt pavement test sections on I-5 in Lynnwood and SR 520 in Medina were badly rutted after two years and have been removed.

WSDOT is currently evaluating noise performance for several concrete surface textures, and quieter concrete test pavements are showing promising results.

WSDOT develops innovative and cost-effective noise abatement strategies, conducts transportation noise studies for State Environmental Protection Act (SEPA) and National Environmental Protection Act (NEPA) compliance, prepares permit applications for night construction noise variances, and conducts acoustic research. In fiscal year 2011, WSDOT continued evaluating alternatives to standard concrete noise walls, developed a new state noise policy, completed and approved more than 35 traffic noise studies, and prepared more than 100 construction noise variances. The agency also began research to reduce noise from rumble strips and monitor underwater sound (hydro-acoustic).

Updates to Federal regulations may result in more noise studies, and fewer noise walls

Federal regulations require states to evaluate traffic noise whenever they expand or change a road in a way that could change noise levels or bring traffic closer to neighborhoods. In July 2010, the Federal Highway Administration (FHWA) published a final rule updating noise regulations that describe how traffic noise and noise abatement must be addressed on highway projects using federal money. The rule requires state DOTs to develop a state noise policy that is approved by FHWA. WSDOT has published the 2011 WSDOT Noise Policy and Procedures document, which now applies to all new traffic noise studies, and those studies that were not substantially complete by July 13, 2011. The new policy is likely to affect when and where noise walls are built, result in more traffic noise analysis, and likely lead to fewer (though larger) noise walls. See the gray box on the next page for information on how WSDOT evaluates traffic noise and noise abatement.

Most noise walls built since 2008 have been retrofit projects

Noise walls are the most common form of traffic noise abatement (see *Gray Notebook* 35, page 30); they can range from four to 30 feet tall, and are made of concrete or other materials that reflect or absorb noise. WSDOT evaluates its road construction projects for traffic noise impacts and mitigation in two categories: Type 1 and Type 2 projects.

Type 1 projects require a traffic noise study because they have the potential to increase traffic noise levels for nearby residents by bringing a road closer to people or by adding traffic lanes. Since 2008, WSDOT has constructed six noise walls for Type 1 projects.

Number and cost of noise walls constructed between 2000 and 2010, by project type

Length in miles; Area in square feet; Dollars in millions

Years	Project type	Total number of noise walls built	Average number built per year	Total length of walls	Total area of noise walls	Total cost of noise walls	Average cost per noise wall ²
2001-2007 ¹	Type 1	49	7	18.4	1,323,425	\$29.8	\$0.6
	Type 2	5	< 1	0.6	99,612	\$3.3	
2008-2010	Type 1	6	2	0.9	11,815	\$6.9	\$1.09
	Type 2	9	3	1.9	147,401	\$9.5	

Data source: WSDOT Environmental Services Office

Data notes: 1 Between 2000 and 2007 (7 years), the majority of funded noise mitigation projects were Type 1. In 2008, noise mitigation efforts shifted focus to Type 2 projects.
2 Average cost combines costs for both Type 1 and Type 2 projects.

WSDOT Noise Research

Type 2 projects are noise abatement retrofits made to existing highways for residential areas that were constructed before the highway was built or expanded. Retrofit projects are prioritized by community age, density, noise levels, and the cost of abatement, and are made possible through targeted funding from the Washington State Legislature. This state-funded noise retrofit-noise barrier program is WSDOT's effort to improve the noise levels near highways in an equitable way, since traffic noise was not studied before 1976, after construction of highways like I-5.

WSDOT has constructed nine retrofit noise walls since 2008—a third more than Type 1 noise walls, but there remain about 60 other prioritized, but unfunded, retrofit locations statewide. The table on the previous page shows that almost two of the nearly three miles of noise walls constructed since 2008 are Type 2 projects.

WSDOT noise research seeks to expand cost-effective options

Traffic noise is a concern for many residents living along state highways. WSDOT continues to study new, efficient, cost effective ways to manage noise generated from highways and bridges. Typically, noise barriers (noise walls and earthen berms) have been the most effective method for reducing traffic noise, though they can be expensive and are not always constructible. WSDOT is evaluating other ways to address noise quality like changing the surface texture of concretes, using “quieter” pavements, and applying retrofits for unconventional noise sources such as bridge expansion joints.



The noise walls near this bridge joint on the Tacoma Narrows Bridge were coated with a material that absorbs sound

Reducing centerline rumble strip noise

Rumble strips are commonly used safety features proven to reduce vehicle crashes. However, noise from rumble strips is the cause of frequent complaints by nearby residents. In 2011, the WSDOT research office allocated \$60,000 to research

WSDOT follows these steps to evaluate noise

When a project requires a noise study, WSDOT follows federal guidelines for a three-step process to evaluate traffic noise levels and traffic noise abatement.

- Step 1: WSDOT determines whether the project will create traffic noise impacts. In Washington, traffic noise impacts occur when noise levels reach or exceed 66 decibels for residences, or when traffic noise is modeled to increase by at least 10 decibels after the project is complete.
- Step 2: WSDOT considers the feasibility of noise abatement if noise impacts are expected with the project. Assessing feasibility means that WSDOT evaluates whether noise abatement is both constructible and effective at reducing noise levels.
- Step 3: WSDOT evaluates the reasonableness of noise abatement. Abatement measures that are determined feasible will be compared to the allowed cost/benefit criteria. Cost-effective noise abatement that is desired by the affected community is recommended for construction.

centerline rumble strip noise and develop a new rumble strip design that is safe and effective, and also produces less noise for people outside the vehicle than the current design. Research results are expected in 2012 and will be featured in a future *Gray Notebook* edition.

WSDOT cooperates with UW on underwater noise monitoring and research

Since 2005, WSDOT has monitored underwater noise levels from impact and vibratory pile driving to ensure compliance with the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) (see ESA annual report on page 38 for more information). Underwater noise that reaches or exceeds certain thresholds can cause injury or death to fish and some marine mammals, and WSDOT is required to monitor activities with the potential to generate underwater noise reaching 120 decibels. Noise can travel long distances both through the water and the ground below the pile, so noise monitoring could be required up to 20 miles away from the construction site. Monitoring costs and work stoppage required to protect nearby marine mammals can add substantial cost to projects.

WSDOT and the University of Washington were awarded \$134,931 for continued noise monitoring, and to design effective mitigation tools to reduce the size of the biological monitoring area. Results of the research are expected in 2013.

Noise Quality Annual Report

Bridge Noise

Reducing noise from bridge expansion joints

WSDOT is also researching new ways to reduce bridge noise, particularly from bridge expansion joints, with a pilot project on the Tacoma Narrows Bridge. The goal was to reduce the annoying qualities of the low frequency sounds coming from the bridge joint. WSDOT installed noise walls about 10 feet tall that extended from the expansion joint towards the affected community; the walls were coated with an absorptive material to reduce noise reflections. Quantitative results suggest some reduction in the most annoying low frequencies of the targeted bridge joint, and area residents have made positive comments about improved noise conditions. WSDOT will publish a report on the pilot project in early 2012.

Before and After: Ship Canal Bridge noise study results

The Ship Canal Bridge is a unique double-decker bridge on I-5 in Seattle: the mainline lanes are on the top deck, and the express lanes are on the bottom deck. Noise from the express lanes is

reflected off the underside of the top deck and into adjacent neighborhoods. In 2004, the Legislature awarded WSDOT funding to research traffic noise from the Ship Canal Bridge. In 2008, a panel of national acoustic experts evaluated the research and made recommendations for further analysis and abatement. The expert panel recommended hanging panels with sound absorptive properties vertically from the ceiling above the express lanes. This abatement strategy was expected to reduce noise by four to five decibels, and the panels were installed as a pilot project on the south end of the bridge in 2010.

WSDOT assessed the acoustic performance of the pilot project by measuring 18 neighborhood locations near the bridge before construction, quarterly for the first year after construction, and will continue to record results annually for two years after that. The table above shows results through the third quarter after construction: in 55% of locations, the reductions are closer to one or two decibels than the four to five decibels predicted in the modeling.

Noise levels in neighborhood locations surrounding the Ship Canal Bridge

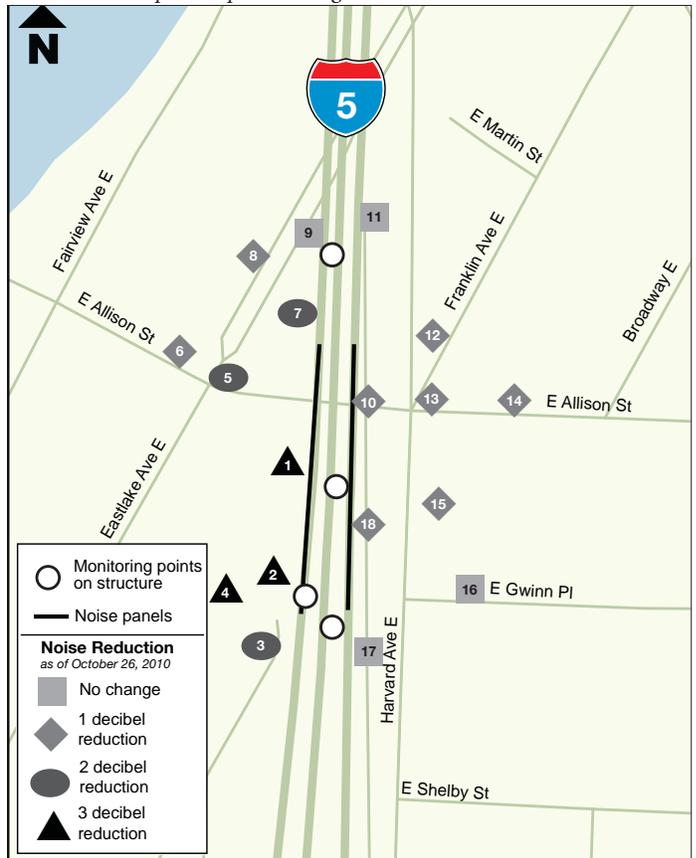
Noise levels in dBA, 1-hour L_{eq}

Location number	Before construction	After construction			Average change
	February 2010	October 2010	February 2011	June 2011	
1	84	81	80	80	4
2	82	79	79	78	3
3	82	80	80	80	2
4	73	71	72	71	2
5	79	77	77	77	2
6	69	69	69	69	0
7	83	80	80	80	3
8	80	78	77	78	2
9	82	81	80	81	1
10	84	82	82	82	2
11	82	82	82	81	0
12	80	79	79	77	2
13	79	78	78	78	1
14	72	70	70	70	2
15	77	77	76	76	1
16	72	75	72	74	-2
17	80	82	83	82	-2
18	82	82	83	82	0

Data source: WSDOT Environmental Services Office

I-5 Ship Canal Bridge: noise study results

Numbers on map correspond to neighborhood location numbers



Quieter Pavement Testing

Measuring noise where the rubber hits the road

When vehicles travel at highway speeds, more than 70% of traffic noise comes from tires on pavement: traffic noise levels vary by the type and condition of the pavement. WSDOT investigates how pavement types and surface treatments can reduce traffic noise levels and, potentially, supplement other forms of traffic noise abatement. One research goal is to determine if WSDOT can build pavements that reduce noise and are long-lasting with little to no additional costs compared to conventional asphalt pavements.

WSDOT started testing quieter asphalt pavement designs in 2006. The quieter asphalt pavements (rubberized asphalt and polymer-modified asphalt) were quieter than standard asphalt pavements when first constructed, but then lost any audible noise reduction benefits in six to 12 months. All pavements are evaluated for noise, smoothness, and rutting over time and where possible, compared to conventional pavements installed at the same time. WSDOT has collected monthly acoustic measurements using a technique called the On-Board Sound Intensity (OBSI) method (see the gray box below for details). Only one of the three original quieter asphalt pavement test sections is still in operation.

Test sections on I-5 and SR 520

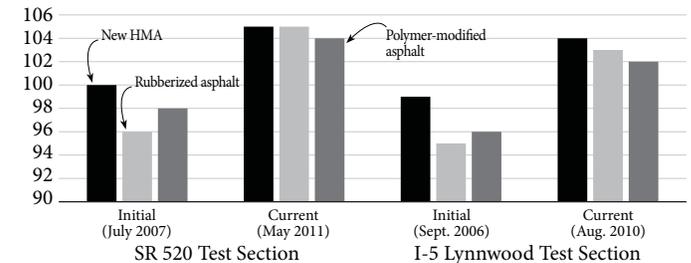
Generally, the asphalt quieter test pavements have not been effective at reducing tire pavement noise after about six months of being open to traffic. The test sections on I-5 in Lynnwood (constructed in 2006) and SR 520 in Medina (constructed in 2007) were badly rutted and were removed in 2010 and 2011, respectively. Only two years after installation, rut depths on SR 520 Lane 2 exceeded 12 millimeters, the threshold depth when pavements are programmed for rehabilitation. Rut depths on the I-5 quieter pavement test section in Lynnwood showed similar rutting wear. WSDOT is currently reviewing the research data, evaluating the life-cycles, and assessing cost effectiveness of these quieter pavements, and will present the final research results in a future *Gray Notebook* edition.

How is noise measured?

Noise is measured in a unit called a decibel, which is a simplified term used here to represent an A-weighted decibel scale. This scale describes sounds in a range heard by the human ear. Noise experts agree that sound levels must differ by at least three decibels to be noticeable to a young, healthy human ear (audibly quieter). Noise barriers like noise walls and earthen berms can typically provide a noise reduction of five to 10 decibels, with 10 decibels cutting the perceived noise level experienced by 50%.

Initial and current noise levels for quieter pavement test sections on I-5 and SR 520

By pavement materials used; Noise levels in dBAs



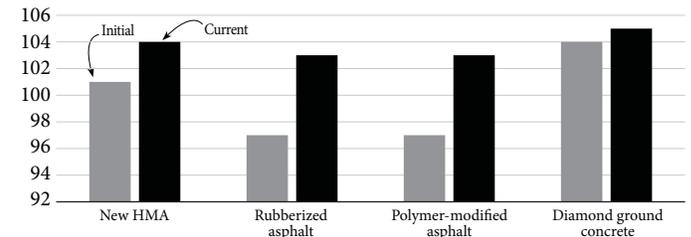
Data source: WSDOT Environmental Services Office.

Test sections on I-405

The quieter asphalt pavements on both directions of I-405, just south of downtown Bellevue, were constructed in 2009. Like the other quieter asphalt pavement test sections, these were measured monthly for noise (weather permitting) and twice yearly for smoothness and rutting. A diamond ground test section was also included as part of the I-405 test section (see the graph below for results on surface texturing).

Initial and current noise levels for quieter pavement test section on I-405 in Bellevue vicinity

By pavement materials used; Noise levels in dBAs



Data source: WSDOT Environmental Services Office.

The polymer-modified asphalt was initially louder than the rubberized asphalt and both were quieter than the conventional asphalt. Since installation, the quieter pavement test sections have remained very similar acoustically, but neither are currently audibly (≥ 3 dBA) quieter than conventional asphalt. The diamond

Noise coming from the tire/pavement interaction is measured using the On Board Sound Intensity (OBSI) method, the standard method in the United States. This method uses a pair of microphones mounted on the right rear tire of a sedan, three inches off the pavement, to ensure that only the tire/pavement noise is being measured. These measurements are useful for comparing acoustic performance between pavements, but the results do not reflect sound levels experienced at nearby homes, which are much lower.

Noise Quality Annual Report

Quieter Pavement Testing – Concrete Surface Treatments

ground section was louder than any of the asphalt pavement sections initially, but has only increased by 1 dBA in almost two years, compared to the 3-6 dBA increase for the asphalt test sections.

After 20 months (April 2011), both the quieter and conventional pavement test sections on SR 405 had ruts of similar depths. The rut depths in Lane 1 for the rubberized and polymer sections were 4.3 (3/16 inch) and 3.5 mm (1/8 inch), respectively. The hot mix asphalt (HMA) test section has a rut depth of 3.2 mm (1/8 inch).

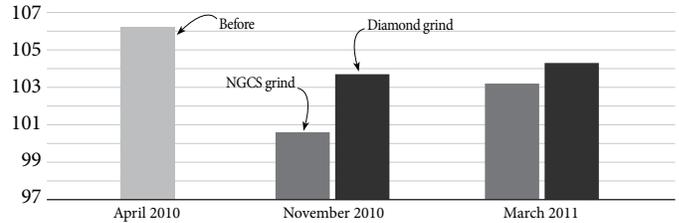
Before and After: Noise performance of concrete surface texturing

Texture is added to concrete roadways to create friction and improve safety. Changing the surface texture of concrete can also change the noise from tires passing over it. In 2009, WSDOT changed its standard concrete surface texture for new pavements from transverse tining (grooves perpendicular to traffic direction) to longitudinal tining (grooves parallel to traffic direction) after research demonstrated that the change could reduce noise without reducing safety. WSDOT also began evaluating the acoustic and durability performance of the concrete surface textures for new pavements and rehabilitation projects; new concrete: longitudinal tining, and concrete rehabilitation in the form of diamond grinding and Next Generation Concrete Surface (NGCS) texturing. Initial results for quieter concrete test pavements show promise, and are planned for use in future WSDOT projects.



Next generation concrete surface test section on I-82 near Granger.

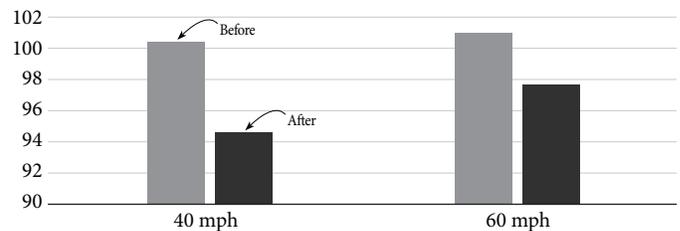
Before and After: Noise performance of Next Generation Concrete Surface and Diamond grinding I-82 in Granger vicinity Noise levels measured in dBAs



Data source: WSDOT Environmental Services Office.

WSDOT has collected noise measurements before and after construction of quieter pavement for diamond ground concrete on I-5 and I-405 in Seattle, and for NGCS texturing on Avondale Road in King County. In 2011, WSDOT built a test section of NGCS on I-82 near Granger, Washington. The results to date suggest that the NGCS section is quieter, but not audibly quieter, (see gray box on the previous page) than the same area before grinding occurred. WSDOT will continue to evaluate these sections twice annually to evaluate the performance over time.

Before and After: Noise performance of Next Generation Concrete Surface Avondale Road test section, King County Noise levels measured in dBAs



Data source: WSDOT Environmental Services Office.

WSDOT's Capital Project Delivery Programs

2009-2011 Biennium Wrap Up

Project Delivery Highlights

WSDOT completed 90 projects in the 2009-2011 biennium; the cumulative total from 2003 through June 30, 2011, was 303.

The cumulative number of projects completed through September 30, 2011, is 310.

87% of all Nickel and TPA projects were completed early or on time.

93% of all Nickel and TPA completed projects were on or under budget.

82% of all Nickel and TPA projects were completed both on time and on budget.

For details on WSDOT's Federal Recovery Act-funded projects, see pages 46-47.

For details on projects developed through the Pre-Existing Funds (PEF) program, see pages 77-79.

For details on expenditures compared to cost at completion, see the Original 2003 and 2005 Transportation Funding Packages (Nickel & TPA) Performance dashboards pages 51-52.

This special report covers the performance results of WSDOT's capital projects construction program during the 2009-2011 biennium. The data discussed in the first section of this report reflect the status of projects through June 30, 2011. Cumulative data through the first quarter of the new 2011-2013 biennium appears on the third page.

Reporting in the *Gray Notebook* revised in the 2009-2011 biennium to show individual as well as programmatic and bucket projects

The Transportation Budgets signed into law by Governor Gregoire direct WSDOT to develop and construct a specified list of projects in the course of the biennium. The greater part of these line-item projects were itemized in the original 2003 and 2005 Nickel and Transportation Partnership Accounts (TPA) programs.

In the September 2010 *Gray Notebook* 35, the Beige Pages' tables "unbundled" as individual projects several that may have been previously reported as one "bucket" of projects or as a project "bundle." This provided readers with a more comprehensive account of the entire program in the current Transportation Budget. By "unbundling" these previously rolled-up projects, the total combined number of projects in WSDOT's capital project delivery program increased, from 391 to 421.

Challenges to project delivery in the 2009-2011 biennium

In contrast to the previous biennium, 2007-2009, with its unprecedented increases in construction material prices driving project estimates higher than budgeted in many cases, the 2009-2011 biennium experienced significant project cost savings due to the aggressive bidding climate brought on by the national recession. On average there were more contractors bidding on WSDOT work than during the previous two years, and the increased competition led to lower bid prices. When the project savings are federal funds, this requires additional planning to obligate and program those funds on other projects or else risk the loss of those funds.

Another result of the national recession was, and continues to be, the reduction in fuel tax collections resulting in reduced revenue available to fund the preservation program and reduced revenue to support the bond debt service for the Nickel and TPA accounts. As a result, there are instances where projects must be delayed until funding is available.

Progress against budget

The 2009-2011 budget contained appropriations amounting to \$4.3 billion for state transportation system projects. The measure for "on budget" compares the cost at completion with the most recent Legislative baseline. It is based on the cost of the project coming within 5% of the budget estimate as it appears in the most recent budget list.

As of June 30, 2011, WSDOT had completed 304 projects funded by the Nickel and Transportation Partnership Account funding packages. Within the 2009-2011 biennium, a total of 90 projects were completed, for an estimated cost at completion of \$1.6 billion. The 2009-2011 appropriated amount for these projects was \$1.64 billion; the cost at completion is 2.7% under budget.

Within the 2009-2011 biennium, 74 TPA projects were completed, at an estimated cost at completion of \$920 million, 95% of which were

Budget performance for Nickel and TPA projects

2009-2011 biennium; Dollars in thousands

	Original appropriation	Cost at completion	Variance
16 Nickel projects	\$689,540	\$677,444	1.8% under
74 TPA projects	\$952,065	\$919,526	3.4% under

Data source: WSDOT Capital Program Delivery and Management Office.

2009-2011 Biennium Wrap Up

within budget. The 16 Nickel projects are estimated to cost \$677 million; 88% were completed on budget.

Performance against schedule

Occasionally, projects enjoy excellent circumstances and weather at the right times for the contractor to complete the project early, but the converse is often the case. Poor weather, insufficient or delayed materials, unexpected issues with the site geology or environmental permitting, problems acquiring right of way or moving utilities: all can delay project completion.

The approval of a new legislative budget can also reset a project's scheduled delivery date. For this biennium, WSDOT's performance against scheduled delivery of projects was good overall, with 88% of the 16 Nickel projects and 89% of the 74 TPA projects completed on time.

Schedule performance for Nickel and TPA projects

2009-2011 biennium, measured against last legislative expectation

	Percent on time advertised	Percent on time completed
16 Nickel Projects	75%	88%
74 TPA projects	82%	89%

Data source: WSDOT Capital Program Delivery and Management Office.

Data note: On time means project was completed within the planned quarter.

Performance against scope

As with budgets and schedules, the issuance of a legislative budget can, if approved, reset a project's scope. All 90 Nickel and TPA project completed within the 2009-2011 biennium met their legislative scope expectations.

Major projects of the 2009-2011 biennium

U.S. 12/Frenchtown vicinity to Walla Walla – Add lanes (Walla Walla)

This project constructed a new four-lane divided highway to replace eight miles of two-lane highway on U.S. 12 west of Walla Walla. The project also built a new interchange and roundabouts at Pine Street and Myra Road. The section of U.S. 12 from the vicinity of McDonald Road to Walla Walla had experienced considerable congestion and a number of collisions.

The addition of a new lane reduced congestion, and offered more passing opportunities. The new divided highway with a median is expected to reduce collisions as well.

Completing this project meant that WSDOT made the halfway point to completing a four-lane highway on U.S. 12 from the Tri-Cities to Walla Walla. Projects building 18 miles of four-lane U.S. 12 are now open to traffic, with 21 miles remaining.



Easy-to-negotiate roundabouts mark the new US 12 / Myra Road interchange near Walla Walla.

The project met challenges to its budget, which were driven in part by a steep rise in fuel costs and a design change to avoid a historic property. It cost \$53.4 million at completion, \$3.6 million below the last approved budget, and \$17.4 million above its original FY 2005 budget.

SR 539/Ten Mile Road to SR 546 - Widening

Drivers on this busy route regularly experienced congestion and delay, and the community had concerns about safety. This project did more than simply widen a two-lane highway to four lanes. It also added four wide roundabouts, divided a median with cable barrier, and replaced four bridges on SR 539, including a new steel truss bridge over the Nooksack River.

The project had to be completed before the 2010 Winter Olympics in Vancouver, which advanced the schedule and affected project delivery. Higher property values and relocation costs increased the cost of right-of-way by \$17 million, and steel that was necessary for the bridge construction was unavailable at times during construction. Still, the project came in below the approved budget and was operationally complete in time for the heavier traffic demands of the Winter Olympics.



The SR 539 widening project included building a new steel truss bridge over the Nooksack River.

I-405 Corridor Improvement projects (King)

Throughout the 2009-2011 biennium, WSDOT continued to complete key components of the I-405 corridor improvements program. The *I-405-I-5 to SR 169 Stage 1 Widening* project was completed in September 2010. High volumes of commuters travel through this area, making the I-405/SR 167 interchange one of the most congested in the state. To ease this congestion, WSDOT added one northbound lane and one southbound lane to I-405 between I-5 and SR 167; one southbound lane on SR 167 between

WSDOT's Capital Project Delivery Programs

2009-2011 Biennium Wrap Up / Cumulative Results

I-405 and SW 41st Street; and extended the southbound SR 167 HOV lane from I-405 to the start of the HOT (high occupancy toll) lane.

Just a few months later, in December 2010, WSDOT opened the new Talbot Road interchange that will reduce I-405 congestion through Renton, known as the *I-405-I-5 to SR 169 Stage 2 Widening* project. Construction had begun in the summer of 2009. The new interchange improves access to downtown Renton and relieves traffic demand on the I-405 interchanges at SR 167 and SR 169. The Stage 2 project also constructed an additional lane in each direction on I-405 between SR 167 and SR 169 and built a new Benson Road S. Bridge over I-405. The improved access to and from Renton should also help reduce congestion-related collisions.

Two new ferries join the Washington State Ferries fleet

Washington's first new ferry in more than a decade made its inaugural sailing on November 14, between Whidbey Island and Port Townsend. The 64-vehicle MV *Chetzemoka*, named after the Klallam Chief Chetzemoka (c. 1808-1888), was christened by Governor Chris Gregoire and recognized by the S'Klallam tribes.

In May, 2011, the newest vessel to be added to WSDOT's fleet of ferries, the MV *Salish*, was delivered by builder Todd Pacific Shipyards. Final outfitting, Coast Guard certification, and crew training were completed in June. WSF and the communities of Port Townsend and Whidbey Island celebrated the restoration of two-boat service on June 30 at the Port Townsend ferry terminal, and the new ferry began service on the Port Townsend/Coupeville route at noon on July 1, 2011.



A view through the car deck of the new WSF vessel *Salish*.



The new ferry *Chetzemoka* heads for Port Townsend.

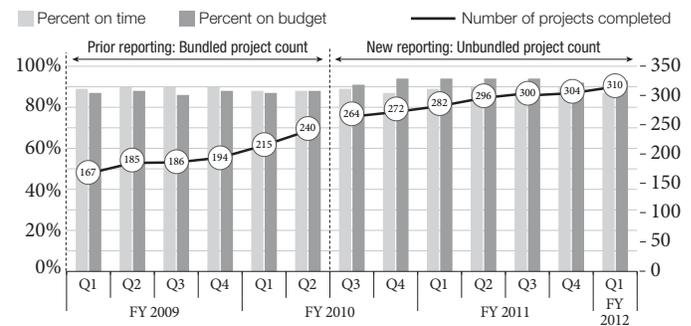
Cumulative results through September 30, 2011

The cumulative capital program delivery performance, including 76 projects completed in earlier biennia, currently shows 89% of projects completed early or on time and 91% completed on or under budget, both unchanged from last quarter.

As of September 30, 2011, 82% of all completed projects were both on time and on budget, unchanged from last quarter.

Cumulative on time and on budget performance of Nickel and TPA projects

310 of 421 projects completed as of September 30, 2011



Data source: WSDOT Capital Program Development and Management.

First quarter FY 2012 performance results: On time and on budget delivery performance on individual projects is unchanged from last quarter

WSDOT's on time and on budget results for the current highway construction program are shown on page 51. Six projects have been completed in the first quarter of the new 2011-2013 biennium. Of the six projects completed, 67% were early or on time and 67% were under or on budget.

Of the six projects completed this quarter, four were delivered on or under budget. Two projects were delayed by at least one quarter. More information on completed projects is on page 54 and pages 64-66.

Capital projects executive summary of project number and value

Cumulative results as of September 30, 2011, reflecting the 2011-2013 Transportation Budget

Program element	Number of projects	Value of program (\$ in thousands)
Projects completed in earlier biennia that are <i>not</i> included in the current Transportation Budget	76	\$343,051
Projects completed that <i>are</i> included in the current Budget	234	\$3,818,693
Subtotal of completed projects	310	\$4,167,744
Projects included in the current Budget that are not yet completed	111	\$11,168,300
Total	421	\$15,330,044

Data source: WSDOT Capital Program Development & Management.