

15
YEARS

FIFTEEN YEARS OF TRANSPARENCY



Washington State
Department of Transportation

61

The Gray Notebook

WSDOT's quarterly performance report on transportation systems, programs, and department management
Quarter ending March 31, 2016 • Published May 2016

Roger Millar, Acting Secretary of Transportation

Walk and roll is here to stay

WSDOT aims to
decrease potential
safety issues
for cyclists
and pedestrians
p. 10

Maintaining places to go on the go

WSDOT takes a look at
preservation progress at
safety rest areas statewide

p. 13

Getting the green light

WSDOT's Commercial
Vehicle Information Systems
and Networks moving ahead
in Washington

p. 29





Gray Notebook marks 15th year of publication

Fifteen years ago, WSDOT's *Measures, Markers and Mileposts* made an immediate impact on how transportation performance reporting was undertaken, researched and written. Due to a late night run to a local print shop and a severe lack of paper options, the seven-page publication was given a gray cover and back page and nicknamed the "Gray Notebook."

The *Gray Notebook* quickly emerged as a leader in what became widely known as "performance journalism." Through it, WSDOT transformed data into informative and interesting articles that told readers not just *what* was going on inside the agency, but *why*. The GNB did not just set the standard for this type of reporting in 2001—it was the standard.

Going forward that was good, but not good enough for WSDOT, and the *Gray Notebook* continued to improve on many levels and has since evolved substantially. Governing Magazine called the publication the "gold standard" in performance reporting, and more recently Washington Gov. Jay Inslee proclaimed May 31, 2016, as "Gray Notebook Appreciation Day."

The latest versions of the publication now include reports from dozens of programs and authors who collaborate to help tell WSDOT's performance story through approximately 100 articles each year. To mark its 15th year, and its crystal anniversary, GNBs published in 2016 will include a look back to articles from 2001, 2006 and 2011, providing insight on how the report and the agency have changed over the years.

WSDOT led the nation with CVISN, program sees exponential growth

Measures, Markers and Mileposts (Gray Notebook 1) in 2001 introduced the Commercial Vehicle Information Systems and Network and noted, "Washington is the first state to successfully deploy its CVISN program.

WSDOT's video, *CVISN Driving the Future*, is in demand around the country for viewing by associations, legislators and regulators and has won several awards, most recently the 2001 Summit Creative Award."

In this edition, readers can see the advancements in the program which provided 1.27 million green lights, and helped the trucking industry avoid 106,000 hours and \$12.4 million in operating costs in 2015.

Employee safety, training remains key focus for WSDOT as it moves forward

Gray Notebook 1 placed heavy emphasis on worker safety and training, comparing recordable injuries and illnesses in the first quarter of 2001 against the previous three years.

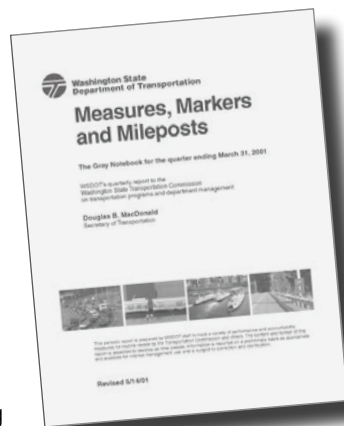
Safety and Health Program Highlights for that quarter noted, "The most important health and safety program outcome this quarter was the excellent performance and good luck (thanks in no small measure to drills and training) that the system exhibited in the many challenges presented by the Nisqually earthquake."

Worker Safety and Health was featured in GNB 60 and noted that the recordable incident rate had improved 31% between 2011 and 2015. Workforce Training in this edition notes that 254 supervisors and managers statewide have taken WSDOT's Entry Level Management course.

Travel information reporting shows rapid shift toward mobile devices

In March 2011, the *Gray Notebook*'s report on 2010 traveler information trends showed the majority of drivers relied on WSDOT's 511 phone system to get updates on everything from traffic flows and construction projects to mountain pass closures and Washington State Ferries schedules. Travelers made more than 1.1 million calls to the 511 system in 2010, and rang in their 11 millionth in December of that year. In 2010, WSDOT also unveiled a new version of its travel and traffic website and began offering something that has since boomed in popularity: an app for mobile phones.

The need for real-time information continues to grow in Washington state. Spurred by a snowy winter, calls to 511 increased by 38% in 2015 while the mobile app had 124,494 new downloads. In 2015, there were more than 165 million visits to WSDOT's traffic website (49% of which originated from mobile devices).



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Performance Highlights reported for the quarter ending March 31, 2016

47 ACRES
were included
in **15 sites**
added to WSDOT's
WETLAND & STREAMS
inventory in 2015

\$12.4 million
in operating costs were avoided by
trucks using WSDOT's **Commercial**
Vehicle Information Systems and
Networks

371
of 421 **Nickel and Transportation**
Partnership Account funded
projects have been completed

23.1 million
visits to WSDOT's statewide network
of **safety rest areas**, a 3% increase
from 22.5 million in 2014

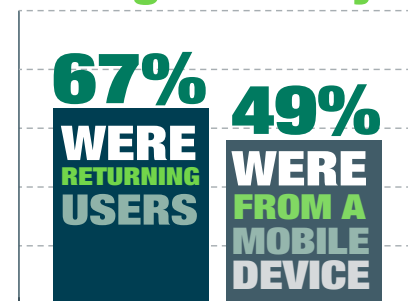
26
air quality studies completed in
2015 to demonstrate compliance with
federal guidelines

100
pedestrian and bicyclist fatalities
in 2015, an increase from 85 fatalities
in 2014

24.2%
decrease in the **average gas**
price in 2015 from 2014 gas prices,
representing a 12-year low

90
miles of **noise walls** have been
constructed since 1963 by WSDOT as
part of projects or to address concerns

THE WSDOT WEBSITE HAD
over 165 MILLION PAGE VIEWS
during the last year



7
new **Lean projects** started by
WSDOT during the quarter, bringing
the total number of projects to 77

On the cover: Washington State Ferries communicator Broch Bender uses a dedicated bike lane in Seattle. WSDOT has revised its Design Manual and is working to implement projects and improvements with bicyclist and pedestrian safety in mind.

Statewide Transportation Policy Goals

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Statewide policy goal/ WSDOT performance measure	Previous period	Current period	Goal	Goal met	Five-year trend (unless noted)	Desired trend
Safety						
Rate of traffic fatalities per 100 million Vehicle Miles Traveled statewide (Annual measure: calendar years 2013 & 2014)	0.76 ¹	0.80	Below 1.00	✓		↓
Rate of recordable incidents for every 100 full-time WSDOT workers (Annual measure: calendar years 2014 & 2015)	5.4	4.3	Below 5.0	✓		↓
Preservation						
Percentage of state highway pavement in fair or better condition by Vehicle Miles Traveled (Annual measure: calendar years 2013 & 2014)	92.6%	93.3%	Above 90.0%	✓		↑
Percentage of state bridges in fair or better condition by bridge deck area (Annual measure: fiscal years 2014 & 2015)	91.8%	92.1%	Above 90.0%	✓		↑
Mobility (Congestion Relief)						
Highways: Annual (weekday) vehicle hours of delay statewide at maximum throughput speeds ² (Annual measure: calendar years 2013 & 2014)	32.5 million	32.3 million	N/A	N/A		↓
Highways: Average incident clearance times for all Incident Response program responses (Calendar quarterly measure: Q4 2015 & Q1 2016)	13.6 minutes	12.3 minutes	N/A	N/A	(Five-quarter trend)	↓
Ferries: Percentage of trips departing on time ³ (Fiscal quarterly measure: year to year Q3 FY2015 & Q3 FY2016)	97.3%	96.3%	Above 95%	✓		↑
Rail: Amtrak Cascades on-time performance (Annual measure: fiscal years 2014 & 2015)	74.2%	71.5%	Above 80%	—		↑
Environment						
Number of WSDOT stormwater management facilities constructed (Annual measure: fiscal years 2014 & 2015)	189	130	N/A	N/A		Not applicable
Cumulative number of WSDOT fish passage improvement projects constructed (Annual measure: calendar years 2013 & 2014)	282	291	N/A	N/A		↑
Stewardship						
Cumulative number of Nickel and TPA projects completed, and percentage on time ⁴ (Calendar quarterly measure: Q4 2015 & Q1 2016, trendline for percentage on time)	371/ 87%	371/ 87%	More than 90% on time	—	(Five-quarter trend)	↑
Cumulative number of Nickel and TPA projects completed and percentage on budget ⁴ (Calendar quarterly measure: Q4 2015 & Q1 2016, trendline for percentage on budget)	371/ 91%	371/ 91%	More than 90% on budget	✓	(Five-quarter trend)	↑
Variance of total project costs compared to budget expectations ⁴ (Calendar quarterly measure: Q4 2015 & Q1 2016)	Under budget by 1.9%	Under budget by 1.9%	On or under budget	✓	(Five-quarter trend)	Not applicable

Data source: WSDOT Office of Strategic Assessment and Performance Analysis.

Notes: N/A = not available: goal has not been set. Dash (—) = goal was not met in the reporting period. For the Economic Vitality Policy Goal, see [p. 9](#) for Results Washington “Goal 2: Prosperous Economy” measures. 1 Data has been updated from past GNBs. 2 Compares actual travel time to travel time associated with “maximum throughput” (defined as 70-85% of the posted speeds), where the greatest number of vehicles occupy the highway at the same time. 3 WSDOT Ferries’ on-time departures include any trip recorded by automated tracking as leaving the terminal within 10 minutes of scheduled time. 4 Budget and schedule expectations are defined in the last approved State Transportation Budget. See [p. 34](#) for more information.

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Moving Ahead for Progress in the 21st Century

NPRM review underway for System Performance

WSDOT received the Notice of Proposed Rule Making for System Performance on April 22, 2016, and is currently working to finalize comments that will be submitted to the federal docket by August 20, 2016. The current measures for the NPRM on System Performance are listed below and on [p. 7](#) and address congestion, freight movement and Congestion Mitigation and Air Quality projects.

Once a final rule is approved by the Federal Highway Administration, both WSDOT and Metropolitan Planning Organizations will coordinate to establish targets for the state to meet or to show significant progress toward meeting each of the new performance measures.

An initial performance report is currently due to FHWA by October 1, 2016. The NPRM calls for each area to have a baseline performance period report and mid- and full-performance period progress reports every four years. The first performance period is expected to begin January 1, 2018.

FHWA approves two MAP-21 final rules for safety performance

The FHWA approved two Moving Ahead for Progress in the 21st Century Act final rules for safety, effective

April 14, 2016. The final rules will affect how WSDOT tracks and reports on highway safety and continues the implementation of a Highway Safety Improvement Plan.

The first rule describes the objective to significantly reduce traffic-related fatalities and serious injuries through an annual evaluation process. The HSIP must include:

- A Strategic Highway Safety Plan;
- A railway-crossing program; and,
- A program for highway safety improvement projects.

The second final rule places new standards how WSDOT reports on the numbers and rate of traffic fatalities and serious injuries to FHWA.

In accordance with MAP-21, the state has until April 15, 2017, to create targets for this final rule and must then report on its HSIP by August 31 of each following year. The following performance measures are based on a five-year rolling average:

- Number of fatalities;
- Rate of fatalities;
- Number of serious injuries;
- Rate of serious injuries; and,
- Combined number of non-motorized fatalities and non-motorized serious injuries.

MAP-21 federal performance reporting requirements

MAP-21 measures by program area	WSDOT penalty ¹ (Yes/No)	Date draft rule was released	Existing WSDOT performance measures for this program area
Combined Draft Rule			Federal Register Vol. 81, No. 78
- System Performance (Congestion)			
Percent of the Interstate System providing for reliable travel	No	4/22/16	The 2015 Corridor Capacity Report details highway travel times and reliability trends in Washington state
Percent of the non-Interstate NHS providing for reliable travel	No	4/22/16	The 2015 Corridor Capacity Report details highway travel times and reliability trends in Washington state
Percent of the Interstate System where peak hour travel times meet expectations	No	4/22/16	The 2015 Corridor Capacity Report details highway travel times and reliability trends in Washington state
Percent of the non-Interstate NHS where peak hour travel times meet expectations	No	4/22/16	The 2015 Corridor Capacity Report details highway travel times and reliability trends in Washington state

Continued on [p. 7](#)

MAP-21 federal performance reporting requirements *(continued from p. 6)*

MAP-21 measures by program area	WSDOT penalty ¹ (Yes/No)	Date draft rule was released	Existing WSDOT performance measures for this program area
Combined Draft Rule – Draft Rule (Continued)			Federal Register Vol. 81, No. 78
- National Freight Movement Program			
Percent of the Interstate System mileage providing for reliable truck travel time	No	4/22/16	Truck Reliability Index, calculated as 80th Percentile Travel Time divided by agency-specified Travel Time (established in the 2014 Washington State Freight Plan to track truck freight performance on State Truck Freight Economic Corridors)
Percent of the Interstate System mileage uncongested	No	4/22/16	Annual hours of delay, calculated as travel time above the congestion threshold in units of vehicle hours for commercial vehicles (established in 2014 Washington State Freight Plan to track truck freight performance on State Truck Freight Economic Corridors)
- Congestion Mitigation and Air Quality Program			
Annual hours of excessive delay per capita	No	4/22/16	The 2015 Corridor Capacity Report details highway travel times and congestion trends in Washington state
Two- and four-year total emission reductions for each applicable criteria pollutant and precursor	No	4/22/16	No existing performance measure for criteria pollutants
National Highway Performance Program – NPRM			Federal Register Vol. 80, No. 2
National Highway System (Interstate and Non-Interstate) pavement in good and poor conditions ²	Yes	1/5/15	See GNB 60, p. 19 for an update on MAP-21 implications for pavement. On February 20, 2015, the Asset Management Plan draft rule was released which is linked to pavement and bridge performance measures.
National Highway System bridges classified in good and poor conditions ³	Yes	1/5/15	Several measures of bridge condition including good/fair/poor condition rating and structural deficiency rating, see GNB 58, p. 15
Highway Safety Improvement Program – FINAL			Federal Register Vol. 79, No. 60
Rate of traffic fatalities per 100 million Vehicle Miles Traveled on all public roads	Yes	N/A	Traffic fatality rates using the NHTSA ⁴ methodology, see GNB 58, p. 12
Rate of serious traffic injuries per 100 VMT on all public roads	Yes	N/A	Serious injury rates using the NHTSA ⁴ methodology, see GNB 58, p. 12
Number of traffic fatalities on all public roads	Yes	N/A	Traffic fatalities using the NHTSA ⁴ methodology, see GNB 58, p. 12
Number of serious traffic injuries on all public roads	Yes	N/A	Serious injuries using the NHTSA ⁴ methodology, see GNB 58, p. 12
Number of non-motorized traffic fatalities and serious injuries	Yes	N/A	Non-motorized (pedestrian/ bicyclist) fatalities and serious injuries using the NHTSA ⁵ methodology, see GNB 61, p. 10
Rate of per capita traffic fatalities for drivers and pedestrians 65 years of age or older	No	N/A	Traffic fatalities for pedestrians 65 years of age or older. See GNB 48, p. 8 for MAP-21 implications. The rate of traffic fatalities for older pedestrians is part of Washington's Target Zero ⁵ campaign.
Rate of fatalities on high-risk rural roads	Yes	N/A	Traffic fatality rates on high-risk rural roads as part of Washington state's Target Zero ⁵ campaign
Highway-railway crossing fatalities	No	N/A	Fatalities at highway-railway crossings

Data source: WSDOT Office of Strategic Assessment and Performance Analysis.

Notes: 1 Penalties apply for some measures if WSDOT or the MPO does not attain the target within a given time frame. Penalties apply only to WSDOT and include minimum allocations of federal funding toward programs to progress toward the desired target. 2 Federal benchmark on this measure is expected to be that the percent of pavement in poor condition does not exceed 5%, 3 Federal benchmark on this measure is expected to be that percent of structurally deficient bridges does not exceed 10%. 4 NHTSA = National Highway Traffic Safety Administration. 5 State strategic highway safety plan.

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Results WSDOT – Setting WSDOT's Direction

Results WSDOT, the agency's strategic plan, directs WSDOT's work with partners and communities; emphasizes workforce development, inclusion and practical solutions; and focuses on how the agency makes investments and delivers projects with limited resources. To date, all strategies are on track to achieve their desired results. For a copy of Results WSDOT, go to <http://bit.ly/ResultsWSDOTStrategicPlan>.

Implementation plans define the actions and deliverables needed to achieve WSDOT's goals from 2014 through 2017.



Results WSDOT is based on these six goals:

- Strategic Investments
- Modal Integration
- Environmental Stewardship
- Organizational Strength
- Community Engagement, and
- Smart Technology.

Goals are defined in the table below, and are supported by strategies and tasks. Select *Gray Notebook* articles in this issue, indicated by a box with a goal logo, show how the plan's goals are being implemented.

Results WSDOT sets agency direction 2014 through 2017 Strategic Plan

Recent *Gray Notebook* articles linked to goals



Goal 1: STRATEGIC INVESTMENTS

Effectively manage system assets and multimodal investments on corridors to enhance economic vitality

- Aviation: [GNB 59, pp. 12-15](#)
- Bridges: [GNB 58, pp. 15-22](#)
- Capital facilities: [GNB 59, pp. 8-11](#)
- Ferries preservation: [GNB 58, pp. 23-28](#)
- Highway maintenance: [GNB 60, pp. 20-21](#)
- Pavement conditions: [GNB 60, pp. 11-19](#)



Goal 2: MODAL INTEGRATION

Optimize existing system capacity through better interconnectivity of all transportation modes

- Ferries: [GNB 61, pp. 15-16](#)
- Highway system safety: [GNB 58, pp. 12-14](#)
- Pedestrian and bicyclist safety: [GNB 61, pp. 10-12](#)
- Rail: Amtrak Cascades: [GNB 61, pp. 17-18](#)
- Trip reduction: [GNB 60, pp. 22-24](#)
- Trucks, goods and freight: [GNB 58, pp. 41-44](#)



Goal 3: ENVIRONMENTAL STEWARDSHIP

Promote sustainable practices to reduce greenhouse gas emissions and protect natural habitat and water quality

- Air quality: [GNB 61, pp. 22-23](#)
- Endangered Species Act documentation: [GNB 55, pp. 20-21](#)
- Environmental compliance: [GNB 60, pp. 32-33](#)
- Fish passage barriers: [GNB 58, pp. 37-38](#)
- General permitting: [GNB 58, p. 40](#)
- Water quality: [GNB 59, pp. 24-26](#)
- Wetlands protection: [GNB 61, pp. 26-28](#)



Goal 4: ORGANIZATIONAL STRENGTH

Support a culture of multi-disciplinary teams, innovation and people development through training, continuous improvement and Lean efforts

- Lean: [GNB 61, pp. 31-32](#)
- Worker safety and health: [GNB 60, p. 10](#)
- Workforce levels and training: [GNB 61, p. 33](#)



Goal 5: COMMUNITY ENGAGEMENT

Strengthen partnerships to increase credibility, drive priorities and inform decision making

- Disadvantaged Business Enterprise: [GNB 60, p. 40](#)
- Local programs: [GNB 58, p. 39](#)



Goal 6: SMART TECHNOLOGY

Improve information system efficiency to users and enhance service delivery by expanding the use of technology

- Commercial Vehicle Information Systems and Networks: [GNB 61, p. 29](#)
- Tolling: [GNB 60, pp. 36-38](#)
- Travel information: [GNB 61, p. 21](#)

Data source: WSDOT Office of Strategic Assessment and Performance Analysis.

Results Washington

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Results Washington, the state's performance management system, outlines Gov. Jay Inslee's priorities. This strategic framework sets the state's vision and mission, as well as the foundational expectations for state agencies to achieve goals collaboratively. Results Washington has five focus areas: World Class Education; Prosperous Economy; Sustainable Energy and a Clean Environment; Healthy and Safe Communities; and Efficient, Effective and Accountable Government. For more information, visit <http://www.results.wa.gov/>.

Results Washington measures by goal area ¹	Previous period	Current period	On target ²	Current trend	Desired trend
Annual measures for which WSDOT is the lead agency					
Goal 2: Prosperous Economy					
Based on current funding levels, maintain the percent of Washington infrastructure assets in satisfactory condition at 2013 baseline levels through 2020 (2013 & 2014)	86% ³	85%	No	↓	↑
Based on current funding levels, control the percent of state and local bridges ⁴ in poor condition from increasing over 10% by 2017 (Fiscal years 2014 & 2015)	9.3%	8.8%	Yes	↓	↓
Based on current funding levels, control the percent of state and local pavements ⁴ in poor condition from increasing over 10% by 2017 (2013 & 2014)	6.0%	6.0%	Yes	↔	↓
Based on current funding levels, control the percent of ferry terminal systems that are past due for replacement from increasing over 6% by 2020 (Fiscal years 2014 & 2015)	6.0%	3.7%	Yes	↓	↓
Based on current funding levels, control the percent of ferry vessel systems that are past due for replacement from increasing over 10% by 2020 (Fiscal years 2014 & 2015)	6.8%	8.3%	Yes	↑	↓
Maintain percentage of transit fleet that exceeds the Federal Transit Administration’s minimum useful life at 25% or below through 2020 (2013 & 2014)	25.4%	27.8%	No	↑	↓
Increase the percentage of Washingtonians using alternative transportation commute methods to 29% by 2020 (2013 & 2014)	27.3%	27.6%	No	↑	↑
Ensure travel and freight reliability (impacted by economic growth) on strategic corridors does not deteriorate beyond 5% from 2012 levels through 2017 (2013 & 2014)	1.7%	6.6%	No	↑	↓
Operate strategic corridors at 90% efficiency or higher through 2017 (2013 & 2014)	95.2%	94.6%	Yes	↓	↑
Reduce the number of pedestrian and bicyclist fatalities on public roadways from 84 in 2012 to zero in 2030 (2014 & 2015)	85 ³	100 ⁵	No	↑	↓
Annual measures for which WSDOT is not the lead agency, but has an interest					
Goal 2: Prosperous Economy					
Increase state agency and educational institution utilization of state-certified small businesses in public works and other contracting and procurement by 2017 to: Minority-owned businesses, 10%; Women-owned businesses, 6%; Veteran-owned businesses, 5%	Measure is under development. Expected to report in December 2016				
Goal 3: Sustainable Energy and a Clean Environment					
Reduce transportation related greenhouse gas emissions from 44.9 million metric tons/year (projected 2020) to 37.5 million metric tons/year (1990) by 2020 (2012 & 2013)	42.4	40.4 ³	Yes	↓	↓
Reduce the average emissions of greenhouse gases for each vehicle mile traveled in Washington by 25% from 1.15 pounds in 2010 to 0.85 pounds by 2020 (2012 & 2013)	1.11 ³	1.11	No	↔	↓
Increase the average miles traveled per gallon of fuel for Washington’s overall passenger and light duty truck fleet (private and public) from 19.2 mpg in 2010 to 23 mpg in 2020 (2013 & 2014)	20.2	20.6	No	↑	↑
Increase the number of plug-in electric vehicles registered in Washington from approximately 8,000 in 2013 to 50,000 by 2020 (2014 & 2015)	12,351	16,529	No	↑	↑
Increase miles of stream habitat opened from 350 to 450 (per year) by 2016 (2014 & 2015)	599 ³	365	No	↓	↑
Increase number of fish passage barriers corrected per year from 375 to 500 by 2016 (2014 & 2015)	424 ³	479	No	↑	↑
Goal 4: Healthy and Safe Communities					
Decrease number of traffic-related fatalities on all roads from 454 in 2011 to zero in 2030 (2014 & 2015)	462	567 ⁵	No	↑	↓

Data sources: WSDOT Office of Strategic Assessment and Performance Analysis and Results Washington's Open Performance Program.

Notes: 1 In addition to the measures listed in the table, WSDOT contributes performance information that is combined and reported with data from all state agencies in Goal 5: Efficient, Effective and Accountable Government. 2 "On target" is defined as currently meeting the goal or making enough progress to meet the goal by the target date. Some measures may be trending in the desired direction but are not on track to meet the target. 3 Data has been corrected from previous Gray Notebook publications. 4 This measure only includes assets on the National Highway System. 5 Data is preliminary.

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Pedestrian and Bicyclist Safety Annual Report

Notable results

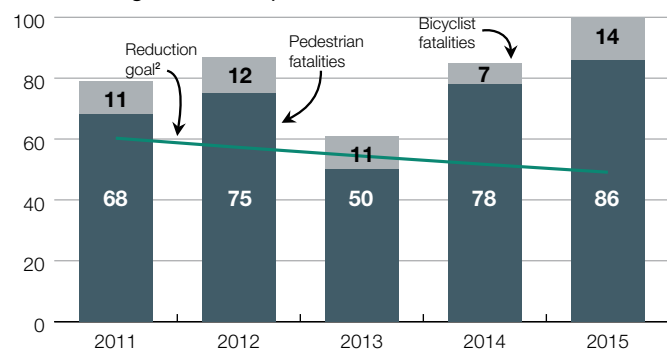
- *Pedestrian and bicyclist fatalities in Washington increased in 2015 to 100, up from 85 fatalities in 2014*
- *Most pedestrian (82%) and bicyclist (75%) fatalities occurred on roads with posted speeds of 30 mph or higher from 2011 through 2015*
- *The number of pedestrians and bicyclists using Washington's transportation system increased 10% from 2011 through 2015*
- *Washington was recognized by the League of American Bicyclists as the most bike friendly state for the eighth year in a row in 2015*

Pedestrian and bicyclist fatalities increase 18%

Pedestrian and bicyclist fatalities on Washington's public roads increased to 100 in 2015, up 18% from 85 in 2014 (crash data for 2015 is considered preliminary). There has been a general upward change in the number of pedestrian and bicyclist fatalities from 2011 through 2015 with an average over the five-year period of 82.4 fatalities per year. These increases may be partially due to the increase in the number of people walking and biking. Preliminary results from the Washington State Bicycle and Pedestrian Documentation Project indicate a 10% increase in walking and biking between 2011 and 2015. Continued efforts are needed to better understand the elements leading to pedestrian and bicyclist fatalities, including the changes in walking and biking rates.

The number of pedestrian and bicyclist fatalities did not reach the state's 5% annual fatality reduction goal put in place to reach the Target Zero goal of zero traffic fatalities by 2030 (see chart below). For information on Target Zero, visit: <http://www.targetzero.com/>.

Pedestrian, bicyclist fatalities increase in Washington 2011 through 2015¹; all public roads



Data source: Washington State Fatality Analysis Reporting System.

Notes: Some fatality numbers have changed from past GNBs due to updates to FARS. 1 2015 data is considered preliminary until January 2017. 2 The state fatality reduction goal is 5% annually. See [Gray Notebook 48, p. 5](#) for more information on the goal.

Pedestrian, bicycle fatalities remain at 18% of all traffic fatalities in 2015, same as in 2014

2011 through 2015; Number of fatalities and percent of total traffic fatalities on all public roads

	2011	2012	2013	2014	2015 ²
Total ¹ statewide traffic fatalities = 100%	454	438	436	462	567
Pedestrian and bicyclist fatalities	79 (17%)	87 (20%)	61 (14%)	85 (18%)	100 (18%)

Data source: Washington State Fatality Analysis Reporting System.

Notes: 1 Total statewide fatalities includes all modes of travel.

2 2015 data is considered preliminary until January 2017.

Pedestrian and bicyclist fatalities accounted for about 18% of all traffic fatalities statewide in both 2015 and 2014 (see table above) although walking and biking account for about 13% of all trips on the transportation system. Total traffic fatalities showed a decrease from 2011 through 2013, but have increased in 2014 (462) and 2015 (567).

Serious injuries decrease slightly

The number of pedestrian and bicyclist serious injuries due to traffic crashes decreased to 396 in 2015, down from 409 serious injuries in 2014. There has been a downward change in the overall number of pedestrian and bicyclist serious injuries from 2011 through 2015 with an average over the five-year period of 399 serious injuries per year.

Pedestrians, bicyclists face more risks on higher speed roads

The majority of pedestrian (82%) and bicyclist (75%) fatalities occurred at locations with a posted speed of 30 mph or higher from 2011 through 2015. Crash severity for pedestrians and bicyclists is closely related to vehicle speed at impact. Studies show approximately 85% of crashes with a vehicle speed of 40 mph at impact result in a pedestrian or bicyclist fatality while only about 5% of crashes with a vehicle speed of 20 mph result in a pedestrian or bicyclist fatality.

Most of pedestrian (81%) and bicyclist (78%) fatalities occurred on roads with no traffic control elements, such as

WSDOT conducts major overhaul of Design Manual

traffic signals, stop signs, yield signs or flashing beacons. More than half of fatalities for both groups of road users occurred while they were crossing the road or making a turn.

Additionally, most pedestrian fatalities (65%) occurred within city limits from 2011 through 2015. Forty-two percent of all pedestrian fatalities during the five-year period occurred on city-owned streets, 40% on state routes and 18% on county roads. The majority of bicyclist fatalities (65%) also happened within city limits from 2011 through 2015. Fifty-six percent of all bicyclist fatalities during the five-year period occurred on city-owned streets, 24% on state routes and 20% on county roads.

WSDOT updates Design Manual to address roadway safety needs

WSDOT completed the 2015 update to the Design Manual, making significant changes to design policies in many areas. The goal is to foster a collaborative approach with WSDOT's programs and other external transportation agencies when establishing project boundaries, criteria and design controls (such as a target speed). For example, the revised Design Manual includes guidance on the application and use of speed management techniques, such as narrow travel lanes, to achieve a target speed.

These changes allow for greater consideration of the trade-offs between road improvements that promote safety for all road users and road improvements that may only benefit motor vehicle mobility or congestion relief. Designs will consider land use context, the presence of intermodal connections, and locations of businesses, schools, medical facilities, restaurants and other destination types that can be reached by walking or biking.

League of American Bicyclists names Washington "most bicycle friendly state" in 2015

The League of American Bicyclists named Washington State No. 1 in its "Bicycle Friendly State" ranking for the eighth year in a row in 2015. Washington's successes include continued increases in the number of local transportation agencies with Complete Streets policies, the bicycle safety emphasis in the Strategic Highway Safety Plan and active state advocacy groups for pedestrian and bicycle safety. Additionally, Washington boasts 16 communities, 40 businesses, one university and the first Tribal Nation (Jamestown S'Klallam Tribe) in the United States to be considered bicycle friendly by League of American Bicyclists standards.



Results Washington Leading Indicator

Reduce the number of pedestrian and bicyclist fatalities on public roadways from 100 in 2015 to zero by 2030

Status: Needs improvement (red)
Strategies:

1. **Practical Solutions** - Implement multimodal planning and design that considers transportation and land use interactions and engages local partners and community members.

2. **Education** - Work with all partners and citizens to raise awareness about pedestrian and bicyclist behavior.

3. **Introduce the 5th E, Evaluation, to Target Zero** - Evaluation focuses on understanding the conditions and factors leading to crashes to better select appropriate countermeasures.

Immediate mitigation for at risk or off plan status:

1. WSDOT is working to expand the Safe Routes to School program to 18 new school districts while continuing to support 40 school districts already participating in the program.
2. WSDOT created a Modal Safety Executive Committee to focus on highway safety from a multimodal perspective.

Number of pedestrian and bicyclist fatalities in 2015	
Pedestrian fatalities	86
Bicyclist fatalities	14
Combined total	100

Note: 2015 data is considered preliminary.

WSDOT revised several chapters of the Design Manual to incorporate emerging guidance on multimodal design from both the American Association of State Highway and Transportation Officials and the National Association of City Transportation Officials. The revisions feature low-cost options for reconfiguring roadways to address multimodal needs, providing for various retrofit possibilities such as reducing the number of motor vehicle lanes to create bicycle-specific lanes.

The updated Design Manual supports a performance-based approach to design rather than focusing only on achieving design standards. By going beyond the standards-based approach, projects are expected to result in a transportation system that specifically addresses safety for all road users. The manual also shows progress toward WSDOT's 10 Reforms that support Results WSDOT, the agency's strategic plan (see [p. 8](#)), and Results Washington (see above and [p. 9](#)). For more information on WSDOT's Reforms, see [Gray Notebook 60, pp. 8-9](#).

WSDOT boosts technology for bicycle and pedestrian count program

WSDOT once again expanded the reach of its Bicycle and Pedestrian Count Program in 2015 to include more cities and the addition of technology. WSDOT's program is part of

WSDOT partners up on pedestrian, bicyclist research



Strategic Plan Goal 2: MODAL INTEGRATION

Multimodal Safety Strategy - Align multimodal safety policy-making across the agency.

In support of this strategy, WSDOT has been working toward expanding the pedestrian and bicyclist count program through the use of electronic counters to more accurately estimate user demand, measure investment benefits, and help target and design safety projects.

the National Documentation Project, an annual bicycle and pedestrian count and survey effort sponsored by the Institute of Transportation Engineers Pedestrian and Bicycle Council.

The count program helps WSDOT track pedestrian and bicycle traffic rates in cities across the state. WSDOT uses the collected data to make more informed decisions on roadway safety improvements. To gain a better understanding of how best to reduce pedestrian and bicyclist crashes, more work is needed to gather, evaluate and diagnose crash occurrence and contributing factors in Washington. Currently, WSDOT is working to collect the data and sponsor research.

During the past eight years, WSDOT has partnered with the Cascade Bicycle Club and Feet First to organize volunteers to count bicyclists and pedestrians annually in early fall at 282 locations in 50 cities across Washington. WSDOT has started installing a network of permanent electronic pedestrian and bicycle counters to supplement the manual count. WSDOT has invested in 16 electronic counters and plans to install 50 more across the state during 2016 and 2017. WSDOT also hosts an open data website available to the public that provides the manual count information and will soon include the electronic count data as well.



WSDOT crews apply green paint to existing bike lanes on State Route 501 in Vancouver for improved visibility in November 2015.

WSDOT partners with Department of Health to survey student travel modes

WSDOT is working with the Washington State Department of Health to collect information about how students travel to and from school on a daily basis. WSDOT uses the collected information to help plan and prioritize Safe Routes to School investments. About 10,000 adults with children in kindergarten through eighth grade participated in an initial survey conducted in 2014. Some results from the 2014 survey can be found in [Gray Notebook 56, p. 1](#), and full results can be found in the Washington State Student Travel Survey Report at <http://bit.ly/STSReport>. Initial results for the 2016 survey will be available in fall 2016.

Contributors include Mike Bernard, Charlotte Claybrooke, Mike Dornfeld, Matthew Enders, John Milton, Ed Spilker, Warren Stanley, Dan Davis and Tricia Hasan



WSDOT invests in pedestrian and bicyclist safety improvements

WSDOT awarded \$30 million for 73 new Pedestrian and Bicycle Safety and Safe Routes to School projects for the 2015-2017 biennium (July 2015 through June 2017). Another \$37.5 million is expected for similar safety projects in the 2017-2019 biennium. Total investments from 2005 through 2015 for these two programs have provided more than \$94 million, resulting in:

- Over 544,000 linear feet of sidewalks, bicycle lanes and multi-use trails;
- Approximately 265 new crosswalk and intersection improvements;
- A 20% increase in children walking or biking to school; and
- A Safe Routes to School safety education project in partnership with the Office for the Superintendent of Public Instruction that has reached over 58,000 children so far; see <http://bit.ly/SRTSProgram> for more information

WSDOT invested \$1.4 million in Americans with Disabilities Act retrofits, such as curb ramps, at 42 locations on the state transportation system in 2015. Future investments for ADA retrofits, totaling \$62 million, are planned for the next 10 years.

In addition, the federal Moving Ahead for Progress in the 21st Century Act includes several funding opportunities that Washington has utilized for pedestrian and bicycle improvements. The available funding, along with the new design policies (see [p. 11](#)), aims to increase the emphasis for pedestrian and bicycle safety in all projects.

Asset Management: Safety Rest Areas Annual Report

61

Notable results

■ Visits to safety rest areas increased statewide by 3% between 2014 and 2015, to 23.1 million

■ WSDOT met its 2015 safety rest area maintenance goal

Rest area use estimates up to 23.1 million in 2015

An estimated 23.1 million visitors used WSDOT safety rest areas in 2015, which is about 600,000 or 3% more than the 22.5 million estimated visitors in 2014, and the highest number in the past decade.

Benefits to the traveling public include restrooms, travel information and picnic areas

Since 2011, about 21.9 million people have visited WSDOT's rest areas annually. Visitor estimates are generally based on water use. The 47 rest areas continue to provide safe places for travelers to take a break

from driving. All rest areas provide bathroom facilities while most also have traveler information, picnic tables, pet areas, and may offer free coffee through a volunteer program.

WSDOT rest area operations costs per visitor remain steady

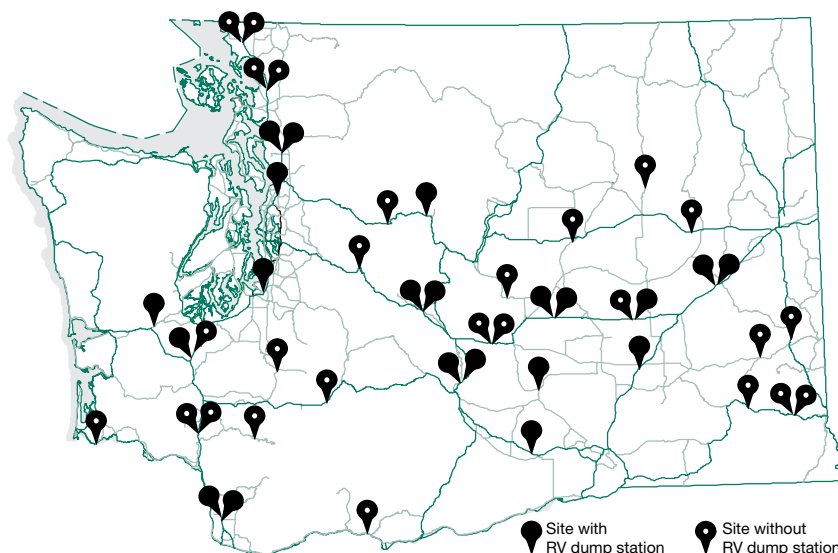
WSDOT's rest area expenditures stayed within 2% of the \$12.4 million 2013-2015 biennial budget. The average cost per visitor using WSDOT rest areas remained steady from 2014 to 2015, ranging from 10 cents to 80 cents. This number differs slightly (by 1 cent) from that reported in [Gray Notebook 57, p. 9](#) because of a change from biennial to annual reporting. Costs vary due to both the volume of visitors and the fixed costs to maintain and operate rest area facilities, regardless of use. WSDOT continues to track individual rest area expenditures to identify operational efficiencies. Expenditure tracking, along with accurate tracking of preventive and corrective maintenance tasks, provides WSDOT the information it needs to develop and analyze scenarios for operations improvements and cost savings.



This map is interactive online and is updated annually. Click anywhere on the map to explore information on visitor use levels for each safety rest area or go to <http://bit.ly/GNBrestareasmap>.

WSDOT operates 47 safety rest areas in Washington state, 20 with recreational vehicle dump stations. Twenty-eight rest areas are located on the interstate highway system, each approximately 30 to 45 miles apart. This is consistent with the Federal Highway Administration's recommended spacing guidelines for safety rest areas on highways and major arterials. Another 20 rest areas are located on state routes and are particularly vital due to their more remote locations in areas with limited public services. The annual visitor use is much greater at the interstate sites, which are heavily used by commercial truck drivers.

WSDOT safety rest areas have 23.1 million visitors Calendar year 2015



WSDOT keeps its “B” grade for rest area maintenance

While visitor use increased, WSDOT safety rest areas again met their maintenance goal. As part of WSDOT’s Maintenance Accountability Process, staff conducts regular, random operational surveys of rest areas. Each survey examines the condition of a rest area at the time staff arrived on site. Items on the survey are scored and graded on an “A” through “F” scale. WSDOT rest areas continue to score a “B” grade on average. To earn a “B” grade a rest area site must appear clean, and have water and sewer systems that are operational. The grounds and building are well cared for but may show wear, graffiti, and have minor damage.

Other factors that contribute to the grades include non-operational building utilities, fixtures, recreational vehicle dumps, and appearance of landscaped areas, sidewalks and pavement. [Gray Notebook 60, p. 20](#) has a detailed overview of the grading scale for maintenance items.

Rest area budget funds maintenance, janitorial and grounds keeping

WSDOT’s safety rest area maintenance budget for the 2015-2017 biennium is \$13.2 million. This compares to a budget of \$12.5 million in the 2013-2015 biennium, when expenditures were \$207,000, or 2% more than those planned. The budget increased due to legislatively-approved salary increases. Achieving safety rest area maintenance goals depends on having adequate

Condition assessment program in the works

WSDOT recently launched a new statewide web-based condition assessment database, the Facility Inventory Condition Assessment Program. Previously, data was hand calculated and time-intensive to manage. FICAP calculates preservation backlog cost as a percentage of replacement cost. It will calculate construction costs, determining construction components and automatically attributing repair costs. The data is not yet available and will be reported in a future edition of the *Gray Notebook*.

Thirty-nine of WSDOT’s 47 rest areas are 30 years old or older. The highest priority is to maintain, operate and preserve building and system assets to extend their useful life. Maintenance activities are conducted to maximize the lifespan of facilities, but age of rest areas is a major contributing factor to the maintenance preservation backlog. For preservation strategies, see [Gray Notebook 53, p. 3](#).



This is one of two new buildings in a \$1.3 million project at the southbound Gee Creek Safety Rest Area along Interstate 5 north of Vancouver, Washington. The project, completed in 2015, also demolished the old structure and addressed other site deficiencies.

funds to support the resources needed. Funding in the 2013-2015 biennium allowed WSDOT to meet service delivery goals. Maintenance work performed by the crews includes janitorial and grounds-keeping activities, along with maintaining plumbing and electrical items to ensure the rest area functions for the traveling public.

Price Creek Safety Rest Area closes

The eastbound Price Creek Safety Rest Area closed in 2015 to make way for a wildlife bridge as part of the Interstate 90 Snoqualmie Pass East project (see project details at http://bit.ly/SPE_I90). This limited-use rest area was originally constructed as a temporary stop in the mid 1990s. To ease the impact of the closed area, WSDOT improved the Travelers Rest Safety Rest Area at Snoqualmie Pass Summit to include Americans with Disabilities Act access, a new roof, new plumbing and family restrooms.

New rules modify coliform testing requirements for drinking water

Washington state’s Total Revised Coliform Rule went into effect in 2016. The rule is an element in Washington’s drinking water law that requires all public water systems to be tested for coliform bacteria on a routine basis. The revisions redefine public notification requirements and violation thresholds. To ensure compliance, WSDOT will implement and track procedural changes in the coliform monitoring plans for rest area water systems and all affected water systems owned by WSDOT.

Contributors include Alix Berg, Steve Holloway, Zak Swannack, Yvette Wixson and Zoe Zadworny



The online version of this article links to an interactive map with more route information; visit bit.ly/GNBferriesmap.

WSDOT Ferries Quarterly Update

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Notable results

- **WSDOT Ferries ridership was 5.1 million in the third quarter of fiscal year 2016, a 2.7% increase from the same quarter in FY2015**
- **Ferries revenue was \$35.9 million for the third quarter of fiscal year 2016, the most revenue for this quarter**

Ferries ridership numbers continue to increase

WSDOT Ferries ridership was just below 5.1 million during the third quarter of fiscal year 2016 (January through March 2016). This was about 119,000 (2.4%) more people than Ferries had projected for the quarter and about 135,000 (2.7%) more than the third quarter in FY2015.

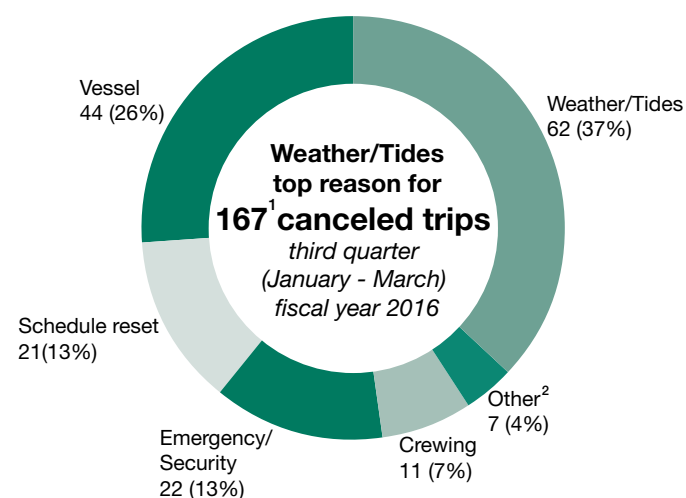
Ridership on the Point Defiance – Tahlequah route increased by more than 23,000 (14.8%) during the third quarter as compared to the same quarter in FY2015. Ongoing commercial construction on the island and at the Vashon Island terminal resulted in additional workers and materials using the Point Defiance – Tahlequah route on a daily basis, contributing to the increase.

Ferries carried approximately 2.36 million vehicles in the third quarter of FY2016, which is 2.6% more than the same quarter of the previous year.

Ferries on-time performance dips slightly, meets annual goal

On-time performance was 1.0 percentage point lower than the same quarter in FY2015, decreasing from 97.3% to 96.3% for the third quarter of FY2016. The quarterly rate still exceeds Ferries' annual on-time performance goal of 95%, which is typically met during the third quarter when seasonal ridership is lower. Based on this average, 16 out of 430 daily trips did not leave the terminal within 10 minutes of the scheduled departure time during the third quarter of FY2016, an increase from 12 trips in the same quarter last year.

On-time performance improved on five of nine routes. During the quarter, the Anacortes – Sidney, B.C., route had the biggest improvement compared to the third quarter of FY2016 with a 5.6 percentage point increase in on-time performance. The route was on



Data source: WSDOT Ferries.

Notes: Fiscal years run from July 1 through June 30. Percentages may not add to 100 due to rounding. 1 Ferries replaced 69 of the 167 canceled trips, for a total of 98 net missed trips. 2 "Other" includes events like disabled vehicles, issues at terminals, environmental reasons or non-ferries related incidents that can impact operations.

time for all 24 of its trips during the quarter. Three other routes finished the quarter with above 99% on-time performance: Edmonds – Kingston (99.3%), Mukilteo – Clinton (99.2%), and Seattle – Bremerton (99.2%).

At 90.7%, the San Juan domestic route saw the largest decrease in on-time performance, 4.6 percentage points lower than the same quarter last year. Significant ridership increases at Anacortes, landing aid work at Lopez Island, and multiple high wind events contributed to the drop in on-time performance for the quarter.

Ferries makes 99.7% of trips, exceeds annual reliability goal

There were 39,134 regularly scheduled trips during the third quarter of FY2016. Ferries made 99.7% (39,036) of them, exceeding its annual reliability performance goal of 99% and 0.1 percentage points higher than the same quarter in FY2015 (see table on [p. 16](#)). In the third quarter of FY2016, Ferries canceled

Ferries crew injuries decline 47% in the third quarter

167 trips and was able to replace 69 of them, resulting in 98 net missed trips. This was 59 fewer net trips missed compared to the same quarter in FY2015.

Tides and weather were the leading reasons for cancellations during the quarter, totaling 62 (37%). Of those 62 cancellations, 50 were tide based and communicated to the public in advance. Mechanical issues on vessels was the next highest reason, accounting for 44 (26%) of total cancellations.

Crew injuries see sharp decrease

The number of Occupational Safety and Health Administration recordable crew injuries per 10,000 revenue service hours decreased 47% for the third quarter, from a rate of 8.7 in FY2015 to 4.6 in FY2016. This represents 12 fewer injuries this quarter as compared to the same quarter in FY2015. This quarter, 43% of the injuries were related to hearing loss, while other employee injuries included sprains, strains and cuts.

The rate of passenger injuries per million riders increased 93% from 0.41 during the third quarter of FY2015 to 0.79 during the same quarter in FY2016. The rate for this quarter represents four total passenger injuries.

Ferries farebox revenue hits all time high for spring quarter

Ferries farebox revenue followed ridership numbers and continued its upward trend, coming in at about \$35.9 million for the third quarter of FY2016, the highest yet for the third quarter. Farebox revenue was \$1.35 million (3.9%) more than the third quarter of FY2015, and about \$100,000 (0.3%) more than projections. Farebox revenue is the largest source of funding for ferry operations.

Overall rider complaints decrease

Ferries received 258 complaints and 30 compliments from the 5.1 million riders it served during the third quarter of FY2016. This was a decrease of 106 from the same quarter in FY2015. The rate of 3.53 complaints per 100,000 riders in the third quarter of FY2016 was the lowest since the fourth quarter of FY2012 when it was 3.12.

There were 72 fewer reservations complaints in the third quarter of FY2016 than the same quarter in FY2015. This was partially due to increased customer familiarity with the system and targeted system enhancements. Loading and unloading complaints were the highest for the quarter at 48 (18.6%) of all categories, followed by employee behavior 35 (13.6%).

Contributors include Matt Hanbey, Kynan Patterson and Joe Irwin

Ferries' on-time performance down, trip reliability steady for the third quarter of fiscal year 2016

January through March FY2015 and FY2016; Annual on-time goal = 95%; Annual reliability goal = 99%

Route	On-time performance (third quarter)				Trip reliability (third quarter)			
	FY2015	FY2016	Status	Trend	FY2015	FY2016	Status	Trend
San Juan Domestic	95.3%	90.7%	-4.6%	↓	99.6%	99.8%	+0.2%	↑
Anacortes/Friday Harbor – Sidney, B.C.	94.4%	100.0%	+5.6%	↑	100.0%	100.0%	0.0%	↔
Edmonds – Kingston	98.0%	99.3%	+1.3%	↑	99.5%	99.9%	+0.4%	↑
Fauntleroy – Vashon – Southworth	96.7%	95.0%	-1.7%	↓	99.9%	99.8%	-0.1%	↓
Port Townsend – Coupeville	97.6%	98.0%	+0.4%	↑	96.2%	97.3%	+1.1%	↑
Mukilteo – Clinton	99.0%	99.2%	+0.2%	↑	99.9%	100.0%	+0.1%	↑
Point Defiance – Tahlequah	99.7%	98.7%	-1.0%	↓	99.9%	100.0%	+0.1%	↑
Seattle – Bainbridge Island	95.4%	94.9%	-0.5%	↓	99.8%	99.9%	+0.1%	↑
Seattle – Bremerton	98.6%	99.2%	+0.6%	↑	99.6%	99.8%	+0.2%	↑
Total system	97.3%	96.3%	-1.0%	↓	99.6%	99.7%	+0.1%	↑

Data source: WSDOT Ferries.

Notes: FY = fiscal year (July 1 through June 30). A trip is considered delayed when a vessel leaves the terminal more than 10 minutes later than the scheduled departure time. Ferries operates 10 routes but combines the Anacortes – Friday Harbor route with the San Juan Interisland route as the San Juan Domestic for on time performance and service reliability. Due to unique fare collection methods in the San Juan Islands, and similar origin and destination legs on both routes, some statistics cannot be separated between the two routes.

The online version of this article links to an interactive map with more route information; visit bit.ly/GNBrailmap.

Rail: Amtrak Cascades Quarterly Update

61

Notable results

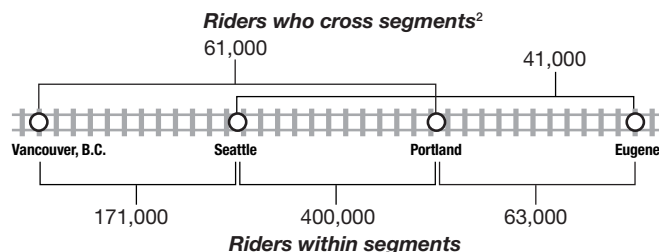
- *Amtrak Cascades ticket revenues increased by 0.6% to \$28.5 million in 2015 while ridership declined by 4.7% to 744,000 passengers*
- *The final of 20 Amtrak Cascades federally funded rail projects broke ground in March 2016; 12 projects are now complete*

744,000 passengers use Amtrak Cascades in 2015

Approximately 427,000 passengers got on or off trains in 2015 at Seattle's King Street Station, the busiest on the Amtrak Cascades corridor. This is a 3.0% decline since 2014. Union Station in Portland ranked second with 380,000 on-offs, followed by Pacific Central Station in Vancouver, B.C., with 151,000 on-offs during 2015.

More than half of Amtrak Cascades ridership is on the Seattle/Portland segment

Total ridership for 2015 = 744,000¹



Data source: WSDOT Rail Division.

Notes: 1 Total ridership also includes about 8,000 riders who were either unidentified by Amtrak or deferred their trip to another date, and over 1,000 passengers who used Sound Transit's RailPlus program to travel between Everett and Seattle. Ridership numbers are rounded and may not equal the total. 2 Riders who cross segments are riders who use a through-train (when a rider boards the train in one segment, then gets off the train in another segment, i.e., boards in Bellingham and gets off in Olympia). The three segments of the Amtrak Cascades corridor are defined as Eugene to Portland, Portland to Seattle, and Seattle to Vancouver, B.C.

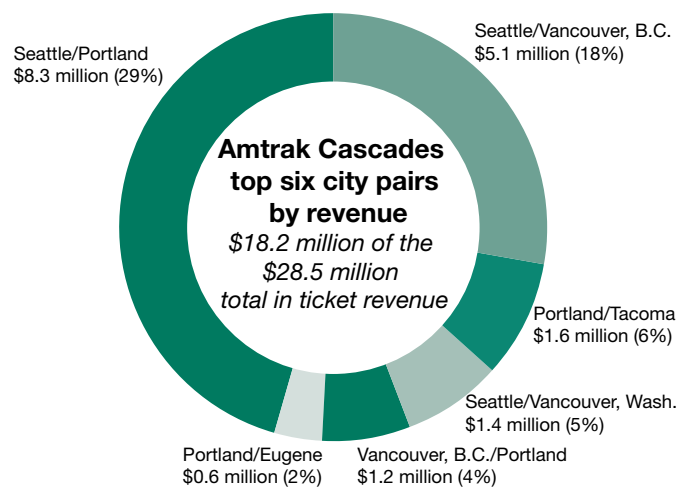
A total of 744,000 individual passengers used Amtrak Cascades in 2015, a 4.7% decline since 2014. The most popular travel segment, accounting for 53.8% of riders, was between Seattle and Portland with more than 400,000 passengers getting on and off somewhere in or between the two cities. Another 171,000 passengers traveled somewhere between Seattle and Vancouver, B.C. The busiest train—Train No. 513—operated from Vancouver, B.C., to Portland, and served approximately

115,000 riders throughout 2015. This train leaves from Vancouver, B.C., at 6:30 a.m. and arrives in Seattle around 11 a.m. before traveling to Portland to arrive around 3 p.m.

Ticket revenues up slightly in 2015

Amtrak Cascades ticket revenue totaled \$28.5 million in 2015, up 0.6% from \$28.3 million in 2014. This increase indicates passengers are spending more per seat on average. The Seattle to Portland travel segment accounted for 29.1% of ticket revenues in 2015, totaling \$8.3 million. Seattle to Vancouver, B.C., accounted for an additional 17.9% of revenue, at \$5.1 million (see graph below for revenues of the top six city pairs).

WSDOT will add two additional daily round trips between Seattle and Portland in 2017, bringing the total to six round trips daily, which is expected to better meet demand on this popular route. The addition of a morning and evening train in each direction is expected to appeal to business travelers working between the two cities. For more trends, see the 2015 Annual Performance Report for Amtrak Cascades at www.wsdot.wa.gov/Rail/PerformanceReports.



Data source: WSDOT Rail Division.

Notes: City pair percentages are out of the total \$28.5 million in revenue. These six city pairs account for 64% of total ticket revenue.

WSDOT completes two more high-speed rail projects

WSDOT completed two more of the 20 Amtrak Cascades high-speed rail projects during the first quarter of 2016, bringing the total to 12 projects completed and eight projects in construction.

The \$38.5 million **Vancouver – Rail Yard Bypass** project separated freight and passenger services by constructing a freight bypass track on the eastern side of a BNSF rail yard, relocating the existing train turntable, adding crossovers, turnouts and at-grade crossings, and moving mechanical and storage buildings to accommodate the bypass. This project, one of three Vancouver, Wash. area projects of the 20-project program, was operationally complete in January 2016.

The \$35.7 million **Corridor Reliability Upgrades – North** project made a series of track upgrades to the BNSF main line tracks between Everett and the Canadian border. This work allows Amtrak Cascades trains to maintain maximum speeds over longer distances, resulting in better on-time performance. The project was completed ahead of schedule in March 2016. Major components of the work included:

- Upgrading track quality to accommodate faster speeds;
- Cleaning and replacing ballast, the material that forms the bed on which the track is laid;
- Replacing rail and bridge joints and ties;
- Improving drainage near tracks and nearby ditches;
- Rehabilitating train crossings; and
- Re-laying and resurfacing rail.

King Street Station track project breaks ground

Crews broke ground in March 2016 for the King Street Station Track Improvements project in Seattle—the final project to do so of the 20 Amtrak Cascades high-speed rail projects.

The \$39.3 million project will extend tracks, install additional turnouts and add a new platform and canopy to the busy Seattle station. In addition, decades-old, hand-operated switches will be replaced with a modern, computerized system. The improvements will make it easier for trains to enter and exit the station, helping reduce delays and making Amtrak Cascades train travel more reliable.

Because the station will remain open throughout the construction phase, the work requires significant planning and coordination between WSDOT, its contractors and service providers. Passengers and neighbors might notice construction work around the station, but the



WSDOT will be upgrading systems at King Street Station in Seattle in order to make trips more reliable.

work will not significantly disrupt the Amtrak Cascades, Sound Transit or Amtrak long-distance schedules. The only expected impacts are a few minutes of delay on some trains and Amtrak passengers might be directed to different platforms to accommodate construction. The construction phase is scheduled to last until early 2017.

The track improvements project will complement the award-winning King Street Station seismic retrofit and lobby restoration project completed in 2013 by further enhancing the passenger experience with faster, more reliable trips at the most popular Amtrak Cascades station.

Contributors include Jason Biggs, Chris Dunster, Jeremy Jewkes, Barbara LaBoe, Janet Matkin, Brent Thompson, David Smelser and Erica Bramlet

WSDOT prioritizes rail safety

As part of its commitment to safety along Washington's railroads, WSDOT plans to launch a major outreach and education program later in 2016. In preparation, top rail managers have completed safety awareness training offered by Operation Lifesaver, the nation's leading non-profit rail safety organization, and will be engaged in community outreach activities as part of the program.

WSDOT does not own the tracks or crossings on which Amtrak Cascades trains operate. Due to an unprecedented number of trespassing incidents, there were 27 train-related fatalities in Washington in 2015, compared to five in 2014. More than 80% of the 2015 incidents (22 of the 27) involved trespassers who were not at a grade crossing with a highway, compared to three of five in 2014. WSDOT's safety campaign will focus on educating citizens about the danger of walking on or near railroad tracks, with an emphasis on young adults who use tracks as shortcuts or hangout places without realizing the dangers involved.

Incident Response Quarterly Update

61

Notable results

- *WSDOT teams responded to 12,822 incidents during the quarter, providing an estimated \$19.8 million in economic benefits*
- *Teams cleared incident scenes in an average of 12 minutes and 21 seconds, reducing traffic delay and risk of secondary incidents*

WSDOT teams respond to 12,822 incidents in quarter

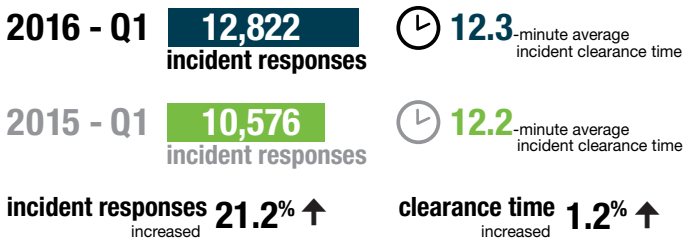
WSDOT's Incident Response teams responded to 12,822 incidents during the first quarter (January through March) of 2016. This averages to a WSDOT IR team responding to an incident scene about every 10 minutes during the quarter. The agency responded to 2,246 more incidents—about an 21.2% increase—in the first quarter of 2016 than during the same period in 2015. Increases in traffic combined with record wet weather during the quarter likely led to the jump in the number of incidents. Data for the quarter is considered preliminary.

WSDOT IR teams cleared incidents in an average of 12 minutes and 21 seconds. This was about nine seconds slower than the average incident clearance time for the same quarter last year. The proportion of incidents which blocked at least one lane was 24% during the quarter compared to 25% last year, and there was a 16.2% increase (19 incidents) in incidents lasting more than 90 minutes.

WSDOT focuses on safety when clearing incidents, working to reduce incident-induced delay as well as the potential for

The mission of WSDOT's Incident Response program is to clear traffic incidents safely and quickly, minimizing congestion and the risk of secondary incidents. The statewide program has a biennial budget of \$9 million, funding about 47 full-time equivalent positions (approximately 80 trained drivers) and 62 dedicated vehicles. Teams are on-call 24/7 and actively patrol 493 centerline miles (about 32% of all urban centerline miles) of highway on major corridors around the state such as Interstate 5 or I-205 during peak traffic hours.

WSDOT sees more incident responses compared to last year; clearance times increase slightly
First quarter (January through March) 2015 and 2016



Data source: Washington Incident Tracking System.

Notes: Data above only account for incidents to which an IR unit responded. IR data reported for the current quarter (Q1 2016) are considered preliminary. In the previous quarter (Q4 2015), WSDOT responded to 12,756 incidents, clearing them in an average of 13.6 minutes. These numbers have been confirmed and are now finalized.

secondary incidents to occur. Secondary incidents happen in the congestion resulting from a primary incident and may be caused by distracted driving, unexpected slowdowns or debris in the roadway. The IR teams help alert drivers about incidents and clear the roadway to reduce the likelihood of secondary incidents. A table summarizing the IR program's performance and benefits for the quarter is on [p. 20](#).

WSDOT's assistance at incident scenes provided an estimated \$19.8 million in economic benefits during the first quarter of 2016 by reducing the impacts of incidents on drivers. These benefits are provided in two ways. First, by clearing incidents quickly, WSDOT reduces the time and fuel motorists waste in incident-induced traffic delay. About \$11.2 million of IR's economic benefits for the quarter is from reduced traffic delay. Second, by proactively managing traffic at incident scenes, WSDOT helps prevent secondary incidents. About \$8.6 million of IR's economic benefit results from preventing an estimated 2,441 secondary incidents and resulting delay. This figure is based on Federal Highway Administration data that there are 20% more secondary incidents on the highway system due to primary incidents. Based on WSDOT's budget for IR (see box at left), every \$1 spent on the program this quarter provided drivers roughly \$17.60 in economic benefit.

WSDOT's Incident Response prevents \$19.8 million in traffic delays and secondary incidents

January through March 2016; Incidents by duration; Times in minutes; Costs and benefits in millions of dollars

Incident duration	Number of incidents ¹	Percent blocking ²	Average roadway clearance time ³ (blocking only)	Average roadway clearance time ³ (all incidents)	Average incident clearance time ⁴ (all incidents)	Cost of incident-induced delay	Economic benefits from IR program ⁵
Less than 15 min.	9,852	15.7%	4.8	0.7	5.0	\$12.4	\$5.8
Between 15 and 90 min.	2,834	52.4%	26.1	14.0	30.4	\$24.5	\$10.7
Over 90 min.	136	89.7%	168.0	151.9	171.0	\$7.8	\$3.3
Total	12,822	24.0%	22.0	5.3	12.3	\$44.7	\$19.8
Percent change from First quarter 2015	↑ 21%	↓ 1%	↑ 7%	↑ 6%	↑ 1%	↑ 17%	↑ 17%

Data source: Washington Incident Tracking System.

Notes: Some numbers may not add up due to rounding. 1 Teams were unable to locate 615 of the 12,882 incidents. Because an IR team attempted to respond, these incidents are included in the total incident count, but are not factored into other performance measures. 2 An incident is considered blocking when it shuts down one or more lanes of travel. 3 Roadway clearance time is the time between the IR team's first awareness of an incident (when a call comes in or the incident is spotted by a patrolling IR unit) and when all lanes are available for traffic flow. 4 Incident clearance time is the time between an IR team's first awareness of an incident and when the last responder has left the scene. 5 Estimated economic benefits include benefits from delay reduction and prevented secondary incidents. See [WSDOT's Handbook for Corridor Capacity Evaluation, pp. 40-42](#), for WSDOT's methods for calculating IR benefits.

WSDOT teams' proactive work reduces incident-related delay

Incident-induced traffic delay on state highways cost motorists an estimated \$44.7 million in wasted time and fuel during the first quarter of 2016. This is about \$6.5 million more than in the same quarter of 2015. Without WSDOT's assistance, this economic impact would have been roughly \$64.5 million (\$19.8 million in prevented delay and secondary incidents plus \$44.7 million in actual delay).

For more information on how WSDOT calculates these figures and all IR performance metrics, see [WSDOT's Handbook for Corridor Capacity Evaluation, pp. 40-42](#).

WSDOT teams respond to 136 over-90-minute incidents

WSDOT Incident Response units provided assistance at the scene of 136 incidents that lasted more than 90 minutes during the first quarter of 2016. This is 19 more incidents—roughly 16.2%—than the same quarter in 2015. While these over-90-minute incidents accounted for 1.1% of all incidents, they resulted in 17.4% of all incident-related delay costs.

Three of the 136 over-90-minute incidents took six hours or more to clear (referred to as extraordinary incidents). This is four less extraordinary incidents than the same quarter in 2015. The three extraordinary incidents took an average of nine hours and 11 minutes to clear, accounting for about 15.8% of all incident-induced delay costs for the quarter.

The average clearance time for all over-90-minute incidents was about two hours and 51 minutes. This is about six minutes faster than the same quarter in 2015. Excluding the three extraordinary incidents, WSDOT's average clearance time for over-90-minute incidents was two hours and 42 minutes. Performance data reported in this article is from WSDOT's Washington Incident Tracking System, which tracks incidents to which a WSDOT IR team responded.

Contributors include Vince Fairhurst, Ida van Schalkwyk, Bradley Bobbitt and Sreenath Gangula



Incident Response team member featured on WSDOT blog for going above and beyond

WSDOT IR teams give comment cards to drivers they help. Below are samples of the comments received from drivers WSDOT assisted during the first quarter of 2016.

- "I don't know what I would have done without this help. I was lost sitting in my car with no options, then Brian pulled up and changed my tire. Thanks."
- "The cheerful and calming WSDOT worker, Mark, was fantastic in this emergency. We really appreciated him."
- "Thanks so very much! I was terrified of being stalled on the freeway. Richard was fantastic!"



Travel Information Annual Report

61

Notable results

- The number of calls to WSDOT's 511 travel information phone system increased 38% between the 2015 and 2016 reporting periods

- WSDOT's Facebook page "likes" increased from 14,869 in April 2015 to 34,832 in March 2016, an increase of 134%

WSDOT's social media engages more customers

WSDOT's social media following continued to grow during the 2016 reporting period (April 2015 through March 2016). WSDOT's Facebook page "likes" increased by 134%, from 14,869 "likes" to 34,832. WSDOT's Twitter accounts gained followers during the reporting period. Followers of the main "@wsdot" Twitter account increased from 97,666 to 140,724 followers, a 44% increase, and the "@wsdot_traffic" Twitter account had a 71% increase in total followers, from 83,839 to 143,194 followers.

WSDOT customers are also accessing real-time travel information on-the-go from the agency's smartphone app for iPhone and Android platforms. During the 2016 reporting period, downloads of WSDOT's mobile app increased from 438,265 to 562,759, increasing use across both platforms by 28%. Smartphones are proving to be increasingly popular for accessing the WSDOT website; the number of people visiting the site on a mobile device increased to 49%, up from 47% in the last reporting period.

Severe winter storms increase demand on WSDOT's 511 system

The number of calls to WSDOT's 511 travel information phone system increased 38% to 783,249 calls during the 2016 reporting period, up from 566,733 calls during the previous 12 months. This is the first increase in number of calls since the 2011 reporting period.

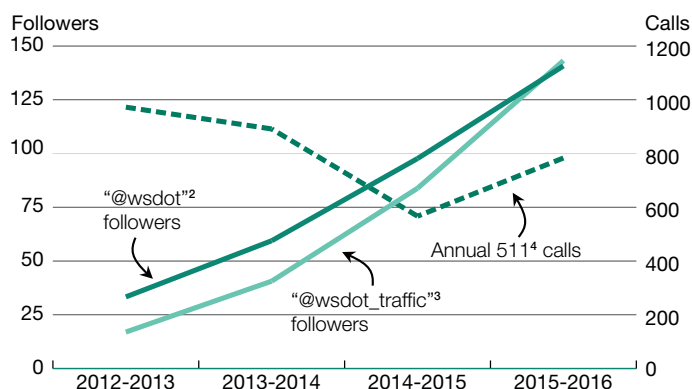


Strategic Plan Goal 6: SMART TECHNOLOGY

Traveler Information Strategy - Enhance traveler information exchange with the public.

In support of this strategy, WSDOT provides real-time updates about traffic, construction and weather events to inform travelers of roadway conditions. WSDOT tweeted 33,725 updates on the "@wsdot_traffic" Twitter account from April 2015 through March 2016.

WSDOT Twitter followers, 511 calls increase in past year April through March, 2012-2013 through 2015-2016¹; Numbers in thousands



Data source: WSDOT Communications and Traffic Office.

Notes: 1 Reporting period is April through March of the following year.
2 Official WSDOT Twitter account. 3 Official WSDOT traffic information Twitter account. 4 WSDOT's travel information phone system.

Severe winter storms led to more calls in December 2015 (up 168% from December 2014) and January 2016 (up 84% from January 2015). Overall, eight of 12 months in the 2016 reporting period experienced increased call traffic on the 511 system.

Web traffic and ad revenue increase

WSDOT's travel information website had 165.9 million page views during the 2016 reporting period.

Due to the heavy snowfall and subsequent road closures in December 2015, there were more than one million page views each day that month.

The average net revenue from advertising commercial goods or services on WSDOT's travel information website was \$7,730 per month from April 2015 through March 2016. This is a 57.7% increase in revenue from the monthly average of \$4,902 for the previous 12 months. The increase can likely be attributed to the increased number of visitors to the webpage seeking travel information during winter snowstorms. Guidance for WSDOT website advertising is available online at <http://bit.ly/WSDOTadvertisingpolicy>.

Contributors include Jeremy Bertrand, Bill Legg, Ida van Schalkwyk and Tricia Hasan

WSDOT Emissions/Air Quality Biennial Report

61

Notable results

- *WSDOT completed 26 air quality studies for upcoming projects to demonstrate compliance with federal standards*
- *Biodiesel made up 4% of fuel used by WSDOT's ferries and 14% used by its heavy-duty vehicles and off-road equipment in 2015*

WSDOT working to reduce agency fleet emissions

WSDOT's ferry vessels used roughly 692,000 gallons of biodiesel fuel in 2015, down about 3% from the 716,000 gallons used in 2014. Biodiesel made up 4% of all ferry vessel fuel used in 2015, down from 4.2% in 2014. The Legislature mandates WSDOT to ensure biodiesel makes up 5% of ferries' total fuel use and the agency continues to work on cost and supply issues. The agency is working toward testing a 10% biodiesel blend on a 202-car Jumbo Mark II ferry, the fleet's largest fuel users, later in 2016. Ferry vessels are the largest source of greenhouse gas emissions for which WSDOT is directly responsible.

Biodiesel also accounted for 13% of the agency's heavy-duty vehicles and off-road equipment fuel use in 2014 and 14% in 2015. The agency uses a 20% biodiesel blend statewide during warmer months and a 10% blend in eastern Washington during winter to avoid fuel gelling in cold temperatures. Total biodiesel use in these vehicles varies based on work needed throughout the year, such as the amount of snowplowing.

Reducing agency emissions is a priority for WSDOT and is identified as a goal in the agency's strategic plan (see [p. 8](#)). It also supports Gov. Jay Inslee's Results Washington goal to achieve sustainable energy and a clean environment (see [p. 9](#)).

WSDOT implementing fuel saving technologies for ferries

WSDOT has undertaken various projects to further reduce emissions from its ferries. In December 2015, the agency replaced the old fixed-blade propellers on the 124-car Motor/Vessel *Chelan* with new critical pitch propeller blades which help vessels run more efficiently. Test data shows an average fuel savings of about 9% resulting from the change. The agency is currently pursuing grant funding for propeller blade replacements on its other five Issaquah Class ferry vessels. The



Strategic Plan Goal 3: ENVIRONMENTAL STEWARDSHIP

Greenhouse Gas Strategy: Meet or exceed legislatively prescribed emission reductions by increasing fuel efficiency and use of alternative fuels.

WSDOT has implemented multiple emission reduction methods for both its ferry fleet and heavy-duty vehicles including new technologies and expanded use of biodiesel. Biodiesel made up 4% of ferry and 14% of heavy-duty vehicle fuel use in 2015.



The Motor/Vessel Chelan was the first Issaquah Class ferry retrofitted with new Critical Pitch Propeller blades to reduce fuel use. WSDOT is currently seeking funding to retrofit the five other Issaquah Class ferries.

proposal also includes new power and fuel monitoring equipment for all the agency's ferries, which WSDOT expects to cut fuel use by an additional 10%, as well as new switchboard electronics on the six Issaquah Class vessels that are expected to reduce fuel use by 1.5%.

WSDOT is also pursuing public/private partnerships to convert its six Issaquah Class ferries to liquid natural gas propulsion. There are substantial costs for meeting the U.S. Coast Guard's requirements for storing Liquefied Natural Gas. The agency has a request for proposals out for the project, which is set to close June 29, 2016. Applicants have the opportunity to include private financing in their proposals.

Number of electric vehicles registered in Washington at 33% of 2020 goal

There were 16,529 plug-in electric vehicles registered in Washington state as of December 2015. The Governors' Results Washington goal is to have 50,000 EVs registered in the state by 2020. WSDOT's focus has been securing

Two maintenance areas expiring as air quality improves

partnerships along the Interstate 5 West Coast Electric Highway to create a fast charging infrastructure network accessible to the public. The Legislature approved \$1 million for an EV infrastructure pilot program in 2015 to help expand the state's fast charging network.

WSDOT ensures its projects comply with air standards

WSDOT prepared 26 air quality studies during 2014 and 2015 for upcoming transportation projects. Air quality studies estimate emissions from project construction and operations after completion to ensure compliance with federal regulations.

The Environmental Protection Agency determines if states are in compliance with national ambient air quality standards for six pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. Regions in violation of standards risk losing federal highway funding if transportation projects do not conform with the state implementation plan to control the pollutants. To date, WSDOT has not lost any federal funding due to air quality compliance issues.

State's air quality nonattainment and maintenance areas steady

Washington had no new air quality violations in 2014 or 2015 based on monitoring by the state's 11 local clean air agencies. Regions that do not meet air quality standards for one or more monitored pollutants are designated as nonattainment areas and the state must develop plans to bring them into compliance.

WSDOT supports the state's Metropolitan Planning Organizations in demonstrating compliance for nonattainment areas or maintenance areas—those being monitored due to past violations. Transportation projects planned in these areas cannot increase emissions beyond levels set to achieve air quality standards.

Changing air quality designations will make delivering projects easier

Two of Washington's carbon monoxide maintenance areas, the Seattle metro area and Vancouver, will expire in fall 2016. This change will reduce the analysis WSDOT is required to complete for projects in these areas. WSDOT is working with the Washington State Department of Ecology and MPOs to determine when and how to discontinue analysis required under the maintenance area plans.

Washington's only nonattainment area redesignated to maintenance in 2015 As of March 2016

Area ¹	Pollutant ²	Year designated		
		Nonattainment	Maintenance	Expires ³
Olympia	PM ₁₀	1990	2000	2020
Seattle	CO	1990	1996	2016
Metro	PM ₁₀	1990	2001	2021
Spokane	CO	1990	2005	2025
	PM ₁₀	1990	2005	2025
Tacoma	PM ₁₀	1990	2001	2021
	PM _{2.5}	2009	2015	2035
Vancouver	CO	1990	1996	2016
Yakima	CO	1990	2002	2022
	PM ₁₀	1990	2005	2025

Data source: Washington State Department of Ecology.

Notes: 1 Areas can include cities near the listed location. 2 Pollutants given by abbreviation: PM₁₀ and PM_{2.5} = particulate matter and CO = carbon monoxide. 3 "Expires" year estimate based on a requirement that areas maintain compliance 20 years after redesignation.

The EPA designates nonattainment areas on a pollutant by pollutant basis when it revises standards. Once a nonattainment area is in compliance, the state can request the EPA redesignate it as a maintenance area. Areas keep the maintenance designation for 20 years. While in maintenance status, transportation projects must conform to the maintenance area plan.

The EPA redesignated the Pierce County nonattainment area for particulate matter 2.5 microns or smaller in a 24-hour period to a maintenance area in 2015. When the EPA tightened the standard in 2006, a portion of Pierce County was determined to be in nonattainment mainly due to smoke from wood-burning stoves. Even though transportation was not the main source the pollutant, WSDOT must demonstrate that projects will not contribute to worsening air quality. The region will remain a maintenance area until 2035.

Tightened ozone standards may affect Washington in coming years

The EPA tightened its eight-hour ozone standard from 0.075 parts per billion to 0.070 parts per billion in 2015. Compliance is determined using monitored ozone values averaged over three years. The EPA and states are currently working through the two-year designation process. As of 2015, all of Washington met the new standard. Final designations will include 2014, 2015, and 2016 data so pollution levels this summer will be important to whether areas meet the new standard.

Contributors include Karin Landsberg and Bradley Bobbitt

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Noise Quality
Annual Report

Notable results

- *WSDOT evaluated and approved 28 traffic noise studies for upcoming transportation projects between April 2015 and March 2016*
- *Approximately 90 miles of noise walls have been constructed since 1963, with 26 miles constructed between 2001 and 2016*

WSDOT approves 28 noise reports for future projects

WSDOT prepared, reviewed and approved 28 traffic noise studies for Type 1 transportation projects from April 1, 2015, through March 31, 2016, to comply with federal and state noise requirements. Each project with a noise component is categorized as either a Type 1 or Type 2 project (see box below for information on project types). WSDOT works to mitigate noise to improve quality of life for residents living close to major roadways across the state.

WSDOT currently has 58 Type 2 projects eligible for completion. The project list was re-prioritized in June 2015 based on population density, area noise levels and cost of abatement in communities built prior to 1976. These retrofit projects are selected and funded by the state Legislature.

Noise barriers reduce traffic sounds along I-405 corridor

Since March 2015, WSDOT constructed 1.9 miles of new noise barriers, composed of seven noise walls and one berm, as part of the I-405/Bellevue to Lynnwood Widening and Express Toll Lanes project. A berm is an artificial mound of earth used to reduce roadway noise. This project also included the relocation of two existing noise walls.

WSDOT evaluates noise for Type 1, Type 2 projects

WSDOT uses computer modeling software to predict noise impacts for two types of projects. Type 1 projects are new construction found to have potential increases in traffic noise for nearby residents. WSDOT evaluates how noise can be cost-effectively reduced and seeks input from affected communities before taking any noise-reducing action, such as constructing a noise wall. Type 2 projects are retrofits for existing high-traffic roadways near residential areas that were constructed before 1976 (when noise evaluations were first required for highway projects). WSDOT maintains a prioritized list of eligible Type 2 projects to be considered for completion.

Between 2001 and March 2016, WSDOT has built 61 Type 1 and 21 Type 2 noise barriers to improve noise quality in the communities surrounding WSDOT's heavily used corridors. Overall, WSDOT has constructed approximately 90 miles of noise barriers since 1963, including more than 26 miles of walls and berms since 2001 when reporting in the *Gray Notebook* began. The last Noise Quality annual report published in *Gray Notebook* 57 listed an incorrect number of noise wall miles due to a calculation error, which has been corrected in this issue.

WSDOT utilizes noise variance permits

WSDOT obtained 34 noise variance permits from local jurisdictions in 2015. These permits give construction crews leeway to produce more noise than is generally acceptable during night hours, allowing for construction work to be completed on time in areas where there are heavy traffic and safety concerns during the day.

WSDOT enters new testing phase of rumble strip research

WSDOT is moving forward with testing rumble strip designs in an effort to reduce external roadway noise. Rumble strips are grooves cut into pavement that, when driven over, produce noise and vibration within the vehicle that is intended to safely alert inattentive drivers.

WSDOT conducted a statistical analysis in August 2015 to predict the most effective noise-reducing combination of length, width, depth and spacing of rumble strip divots based on nine designs tested previously. Results showed that a rumble strip divot 6 inches wide, 8 inches long and 0.5 inches deep could produce a minimum decrease of five decibels, or a 25% reduction in sound level to nearby homes compared to the current divot dimensions. The depth/width combination was shown to have the most influence on the noise level produced. WSDOT plans to install and test the new rumble strip design on a four-mile stretch of State Route 24 near Othello through spring and summer 2016.

WSDOT conducts second in-water noise reduction test

WSDOT completed initial research on centerline rumble strips in December 2014. The goal was to understand if rumble strip designs were available that could promote driver safety while reducing noise for residents living adjacent to the roadway. The results showed varying decibel levels for nine different rumble strip divot dimensions. See [Gray Notebook 53, p. 17](#) and [Gray Notebook 57, p. 20](#) for more information on past research phases.

Mumble strip research underway

WSDOT is also currently assessing the use of “mumble strips,” which have a shallow wave design in long, parallel grooves rather than the typical divots in the roadway used for rumble strips. The wave design is currently used in California, Pennsylvania and Minnesota, and is able to alert the driver sufficiently while producing much less detectable roadside noise than traditional rumble strips.

WSDOT partners with UW to test underwater noise at ferry terminal

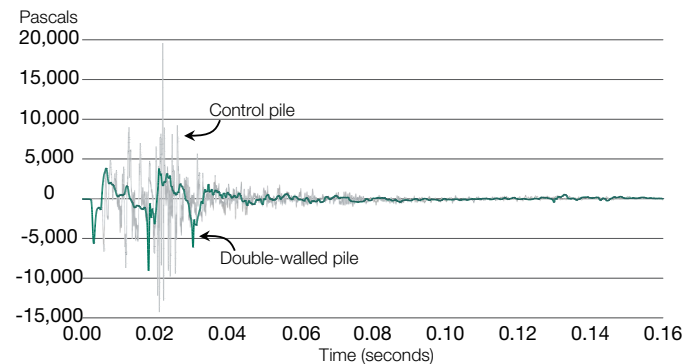
WSDOT has been working with the University of Washington since 2011 to design new noise mitigation tools for in-water construction activities like pile driving. Underwater sound levels, measured in decibels, do not compare directly to sound levels in the air. Since water is more dense than air, it takes more power to produce a sound wave underwater. This additional power creates a higher decibel level for noise underwater than in the air.

A first test of two in-water prototype piles (the double-walled pile and the mandrel pile) was conducted in Commencement Bay near Tacoma in October 2014. Results indicated that underwater sound levels were reduced by up to 21 dB, from 211 dB down to 190 dB of underwater sound for both prototype piles. The initial results were reported in [Gray Notebook 57, p. 20](#) as 210 dB down to 189 dB.

A second test of the two prototype piles was conducted during the Vashon Island Trestle Seismic Bracing Project

Double-walled pile produces significantly less sound pressure, reduces risk to aquatic species

0.00 to 0.16 seconds after impact hammer strike; sound pressure measured in Pascals¹



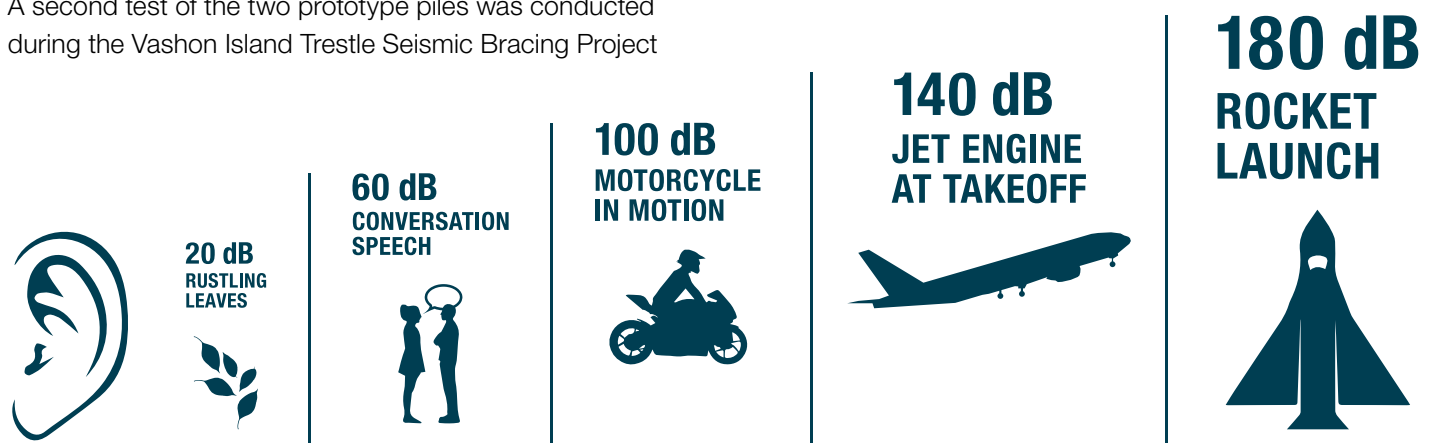
Data source: WSDOT Noise Program.

Notes: 1 Pascals represent both the positive and negative pressure values of a sound wave. While Pascals (sound pressure) can be converted into decibels (sound level), negative Pascals cannot be converted without using the absolute values since decibels are logarithmic. The intent of this graph is to show the large changes in underwater sound pressure that occur during an in-water pile strike. For reference, the control pile in the graph above has a peak underwater sound pressure of about 19,600 Pascals, or approximately 206 dB in underwater sound.

in December 2015. Results indicate that sound levels can be reduced by up to 12 dB, from 200 dB down to 188 dB of underwater sound using either of these piles. Noise reduction benefits achieved during the second test were less than the initial test likely due to the harder underwater bedrock found around Vashon Island.

During in-water pile driving, noise transmits out from the pile through the water and ground and can pose a risk to fish and marine birds and mammals. WSDOT monitors activities with the potential to generate 120 dB of underwater noise or greater for compliance with the Endangered Species Act and the Marine Mammal Protection Act. Noise data collected within an area up to 20 miles from the construction activity are compared to species data collected by field biologists to ensure threatened or endangered aquatic species are not at risk.

Contributors include Jim Laughlin, Erica Bramlet and Tricia Hasan



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Wetlands Protection Annual Report

Notable results

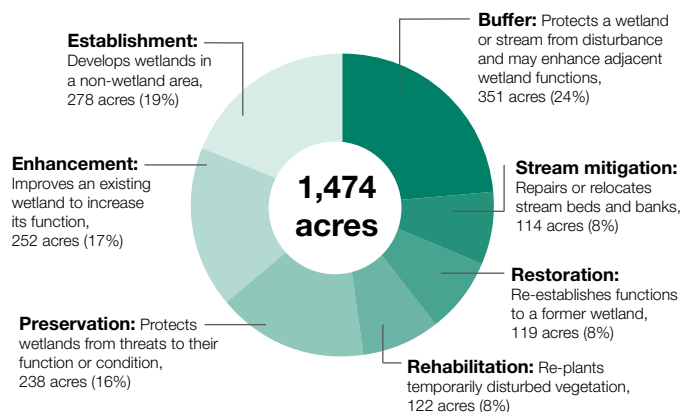
- WSDOT added 15 new wetland and stream mitigation sites on 47 acres in 2015, bringing the total to 263 sites on 1,474 acres
- WSDOT closed out eight mitigation sites in 2015; one site closed before the end of the 10-year monitoring period
- WSDOT and partners restored a 49-acre estuary site on Willapa Bay that provided advance mitigation credits for five projects
- WSDOT's mitigation banks earned the agency 6.6 credits in 2015 to be used to offset future impacts of transportation projects

WSDOT adds 47 acres to its wetland mitigation sites

WSDOT started monitoring 15 new sites on 47 acres in 2015, bringing the total to 263 wetland and stream mitigation sites on 1,474 acres since 1988. WSDOT designs and builds transportation projects to avoid and minimize disturbance to wetlands and streams. When construction impacts cannot be avoided and are outside the service areas of other cost-effective mitigation options, WSDOT designs and builds wetland and stream mitigation sites as compensation. To ensure these sites meet permit requirements, WSDOT monitors them as they develop—typically for 10 years—and then transfers them to long-term stewardship. WSDOT's inventory of mitigation sites includes:

- 106 wetland and stream mitigation sites currently in the 10-year monitoring period,
- Seven sites being evaluated by the U.S. Army Corps of Engineers and Washington State Department of Ecology for completion of their permit requirements,

WSDOT mitigation site acreage increases to 1,474
1988 through 2015; Total acreage (and percent) of replacement wetlands and stream mitigation sites by type



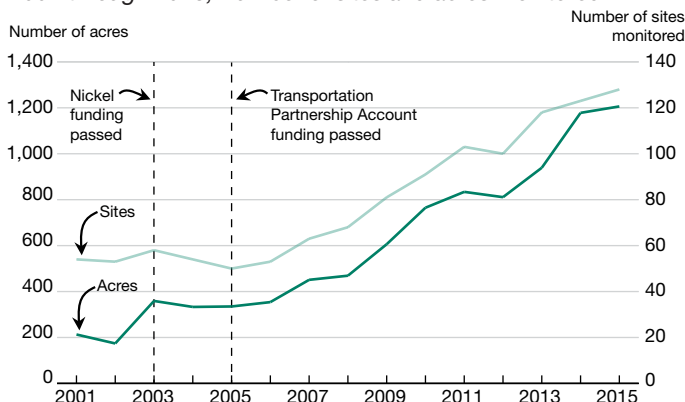
Data source: WSDOT Environmental Services Office.

Note: These totals do not include mitigation banks.

- Nine sites past the initial monitoring period that have not yet met all their permit requirements, and
- 141 sites in long-term stewardship that have met their permit requirements.

Refer to [Gray Notebook 53, p. 20](#) for a description of the life of a typical WSDOT wetland mitigation site.

WSDOT monitors 122 mitigation sites and six bank units 2001 through 2015; Number of sites and acres monitored



Data source: WSDOT Environmental Services Office.

Note: Of the 128 sites above, WSDOT has 106 active mitigation sites, seven sites submitted for closeout that are still being evaluated, nine sites beyond the initial monitoring period and six bank units (see [p. 27](#)).

The number of wetland and stream mitigation sites and total acreage monitored in 2015 increased by 137% and 466% since 2001, respectively, mostly as a result of construction projects funded by the 2003 Nickel and the 2005 Transportation Partnership Account revenue packages. The expected reduction in monitoring workload as Nickel and TPA mitigation sites are closed out may be offset by upcoming projects from the 2015 Connecting Washington transportation revenue package.

Five sites complete requirements, now under long-term stewardship

In 2015, WSDOT finished monitoring five sites where permit requirements were met. One of the five sites

WSDOT uses strategic partnerships to mitigate impacts

developed into a densely vegetated wetland, achieving permit requirements more quickly than planned and the U.S. Army Corps of Engineers and Washington State Department of Ecology agreed to close it before the end of the standard 10-year monitoring period. The Corps and Ecology require a site to be at least five years old and to have met final performance standards two years in a row to consider early closeout of a site with a 10-year monitoring requirement. WSDOT mitigation sites provide benefits such as water quality improvement, wildlife and pollinator habitat and a planned place for floodwater to go.

Three underperforming mitigation sites determined adequate in 2015

The number of sites past their initial monitoring period that had not yet met all their permit requirements decreased from 12 in 2014 to nine in 2015. Three of the 12 sites were closed internally under WSDOT's "no net loss" policy, which means an external review was not required and the agency deemed the sites had made adequate compensation for impacts. WSDOT expected to request permit completion reviews from the Corps and Ecology in 2015 for four of the remaining nine sites that have been slow to develop (see [GNB 53, pp. 20-21](#)). However, limited funding reduced the time and resources available to work on these sites, and WSDOT plans to request closing these sites in late 2016. Of the other five underperforming mitigation sites:

- Two need more time to develop after plant replacement and weed control in recent years,
- One is unlikely to develop further because it does not get enough water, and
- Two have smaller wetlands than planned.

WSDOT is evaluating alternatives for the latter three sites above, which are unlikely to meet all of their permit requirements.

Mitigation banks benefit WSDOT projects and the environment

WSDOT's three mitigation banks earned 6.6 credits and used 0.7 credits in 2015. WSDOT mitigation banks efficiently meet future project needs and maximize environmental benefits by replacing ecological functions—like creating amphibian habitat and providing storage area for floodwater—before they are lost due to project activity. The agency's mitigation banks save time and money by consolidating work efforts and storing credits for future projects.

At the Springbrook Creek Wetland and Habitat Mitigation Bank in King County, WSDOT met seven performance targets to earn 3.4 credits. The North Fork Newaukum Bank in Lewis County earned 3.2 credits by meeting four performance targets. Washington State Parks purchased 0.3 credits from the NFN bank for its 2012 Willapa Hills Trail Repair project. WSDOT's Interstate 5 Mellen Street to Blakeslee Junction project in Centralia used an additional 0.4 credits from the NFN Bank when temporary wetland impacts turned into permanent impacts. To see an interactive map of WSDOT's North Fork Newaukum mitigation bank and learn about the development of the I-5 projects that used credits from the bank, go to bit.ly/GNB57wetlands. WSDOT did not need to use private mitigation banks in 2015.

Find more information about WSDOT's mitigation banks at bit.ly/wsdotwetlandmiti, and an overview of how WSDOT projects benefit from mitigation banks and creative third-party solutions in [GNB 53, p. 21](#).

Tarlatt Slough partnerships restore historic estuary habitat, save money

Between 2013 and 2015, WSDOT finished replacing four bridges and corrected a chronic roadway settlement site in Pacific and Grays Harbor counties. Instead of building five smaller mitigation sites on state-owned land, WSDOT consolidated the mitigation needs into the Tarlatt Slough advance mitigation site on 49 acres owned by the U.S. Fish and Wildlife Service in the Willapa National Wildlife Refuge.

WSDOT agreed to pay USFWS to complete most of the mitigation work and add the Tarlatt Slough mitigation site to its refuge system. This agreement frees up future resources by releasing WSDOT from

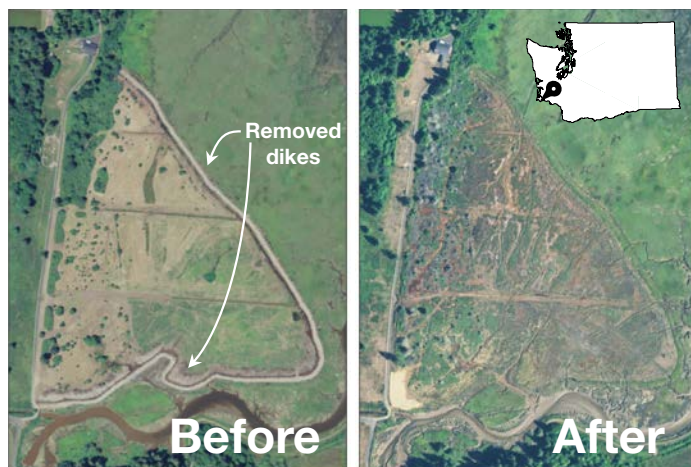


Strategic Plan Goal 5: COMMUNITY ENGAGEMENT

Project Partnerships Strategy - Build community relationships to reduce project costs through local partnerships and taking opportunities to combine projects with different funding sources.

In support of this strategy, WSDOT combined mitigation for the five transportation projects, and partnered with the U.S. Fish and Wildlife Service and Washington Conservation Corps to improve water quality and provide habitat at the Tarlatt Slough site.

WSDOT builds flood-resilient wetland mitigation sites



The "After" aerial photo shows native salt marsh species beginning to colonize the Tarlatt Slough Mitigation Site and tidal channels beginning to develop. Dikes on the east and south side of the site were removed, and a dike constructed to the west. (2013 "Before" and 2015 "After" aerial photos courtesy of the National Agriculture Imagery Program).

long-term management requirements. Another low-cost partnership led to the Washington Conservation Corps installing a half mile of wildlife-friendly fencing, planting adjacent buffer areas and digging tide channels by hand at Tarlatt Slough. These partnerships saved WSDOT more than \$900,000 in construction costs.

In addition, WSDOT moved more than 8,000 cubic yards of stockpiled soil to the mitigation site to create a dike between the site and adjacent property to the west. This opened up valuable WSDOT stockpile storage space while avoiding more than \$60,000 in fill material costs.

The work re-established tidal channels so the site is flooded by daily tides. The mitigation site provides habitat for young salmon and other fish, habitat for migratory waterfowl and improved water quality. The five completed projects used 17.40 of the 41.68 total credits generated by the Tarlatt Slough advance mitigation site as of December 2015. Advance mitigation sites earn and store credits as they provide net increases in ecological function. For more information on how the Tarlatt Slough advance mitigation site is doing, see the most recent monitoring report at bit.ly/TarlattSloughReport.

Wetland mitigation site provides benefits to Oso recovery effort

In March 2014, communities in the Stillaguamish River valley experienced the devastation of the Oso landslide. Along with the loss of 43 lives and 49 homes came impacts to transportation infrastructure. Not only was

a portion of State Route 530 destroyed, but a WSDOT wetland mitigation site was inundated by the North Fork Stillaguamish River as it formed a lake behind the dam caused by the landslide. The SR 530 Skaglund Hill Mitigation Site (see image below) was constructed in 2010 to compensate for damage from a 2006 landslide.

After the 2014 landslide and the emergency response, the lake drained slowly as the river formed a new channel through the landslide debris. To drain water from work areas, crews constructed a channel directing muddy water onto the SR 530 Skaglund Hill Mitigation Site, so it was underwater between six and eight weeks. While designed to hold floodwater in the spring and dry out by summer, the mitigation site performed well during the long-term inundation, benefitting recovery at Oso and the surrounding environment by capturing much of the mud and returning cleaner water to the river.



The white box shows the general location of the SR 530 Skaglund Mitigation Site in the context of the March 2014 Oso Landslide. (Aerial photo courtesy of Mark Reid, United States Geological Survey).

By summer 2015 the well-designed, five-year-old mitigation site met its Year 10 performance standards early for the second year in a row. In March 2016, the Corps and Ecology agreed the Skaglund Hill Mitigation Site had met its permit requirements and WSDOT transferred it to long-term stewardship. Find more information about how this site is doing at bit.ly/SkaglundHillReport.

Contributors include Tony Bush, Cyndie Prehmus and Erica Bramlet

Commercial Vehicles Information Systems & Networks Annual Report

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Notable results

- *WSDOT's electronic screening system helped the trucking industry avoid 106,000 travel hours and \$12.4 million in operating costs*
- *The Washington State Patrol reopened the southbound I-5 Everett weigh station which now electronically screens 3,800 trucks daily*

WSDOT saves trucking industry time, fuel, money

WSDOT gave commercial trucks equipped with Commercial Vehicle Information Systems and Networks transponders the green light to bypass open weigh stations 1.27 million times in 2015. Trucks not equipped with CVISN transponders must pull into each open weigh station they pass.

Bypasses created roughly \$12.4 million in economic benefit by helping the trucking industry avoid an estimated 106,000 hours of travel time and saving an estimated 507,000 gallons of diesel fuel. As a result of the reduced diesel, carbon dioxide emissions were cut by 11.4 million pounds. WSDOT calculates these benefits using industry standards of five minutes avoided travel time and 0.4 gallons of fuel saved for each bypass. This provided a \$9.75 economic benefit per bypass in 2015 down from \$10.04 in 2014 due to lower average diesel fuel cost. See [Gray Notebook 45, p. 45](#), for more on how WSDOT estimates CVISN program benefits.

WSDOT gives more green lights in 2015

The 1.27 million green lights given in 2015 is roughly 4% more than the 1.22 million given in 2014 (this figure was revised from *Gray Notebook 57* to reflect updates



Strategic Plan Goal 6: SMART TECHNOLOGY

Innovative Technology Strategy: Assess innovative technologies to identify tools to support operational and demand management strategies.

WSDOT's CVISN program uses multiple technologies to screen trucks nearing weigh stations including weigh-in-motion, automatic license plate readers and transponders to reduce freight travel delay and fuel use.

to WSDOT's method for extracting CVISN data which account for updates to WSDOT's CVISN system).

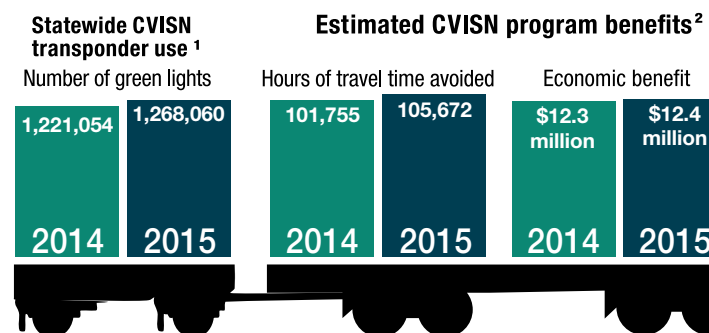
The number of open CVISN-equipped weigh stations affects the number of green lights given. The Washington State Patrol, which owns and operates weigh stations in the state, completed reconstruction of the southbound Interstate 5 weigh station near Everett in June 2015, bringing the number of active CVISN-equipped weigh stations to 11. The facility was destroyed by a drunk driver in 2011. Since reopening, the station electronically screens an average of 3,800 trucks daily.

WSDOT is permanently closing the weigh station on southbound I-5 near Federal Way. WSP analysis has shown operating a station on this site after the I-5/State Route 18 interchange project would pose a traffic hazard. WSDOT is working with WSP to complete a statewide Weigh Station Strategic Plan in 2016 that will guide investments in new facilities, relocations and upgrades for the next 10 years.

Transponder sales increase in 2015

WSDOT transponder sales continued to increase in 2015, with 6,918 sold. This is 16% more than the 5,986 sold in 2014. The agency has signs with a toll-free number for its Commercial Vehicle Services at CVISN-equipped weigh stations to promote transponder use.

Contributors include Anne Ford, Doug Deckert, Bradley Bobbitt and Tricia Hasan



Data source: WSDOT Commercial Vehicle Information Services Office.

Notes: A trucks' transponder is read each time it nears an open weigh station. There were 1,513,559 readings in 2015 and 1,427,299 in 2014. Not all resulted in a green light. 1 WSDOT updated its method for extracting CVISN data which lowered green lights given in 2014. 2 WSDOT assumes five minutes and 0.4 gallons of fuel saved per bypass providing an economic benefit of \$9.75 in 2015 and \$10.04 in 2014.

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Transportation: Economic Update Annual Report

Notable results

- Gas prices fell to a 12-year low of \$2.70 per gallon on average in 2015, a 24.2% decrease from 2014 gas prices
- Vehicle registrations increased 4.1% in 2015, putting more demand on Washington's transportation system

Employment, wages return to pre-recession levels

Economic trends continued to move in a positive direction in 2015. Maintaining the steady recovery, statewide non-farm employment reached 3.15 million workers in 2015, a 2.9% increase from the previous year. This is 6.2% higher than the 2007 pre-recession employment level of 2.97 million workers.

Average hourly earnings (adjusted for inflation) increased by more than \$1 per hour, from \$28.47 per hour in 2014 to \$29.63 per hour in 2015 (4.1%). This is the largest increase in average hourly wages for Washington workers since 2009, and about \$2 per hour more than the 2007 pre-recession level.

Washington's unemployment rate fell to 5.7% in 2015, an improvement from 6.1% in 2014. While the unemployment rate continues to approach the pre-recession rate of 4.7%, the labor force participation rate (the percent of the working age population that is employed or actively looking for work) held steady at 62.9% in 2014 and 2015.

Washington highway, street and bridge construction employment declined by 2.8% between 2013 and 2014. This is consistent with state highway construction spending trends, as the 2003 Nickel and 2005 Transportation Partnership Account revenue packages are nearing completion. While highway,

street and bridge construction employment in the first three quarters of 2015 was 1.8% less than the same time frame in 2014, WSDOT anticipates an employment increase in this sector in future years due to the 2015 Connecting Washington transportation revenue package adopted by the Legislature.

Gas prices boost transportation funding

Gas prices in Washington dropped 24.2%, from \$3.56 per gallon in 2014 to \$2.70 per gallon in 2015. This was the lowest average annual price since 2004, when gas was \$2.45 per gallon. Lower gas prices in 2015 led to increased vehicle miles traveled and 2.6% more gallons purchased in Washington, which is directly linked to increased funding for transportation projects.

Statewide taxable retail sales increased 8.3% when comparing 2015 to 2014. Taxable retail sales can be an indicator of consumers' confidence in the economy.

Vehicle registrations increase in 2015

Washington's driving age population (16 years and older) grew 1.4% between 2014 and 2015, from 5.56 million to 5.64 million people, slightly more than the overall statewide population growth of 1.3%. In addition, passenger vehicle registrations increased 4.1%, from 4.62 million in 2014 to 4.81 million in 2015. Vehicle registrations indicate demand placed on the transportation system.

Contributors include Lizbeth Martin-Mahar and Erica Bramlet

Washington's economic indicators show improving conditions

Calendar years 2013 through 2015

Indicator	2013	2014	2015	% change - 2013 to 2015	% change - 2014 to 2015	Trend	Desired trend ¹
Employment (millions of non-farm workers)	2.99	3.07	3.15	5.6% ²	2.9% ²	↑	↑
Unemployment rate	7.0%	6.1%	5.7%	-1.3% ³	-0.4% ³	↓	↓
Highway, street and bridge construction employment	6,556 ⁴	6,568 ⁴	6,448 ⁴	-1.7% ⁴	-1.8% ⁴	↓	↑
Taxable retail sales ⁵ (billions of dollars)	\$119.2	\$125.0	\$135.4	13.5%	8.3%	↑	↑
Gasoline price per gallon ⁵	\$3.71	\$3.56	\$2.70	-27.2%	-24.2%	↓	↓
Driving age population (16 years and older, in millions)	5.48	5.56	5.64	2.9%	1.4%	↑	N/A
Passenger vehicle registrations (millions) ⁶	4.44	4.62	4.81	8.3%	4.1%	↑	N/A

Data sources: Washington State Office of Financial Management; Bureau of Labor Statistics – Occupational Employment Statistics; BLS – Current Employment Statistics; BLS – Local Area Unemployment Statistics; Washington State Department of Revenue; Washington State Employment Security Department; and U.S. Energy Information Administration.

Notes: 1 N/A means that indicator does not have a desired trend. 2 Precise percent changes can not be calculated from these abbreviated employment figures. 3 Percentage point change. 4 Annual data was not yet available at the time of this publication, so these figures use the average of the first three quarters for each year. 5 Adjusted for inflation and reported in 2015 dollars. 6 Does not include trucks.

Lean Process Improvements Quarterly Update

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Notable results

- *WSDOT started seven Lean projects between January and March 2016, bringing the total number of projects to 77 agency wide*
- *WSDOT increased the rate of pavement condition data analyzed by 43%, from 2.1 pavement-miles per hour to 3.0*

Lean reaches 40% of WSDOT's current workforce

WSDOT continues to train its employees in-house on Lean tools and practices. During the first quarter of 2016 (January through March), WSDOT's Lean practitioners provided Intro to Lean training to 751 WSDOT employees. WSDOT has met its 2016 goal of having at least 2,600 employees trained through Intro to Lean (see box at right).

As of March 31, 2,719 current WSDOT employees had participated in the Intro to Lean training, representing 40% of the WSDOT workforce. Tracking the percent of the current workforce trained instead of total trainings is a more meaningful measure of Lean participation as it accounts for WSDOT employees who gradually retire or leave the agency. The *Gray Notebook* will be transitioning to this metric in future editions.

WSDOT continues to offer Lean problem solving training, first launched in September 2015. In the first quarter of 2016, 41 employees participated in the class, bringing the total to 119 current employees. The course better enables participants to evaluate the state of an issue, conduct a root cause analysis, and test and implement solutions.

WSDOT's Lean practitioners launched seven new Lean improvement projects this quarter, including projects focused on the process for ordering toll transponders and payroll processing for Ferries employees. Since WSDOT first began tracking agency Lean projects in 2012, the total number of Lean projects has increased to 77.

WSDOT uses Lean tools to expedite pavement data availability

WSDOT's pavement office used Lean processes to improve how it collects, analyzes and shares pavement condition data. Prior to the improvements, pavement condition data was not available until June of the year



Strategic Plan Goal 4: ORGANIZATIONAL STRENGTH

Workforce Strategy – Implement various strategies that foster a safe, capable, engaged and valued workforce.

WSDOT has set 2016 goals for the total number of Lean process improvement projects, as well as training targets for two of the in-house Lean classes that WSDOT offers. See table below for progress toward these goals.

WSDOT's 2016 goals for Lean endeavors

Measure	As of Mar 2016	Goal for Nov 2016
Total Lean process improvement projects ¹	77	100
Employees trained through Intro to Lean ²	2,700	2,600
Employees trained through Problem Solving ²	123	500

Data source: WSDOT Lean Process Improvement Office.

Notes: 1 Includes new, in progress and completed projects.

2 In-house course offered by WSDOT.

following its collection. After the improvements, 40% of the pavement condition data is shared five months earlier in the year, and 100% is shared at least two months earlier. WSDOT collects data annually on pavement conditions, using the data to prioritize pavement rehabilitation and repair investments.

The pavement office changed how it processes and releases data from a single large batch to multiple small batches, allowing highest priority data to be shared first. The office also began data collection in April instead of July, and made software enhancements to automatically process some pavement information which was previously processed manually. These changes, along with weekly huddles and visual controls, improved how quickly the pavement condition data was analyzed by 43%, from 2.1 pavement-miles per hour of data processing to 3.0 pavement-miles per hour. The team is now able to redeploy 800 hours annually to other critical pavement management tasks. In addition,

Lean work improves internal and external data availability

leveraging technology to automate certain analyses for local agency data saves at least 20 hours annually.

Access to this data earlier in WSDOT's decision-making process results in better, more informed pavement preservation decisions. This could extend the average life

of pavement by 1.2 months, resulting in annual savings of approximately \$1.7 million, which can be reinvested to help meet other critical preservation needs.

WSDOT contributors include David Luhr, Cassandra Parlee, Tim Rydholm, Anna St. Martin and Zoe Zadworny

WSDOT's Lean projects expedite processes, from graphics jobs to construction project change requests January through March 2016; Progress reported on select projects

Project, program	Changes to process	Measuring success	Results
COMPLETE: Construction work orders <i>North Central Region</i>	<ul style="list-style-type: none"> ■ Provided training to 22 employees regarding WSDOT's project cost estimating system ■ Increased communication with project design team 	<p>In the past 12 months:</p> <ul style="list-style-type: none"> ■ Percent of project cost estimating system estimates accurately submitted the first time doubled, from 25% to 50% 	North Central Region's Program Management Office has fewer estimate errors to rework when preparing to advertise projects.
COMPLETE: Graphics development process <i>Graphic Communications</i>	<ul style="list-style-type: none"> ■ Added job numbers to graphics requests and used existing job log to track products ■ Created a shared email account and file system for graphics product requests 	<p>In the past nine months:</p> <ul style="list-style-type: none"> ■ Reduced search time for graphics jobs from 15 minutes to five ■ Reduced the number of graphics requests waiting for assignment from 45 emails per week to five ■ Increased the percent of graphics jobs tracked in the job log from 50% to 95% 	WSDOT's graphics team redeployed approximately 90 hours a year previously spent searching for graphics job requests to doing valuable work for their customers. More than 2,000 graphics jobs are getting faster assignments and responses every year.
COMPLETE: Landscape field data updates <i>Northwest Region</i>	<ul style="list-style-type: none"> ■ Supervisors used laptop computers to update site activity reports while riding back from field visits instead of waiting to use desktop computers in the office 	<p>In the past three months:</p> <ul style="list-style-type: none"> ■ Two landscape crew supervisors saved approximately 40 minutes each per week 	WSDOT staff save about 70 labor hours annually while leaving work on time more often, increasing employee satisfaction.
COMPLETE: Multi-post roadside sign replacement <i>Olympic Region Maintenance</i>	<ul style="list-style-type: none"> ■ Placed phone calls to confirm delivery dates on electronic orders ■ Allowed for vendor use when WSDOT sign shop could not meet a specific delivery window ■ Prioritized sign installation to reduce interruptions and rescheduling of work that delayed installations 	<p>In the past three months:</p> <ul style="list-style-type: none"> ■ Increased speed of replacing signs from 11 weeks to 7.5 weeks following notification of a downed sign in Olympic Region 	Approximately 40 roadside signs in Olympic Region were reinstalled, providing information to the traveling public on average 3.5 weeks faster in the first quarter of 2016.
COMPLETE: Pavement condition data collection and processing <i>Pavement Office</i>	<ul style="list-style-type: none"> ■ Changed pavement condition data processing methodology from single large batch to prioritized small batches ■ Began annual data collection process three months earlier ■ Used existing data system to automatically process files for surface type, age and construction status instead of manual processing 	<p>In the past 12 months:</p> <ul style="list-style-type: none"> ■ Improved the rate of pavement data analyzed from 2.1 pavement-miles of per hour to 3.0 miles per hour ■ Released 40% of data five months earlier in the year than before, and 100% of data at least two months earlier 	<p>WSDOT's pavement office redeployed approximately 800 labor hours annually from pavement data rating to other pavement preservation work.</p> <p>Pavement condition data is available more quickly and is more up-to-date. WSDOT provides local agencies with data more quickly while redeploying at least 20 labor hours annually that had been spent on manual analysis.</p>
COMPLETE: Management and communication of project changes <i>Capital Program Development and Management</i>	<ul style="list-style-type: none"> ■ Conducted a monthly joint review meeting for scope, schedule and budget project changes instead of circulating emails 	<p>In the past 12 months:</p> <ul style="list-style-type: none"> ■ Eliminated three rework loops ■ Reduced processing timeframe of 96% of change requests by 75%, from eight weeks to two weeks 	Each year, WSDOT's CPDM team processes 270 project change requests an average of six weeks faster.

Data sources: WSDOT Communications and Construction divisions, Capital Program Development and Management, Northwest, North Central and Olympic regions, and Lean Process Improvement Office.

Workforce Levels and Training Annual Report

61

Notable results

- *WSDOT's workforce is at 6,490 permanent full-time employees, 53 more than the same quarter in 2015*

- *WSDOT's recruitment efforts focus largely on engineering and maintenance groups, which accounted for 80% of retirees since 2008*

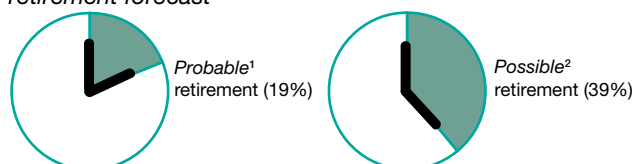
WSDOT's workforce level increases, retirements loom

WSDOT had 6,490 permanent full-time employees as of March 31, 2016. This is 53 more than the same quarter one year ago, and 10.9% below the peak of 7,280 employees in June 2010.

WSDOT's 2015 retirement forecast indicates that 39% (about 2,530) of employees agency-wide have the possibility of retiring by 2020; 19% (roughly 1,230) of employees agency-wide are probable to retire. Retirement forecasts are based on employee age, retirement plan and years of service. For definitions of "possible" and "probable," see notes in graph below.

Thirty-nine percent of WSDOT employees eligible to retire by 2020

2015 retirement forecast



Data source: WSDOT Office of Human Resources and Safety.

Notes: 1 "Probable" refers to employees eligible to retire with full benefits.

2 "Possible" refers to those eligible to retire with reduced or full benefits.

WSDOT's retirement forecasts guide recruitment outreach efforts

WSDOT engineering and maintenance staff are retiring at a faster pace than other groups, accounting for approximately 80% of retirees between 2008 and 2015. These two groups make up 75% of WSDOT's workforce. WSDOT is working toward more effective recruitment, engagement, development and retention of employees to address knowledge gaps like engineering and maintenance that are predicted by WSDOT's retirement forecasts.

WSDOT has dedicated two positions to support outreach efforts to maintenance programs, higher learning institutions for engineering, and diversity and inclusion programs. The agency expects employee requisitions to increase

during the next three to five years. In addition, WSDOT is an active participant in the state's Employee Value Proposition, which promotes Washington state government as an employer of choice. An employer of choice is able to attract, engage and retain talented employees so that they do their best work for Washington state.

WSDOT continues to develop workforce through focused trainings

Since February 2014, WSDOT's Entry Level Management course has reached 254 supervisors and managers statewide, with 63 additional employees expected to complete the training by June 2016. For more information on the ELM training, see [Gray Notebook 57, p. 30](#).

Two of WSDOT's executive leaders will attend the annual National Transportation Leadership Institute, a two-week training in Indiana. WSDOT expects to send at least 15 managers to the week-long National Transportation Management Conference in Spokane. Both conferences are conducted by the American Association of State Highway and Transportation Officials.

WSDOT reinstates tuition program

Following a suggestion from IdeaWorks, an employee-based idea forum, WSDOT reestablished its tuition reimbursement program in February 2016. To date, seven applicants have been approved for reimbursement, with two course completions so far.

Contributors include Matt Cronk, Matt Elam, Sharon McDaniel, Cathy Roberts and Zoe Zadworny



Strategic Plan Goal 4: ORGANIZATIONAL STRENGTH

Leadership Training Strategy: Increase leadership training opportunities by partnering with established leadership programs.

WSDOT has developed an enhanced Entry Level Management course that results in more effective and efficient supervisors. To date, more than 250 WSDOT supervisors and managers have completed the training.

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Capital Project Delivery Programs Quarterly Update

Notable results

- To date, WSDOT has completed 371 of 421 Nickel and TPA projects, with 87% on time and 91% on budget
- WSDOT advertised 102 out of 121 Pre-existing Funds projects on time during the third quarter of the 2015-2017 biennium

No additional Nickel and TPA projects complete

WSDOT did not complete any additional Nickel and Transportation Partnership Account projects during the third quarter of the 2015-2017 biennium (January through March 2016). WSDOT currently has 15 projects underway; see [p. 39](#) for details.

WSDOT has completed 371 of 421 Nickel and TPA projects since July 2003, with 87% on time and 91% on budget. The cost at completion for the 371 projects is \$6.46 billion, 1.9% less than the baseline cost of \$6.58 billion.

Nickel, TPA funding falling short of original projections

Fuel tax collections show that the revenue forecasts from 2003 and 2005, which were used to determine the project lists, did not anticipate the economic recession in projecting future growth in fuel tax revenues.

The 2003 Nickel and 2005 TPA gas taxes that fund projects are based on a fixed tax rate per gallon and do not change with the price of fuel. As a result, reduced gasoline and diesel consumption leads to reduced tax revenue.

WSDOT completes 371 Nickel and TPA projects July 2003 through March 2016; Dollars in millions

Project status	Number of projects	Baseline cost at completion
Projects completed in earlier biennia that are <i>not</i> included in the current transportation budget	171	\$1,477.2
Projects completed that <i>are</i> included in the current transportation budget	200	\$5,107.0
Completed projects subtotal:	371	\$6,584.1
Projects included in the current transportation budget that are not yet complete	50	\$9,633.7
Total:	421	\$16,217.8

Data source: WSDOT Capital Program Development and Management.
Note: Numbers have been rounded.

371 of 421 projects complete **87%** on time **91%** on budget

Data source: WSDOT Capital Program Development and Management.

Notes: Projects complete are cumulative since July 2003. A project is "on time" if it is operationally complete within the quarter planned in the last approved schedule, and "on budget" if the costs are within 5% of the last approved budget. The goal for both measures is 90% or higher.

The 2003 Nickel transportation package was originally a 10-year plan, with revenues forecasted to total \$1.9 billion from 2003 through 2013. Fuel tax revenues collected during this period came in short of the original March 2003 projections by 10.2%. Four Nickel projects have been deferred indefinitely while other projects have continued past the original 10-year period.

Fuel tax funding from the 2005 TPA package is also coming up short of the original March 2005 projections. The original projection for the TPA account was \$4.9 billion over a 16-year period from 2005 through 2021. The current projections through 2021 are estimated to be \$4 billion, roughly \$1 billion less (19.0%) than the original 2005 projection. This revenue shortfall has caused nine TPA projects to be deferred indefinitely.

Nickel and TPA gas tax revenues are used to pay the debt on the bonds sold to finance the planned projects. Once all the bonds are sold, revenues collected will be used to pay the debt.

Beige Page contributors include Mike Ellis, Mitzi Frick, Penny Haeger, Heather Jones, Claudia Lindahl, Thanh Nguyen, Theresa Scott, Dean Walker, Aaron Ward, Joe Irwin and Zoe Zadworny



Strategic Plan Goal 1: STRATEGIC INVESTMENTS

Project Delivery – Deliver transportation projects that are on time and on budget.

WSDOT continues to deliver its Nickel and TPA program funded projects with a high rate of success. Of the total 371 projects completed to date, 87% have been on time and 91% have been on budget.

WSDOT has 50 Nickel, TPA projects yet to be complete

Highway construction performance summary shows about \$9.6 billion in projects remain to be completed
Current Legislative Evaluation and Accountability Program as of March 31, 2016; Dollars in millions

Combined Nickel and TPA programs		Number of projects	Value of program
Subtotal of completed projects		371	\$6,584.1
<i>Projects completed in earlier biennia that are not included in the current transportation budget</i>		171	\$1,477.2
<i>Projects completed that are included in the current transportation budget</i>		200	\$5,107.0
Projects included in the current transportation budget but not yet complete		50	\$9,633.7
Total number of projects² in improvement and preservation budget		421	\$16,217.8
Schedule and budget summary Nickel & TPA combined: Results of completed projects in the current Legislative Transportation Budget and prior budgets.			
	Completed in 2015-2017 biennium budget	Total in current legislative budget	Cumulative program
Number of projects completed	3	200	371
Percent completed early or on time	100%	87%	87%
Percent completed under or on budget	100%	92%	91%
Baseline cost at completion	\$417.2	\$5,107.0	\$6,584.1
Current cost at completion	\$412.1	\$4,994.4	\$6,460.9
Percent of total program over or under budget	1.2% under	2.2% under	1.9% under
Advertisement record: Results of projects entering into the construction phase or under construction, detailed on p. 39 .		Combined Nickel & TPA	
Total current number of projects in construction phase as of March 31, 2016		15	
Percent advertised early or on time		86%	
Total number of projects advertised for construction in the 2015-2017 biennium to date (July 1, 2015 through June 30, 2017)		1	
Percent advertised early or on time		100%	
Projects to be advertised: Results of projects now being advertised for construction or planned to be advertised, detailed below.		Combined Nickel & TPA	
Total projects being advertised for construction bids (April 1 through September 30, 2016)		0	
Percent on target for advertisement on schedule or early		0%	
Budget status for the 2015-2017 biennium:		WSDOT biennial budget	
Budget amount for 2015-2017 biennium		\$1,836.1	
Actual expenditures in 2015-2017 biennium to date (July 1, 2015 through March 31, 2016)		\$516.7	
<i>Total 2003 Transportation Funding Package (Nickel) expenditures</i>		\$22.8	
<i>Total 2005 Transportation Partnership Account expenditures</i>		\$377.6	
<i>Total Pre-existing Funds expenditures³</i>		\$116.3	

Data source: WSDOT Capital Program Development and Management.

Notes: Numbers have been rounded. 1 Cumulative projects completed from July 1, 2003 to March 31, 2016. 2 The project total has been updated to show "unbundled" projects which may have been previously reported in programmatic construction groupings (such as Roadside Safety Improvements or Bridges Seismic Retrofit). See [Gray Notebook 38, p. 55](#) for more details. 3 For full details of the Pre-existing Funds program, see [pp. 43-45](#).

No additional Nickel,TPA rail or ferry projects complete

WSDOT did not complete any new Legislative Evaluation and Accountability Program rail or ferry projects this quarter. WSDOT has used the 2003 and 2005 funding packages to complete 19 rail projects and 22 ferries projects since 2003. Approximately \$524.2 million in ferries projects were funded by the Nickel, TPA and

multimodal accounts. The multimodal account funded approximately \$103.3 million in rail projects. WSDOT advertised three multimodal account rail projects, with awards amounting to \$146.7 million. An additional new \$123 million ferry vessel, funded with Nickel cash and bond proceeds, is also currently under construction.

WSDOT finishes 12 Nickel rail projects since 2003

Current Legislative Evaluation and Accountability Program as of March 31, 2016; Dollars in millions

	2003 Nickel Package	2005 TPA Package	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed LEAP projects			
Cumulative to date (July 1, 2003 through March 31, 2016)	12	7	19
Percent completed early or on time ¹	100%	100%	100%
Percent completed within scope ¹	100%	100%	100%
Percent completed under or on budget ¹	100%	100%	100%
Baseline cost at completion	\$72.6	\$41.0	\$103.3
Current cost at completion	\$72.6	\$41.0	\$103.3
Percent of total program on or under budget ¹	100%	100%	100%
Advertisement record: LEAP projects under construction or entering construction phase			
Cumulative to date (July 1, 2003 through March 31, 2016)	1	2	3
Total advertised	1	2	3
Percent advertised early or on time	100%	100%	100%
Total award amounts to date	\$119.6	\$27.1	\$146.7

Data source: WSDOT Capital Program Development and Management.

Notes: Numbers may not total 100% due to rounding. The rail projects are primarily delivered through master agreements with BNSF, which administers construction activities on the projects. The data above is unchanged from the previous quarter because no additional rail projects were completed.

1 Rail projects are commitments delivered by BNSF, Sound Transit, ports and operators. Master agreements between WSDOT and lead agencies become the documents that govern the delivery of the project including budget, scope and schedule. The administrative process allows for amendments enabling the projects to be delivered within the parameters of the new amended agreement (on time, and on budget).

WSDOT finishes 12 Nickel ferries projects since 2003

Current Legislative Evaluation and Accountability Program as of March 31, 2016; Dollars in millions

	2003 Nickel Package	2005 TPA Package	Combined Nickel & TPA
Schedule, scope, and budget summary: Completed LEAP projects¹			
Cumulative to date (July 1, 2003 through March 31, 2016)	12	10	22
Percent completed early or on time ²	100%	100%	100%
Percent completed within scope ²	100%	100%	100%
Percent completed under or on budget ²	100%	100%	100%
Baseline cost at completion	\$180.7	\$343.5	\$524.2
Current cost at completion	\$180.7	\$343.5	\$524.2
Percent of total program on or under budget ²	100%	100%	100%
Advertisement record: LEAP projects under construction or entering construction phase			
Cumulative to date (July 1, 2003 through March 31, 2016)	1	0	1
Percent advertised early or on time ²	100%	N/A	100%
Total award amounts to date	\$123.0	\$0	\$123.0

Data source: WSDOT Capital Program Development and Management.

Notes: Numbers may not total 100% due to rounding. 1 Ferries completed projects record includes two 144-car vessels: the Motor/Vessel *Samish*, which started service in June 2015, and the M/V *Tokitae*, which started service in June 2014. It also includes three 64-car vessels: the M/V *Chetzemoka*, which started service in November 2010, the M/V *Salish*, which started service in July 2011, and the M/V *Kennewick*, which started service in February 2012. 2 The Legislature funds Ferries' projects at a grouped-project or Budget Identification Number (BIN) level for terminals and vessels; however, the delivery of construction projects requires that each of these BIN groups be broken into sub-projects with specific scopes, budgets and schedules. The list of sub-projects is updated as the project progresses into the design phase and the budget and schedule are better defined. This process enables WSDOT to deliver the projects within the updated budget amounts and milestones (on time, and on budget).

WSDOT removes 10 projects from Watch List

WSDOT added seven projects to its Watch List and removed 10 this quarter (January through March 2016). As of March 31, there were four projects remaining on the Watch List. See table below and on [p. 38](#) for this quarter's Watch List projects.

WSDOT maintains the Watch List to deliver on the agency's commitment to "No Surprises" reporting and continuously monitors its projects' performance to ensure issues affecting schedule or budget are brought to the attention of legislators, executives and the public. The Watch List provides information on issues that currently affect projects or have the potential to impact project schedules and budgets. The Watch List helps WSDOT track these projects, providing status reports, explaining the factors affecting delivery and what the agency is doing to address them. Projects are removed from the Watch List when these issues are resolved.

WSDOT's Watch List projects that have been reprioritized, deferred or delayed due to funding constraints are listed separately. This quarter there were no Watch List projects with funding constraint issues. See [Gray Notebook 51, p. 40](#), for a list of common issues that



The Interstate 5/Northbound Spokane Street to Lake Washington Ship Canal Bridge is one of several locations along I-5 in need of expansion joint replacement.

might put projects on the Watch List. To read more about the Watch List items, visit http://www.wsdot.wa.gov/Projects/Reports/ProjectDeliveryReports_Archive.htm.

Future editions of the *Gray Notebook* will also report Watch List issues for projects funded by the Connecting Washington transportation package. For an overview of the 2015 revenue package, see [Gray Notebook 58, p. 9](#).

WSDOT's Watch List projects with schedule or budget concerns

Quarter ending March 31, 2016

Project (County)	Date added	Date removed	Watch List issue
SR 3/Belfair Area – Widening and Safety Improvements (Mason) ¹	Mar-2016		Heavy rainfall and a higher-than-expected water table caused three detention ponds to flood. The ponds are being redesigned, which may cause cost increases and project delays.
I-5/Northbound Spokane St. to Lake Washington Ship Canal Bridge – Special Bridge Repair (King) ¹	Mar-2016	Mar-2016	Costs increased by \$3.9 million due to the advancement of replacing 31 additional expansion joints. The work is on track to be complete within the original schedule, and the project has been removed from the Watch List.
SR 112/Nordstrom Creek – Remove Fish Barrier (Clallam) ¹	Mar-2016		Project advertisement was delayed to April 2016 due to delays with acquiring a temporary construction easement. Construction may be delayed to 2017.
U.S. 195/North Fork Palouse River Bridge – Special Repair (Whitman) ¹	Mar-2016	Mar-2016	Combining three projects combined for efficiencies, this contract will replace the U.S. 195 Bridge superstructure instead of performing the originally planned girder repairs. The contract has been delayed to 2017 and has been removed from the Watch List.
SR 501/Smythe Road Vicinity – Slide Repair (Clark) ¹	Feb-2016	Feb-2016	Heavy rainfall in January 2016 caused the roadway embankment to fail and slide into a creek below. Repair work is scheduled to begin in spring 2016 and the project has been removed from the Watch List.
1-5/Northeast 117th St. to SR 104 – Pavement Repair (King) ^{1,2}	Feb-2016	Feb-2016	The cost estimate has increased \$700,000 due to additional deterioration of the roadway. WSDOT is continuing with the contract and the project has been removed from the Watch List.
SR 124/Monument Dr./Railroad Crossing – Construct Bridge (Walla Walla)	Jan-2016	Jan-2016	Project costs increased \$1.7 million due to changes in unit bid prices, water quantities and structural design. The project was delayed to allow additional time for coordination with the railroad and right of way negotiations. Project advertisement is planned for spring 2016 and the project has been removed from the Watch List.

Table continued on [p. 38](#)

Four projects remain on WSDOT's Watch List

Table continued from [p. 37](#)

Project (County)	Date added	Date removed	Watch List issue
I-5/Mellen St. to Blakeslee Junction – Add Lanes, Interchange Improvements (Lewis)	Nov-2015	Jan-2016	The operationally complete date has been delayed nine months from December 2015 to September 2016. Paving work on connecting bridges was not complete before the end of the 2015 construction season. Work will restart in summer 2016, and the project has been removed from the Watch List.
SR 92/Pilchuck River – Chronic Environmental Deficiency (Snohomish)	Jun-2015	Feb-2016	There is a potential cost increase due to continuing river bank erosion. Advertisement is scheduled for spring 2016 and the project has been removed from the Watch List.
SR 524/Yew Way – Railroad Crossing Improvements (Snohomish)	Jun-2015	Feb-2016	Right of way issues delayed the project schedule. Advertisement is scheduled for fall 2016 and construction completion for spring 2017. The project has been removed from the Watch List.
SR 302/North of East Victor Rd. – Culvert Replacement (Mason)	Apr-2015	Jan-2016	The schedule was delayed one year to allow time to acquire environmental permits and a permanent construction easement. The project is also undergoing a redesign, delaying construction to 2016. WSDOT has approved the new schedule, and the project has been removed from the Watch List.
SR 161/24th St. East to Jovita – Add Lanes (Pierce)	Sep-2014		This project was operationally complete in August 2014 and is facing a potential cost increase pending a claim from the contractor.
SR 410/White River Bridge 410/101 – Bridge Elements Repair (King, Pierce)	Aug-2015	Jan-2016	Permanent work to repair the damaged overhead bridge support structure was delayed by seven months from September 2015 to April 2016. The cost estimate increased \$700,000. The schedule and costs have been approved by WSDOT, and the project has been removed from the Watch List.
SR 99/South King St. Vicinity to Roy St. – Viaduct Replacement (King)	Dec-2013		The tunnel boring machine was in a planned maintenance stop before tunneling under the Alaskan Way Viaduct. The projected tunnel opening date is May 2018.

Data sources: WSDOT Capital Program Development and Management and WSDOT Regions.

Notes: 1 Projects have been added to the Watch List during the current quarter. 2 This project was previously removed from the Watch List but has been added again due to emerging issues.



The State Route 99 tunnel boring machine, Bertha, underwent planned maintenance before tunneling under the Alaskan Way Viaduct in Seattle.

WSDOT reporting change orders costing \$500,000 or more online

During the quarter ending March 31, 2016, WSDOT approved one change order of \$500,000 or more. The change order was approximately \$1.5 million and addressed the need to extend marine shaft casings, which provide stabilization for shaft excavation, for the State Route 520 West Approach Bridge substructure. The change order provided an interim estimated payment until the full work scope is assessed.

After an extensive review, which can involve subject matter experts, contract specialists, and other outside stakeholders, WSDOT must sometimes change its engineers' original plans and specifications in order to complete projects. When this occurs, WSDOT issues a formal modification (or change order) to the contract, containing a description of the change and details about how or if the contractor may be compensated for it. Each month, WSDOT posts all change orders estimated to cost \$500,000 or more online at <http://bit.ly/WSDOTchangeorders>.

WSDOT continues work on Nickel and TPA projects

Fifteen WSDOT projects in construction phase as of March 31, 2016

Nickel and Transportation Partnership Account projects; Costs estimated at completion; Dollars in millions

Project description Cumulative to date (County)	Fund Type	On-time advertised	Ad date	Contractor	Operationally complete date	Award amount
I-5 Concrete Rehabilitation Program (King) Multiple contractors continue to work on this project.	Nickel	√	Jul-2009	Multiple contractors	May-2023	\$9.8
SR 99/Alaskan Way Viaduct – Replacement (King) This project replaces an aging viaduct with a new viaduct on the south end and adds a tunnel in downtown Seattle. WSDOT is funding or leading 30 contracts or projects as part of the viaduct replacement effort. Active Nickel/TPA projects are shown below:						
• SR 99/South King Street Vicinity to Roy Street – Viaduct Replacement	Nickel/TPA	√	May-2010	Seattle Tunnel Partners	TBD	\$1,089.7
			Oct-2013	Guy F. Atkinson Construction	TBD	\$41.6
This subproject has several contract components; the bored tunnel, north and south access connections and associated work. The schedule for this project changes frequently and WSDOT cannot verify the contractor's schedule at this time.						
US 395/North Spokane Corridor (NSC) – Design and Right of Way – New Alignment (Spokane)	Nickel/TPA					
The US 395/North Spokane Corridor project is ongoing and several phases still require funding.						
I-5/Mellen Street Interchange to Grand Mound Interchange – Add Lanes (Thurston, Lewis)	TPA					
• I-5/Mellen Street to Blakeslee Junction – Add Lanes, Interchange Improvements	TPA	√	Mar-2012	Cascade Bridge	Sep-2016	\$21.6
The operationally complete date was delayed due to schedule adjustments needed for complex traffic revisions, demolitions, repairs and painting of nearby bridges.						
• I-5/Mellen Street Interchange – Interchange Improvements	TPA	√	Combined with project above for construction efficiencies.			
SR 502/I-5 to Battle Ground – Add Lanes – Stage 2 (Clark)	TPA	√	Jan-2014	Rotschy	Oct-2016	\$27.5
I-90/Concrete Rehabilitation						
• I-90/Oakes Avenue Interchange to Peoh Road Bridge Vicinity Westbound – Replace/Rehabilitate Concrete (Kittitas)	Nickel	√	Mar-2015	Midmountain Contractors	Nov-2016	\$10.6
SR 520/Bridge Replacement and HOV (King)						
• SR 520/I-5 to Medina – Evergreen Point Floating Bridge and Landings	TPA	√	Dec-2010	Kiewit-General, A Joint Venture	Apr-2016	\$586.6
I-205/Mill Plain Interchange to Northeast 18th Street – Build Interchange – Stage 2 (Clark)	TPA	Late	Aug-2014	Cascade Bridge	Dec-2016	\$24.3
Advertisement was delayed to address practical design changes to the project.						
SR 3/Belfair Area – Widening and Safety Improvements (Mason)	TPA	Late	Apr-2015	Ceccanti	Nov-2016	\$10.3
Advertisement was delayed due to revised project limits, which affected right of way acquisition.						
SR 167/8th St. East Vicinity to South 277th St. Vicinity – Southbound Managed Lane (King, Pierce)	TPA	√	Aug-2014	Guy F. Atkinson Construction	Jun-2017	\$53.9
SR 167/SR 18 Interchange West-North Ramp North- East Ramp Overcrossing – Seismic Retrofit (Pierce)	TPA	√	Combined with project above for construction efficiencies.			
I-5/Tacoma HOV Improvements (Pierce)	Nickel/TPA					
• I-5/M Street to Portland Avenue – Add HOV Lanes	Nickel	√	Mar-2014	Mid-Mountain Contractors	Feb-2017	\$1.7
I-90/Snoqualmie Pass East – Hyak to Keechelus Dam – Corridor Improvement (Kittitas)	TPA					
• I-90/Snowshed to Keechelus Dam Phase 1C – Replace Snowshed and Add Lanes	TPA	Late	Apr-2011	Guy F. Atkinson Construction	Oct-2017	\$177.1
Advertisement was delayed to address fire and safety issues with the original snowshed design, resulting in long-term savings.						
SR 532/Pilchuck Creek Tributary – Fish Barrier (Snohomish)	TPA	√	Dec-2015	Faber Construction Corp.	Oct-2016	\$1.9
SR 16/Anderson Creek Tributary to Sinclair Inlet – Fish Barriers (Kitsap)	TPA	Late	Feb-2016	Scarsella Bros.	Oct-2016	\$4.4

WSDOT finishes latest TPA projects on time, on budget

Biennial summary: Five projects completed in 2015-2017 biennium

Nickel and Transportation Partnership Account projects; Costs estimated at completion; Dollars in millions

Cumulative to date	Fund type	On-time advertised	On-time completed	Within scope	Baseline estimated cost	Current estimated cost	On budget completed
Current biennium reporting on capital project delivery							
2015-2017 biennium summary¹ This information is updated quarterly throughout the biennium.	0 Nickel 5 TPA	5 on time 0 late	5 on time 0 late	5	\$417.2	\$412.1	5 on budget 0 over budget
Earlier biennia reporting on capital project delivery							
2013-2015 biennium summary¹ See Gray Notebook 58, p. 55 .	6 Nickel 15 TPA	16 on time 5 late	15 on time 6 late	21	\$555.7	\$514.0	18 on budget 3 over budget
2011-2013 biennium summary See Gray Notebook 50, p. 31 .	5 Nickel 36 ¹ TPA	31 ¹ on time 10 late	32 ¹ on time 9 late	41 ¹	\$1,485.5 ¹	\$1,459.6 ¹	37 ¹ on budget 4 over budget
2009-2011 biennium summary² See Gray Notebook 42, p. 45 .	16 Nickel 74 TPA	73 on time 17 late	80 on time 10 late	90	\$1,641.6	\$1,597.0	85 on budget 5 over budget
2007-2009 biennium summary See Gray Notebook 34, p. 58 .	42 Nickel 69 TPA	91 on time 20 late	96 on time 15 late	111	\$1,685.7	\$1,685.2	102 on budget 9 over budget
2005-2007 biennium summary See Gray Notebook 26, p. 5 .	52 Nickel 24 TPA	71 on time 5 late	68 on time 8 late	76	\$673.9	\$668.8	67 on budget 9 over budget
2003-2005 biennium summary See Gray Notebook 19, p. 5 .	27 Nickel	25 on time 2 late	27 on time 0 late	27	\$124.6	\$124.4	25 on budget 2 over budget

Data source: WSDOT Capital Program Development and Management.

Notes: Dollar amounts are rounded up. 1 The number of projects has been updated since *Gray Notebook 51* to reflect the addition of a completed project that was reported after the biennium. 2 In *Gray Notebooks* published before the 2009-2011 biennium, WSDOT used a project count of 391 combined Nickel and TPA projects for project completion data. In conjunction with the 2009-2011 biennium wrap-up, the tables were reorganized to present the completed information for the current project count of 421. In the revised count, several projects that were developed as part of larger programs, like bridge, rail, and roadside safety, were included in the new count though they had been completed earlier.

WSDOT delivers 14 Nickel rail projects since 2003

The performance summaries below and those on [p. 42](#) provide status reports on WSDOT's delivery of the Nickel and Transportation Partnership Account programs compared to the original legislative funding packages presented in the 2003 and 2005 Legislative Evaluation and Accountability Program lists.

The Legislature has approved changes to these funding packages and assigned funds to different projects since these two funding packages were created. As a result, the data listed below and on the next page show the original LEAP, which differs from the current legislative budgets on [pp. 35-36](#).

The 2003 and 2005 tables feature budget items including pre-construction and environmental studies that were in the original funding packages. The original LEAP tables do not include projects that cities, counties and tribes collaborate on with WSDOT to complete.

These tables show the total number of projects and the percentage of projects that are complete, underway, scheduled to start or affected by a legislatively approved change of project scope. They also give budget updates showing original planned budgets and the current planned or actual expenditure, breaking out programs by category: highways, ferries and rail.

WSDOT project delivery and budget update: Original 2003 Nickel Transportation Funding Package As of March 31, 2016; Dollars in millions

Project delivery update	Total program		Highways		Ferries		Rail	
	Number of projects	Percent of total	Number of projects	Percent of program	Number of projects	Percent of program	Number of projects	Percent of program
Project number and phase	156		127		5		24	
Completed projects	130	83%	114	90%	2	40%	14	58%
Total projects underway	13	8%	10	8%	2	40%	1	4%
<i>In pre-construction phase</i>	4		3		1		0	
<i>In construction phase</i>	9		7		1		1	
Projects starting in the future	1	1%	0	0%	0	0%	1	4%
Projects deferred or deleted from program	12	8%	3	2%	1	20%	8	33%
<i>Number of legislatively-approved scope changes</i>	20		18		0		2	
<i>Pre-construction starts within six months</i>	0		0		0		0	
<i>Construction starts within six months</i>	0		0		0		0	

Data source: WSDOT Capital Program Development and Management.

Notes: Totals do not include projects that cities, counties and tribes collaborate on with WSDOT to complete. Percents may not add to 100 due to rounding.

Project budget update	Total program		Highways		Ferries		Rail	
	Budget	Percent of total	Budget	Percent of program	Budget	Percent of program	Budget	Percent of program
Total original legislative planned budget	\$3,887.5		\$3,380.1		\$297.9		\$209.5	
Original plan, 2003 through 2013-2015 biennium	\$3,887.5	100%	\$3,380.1	100%	\$297.9	100%	\$209.5	100%
Actual expenditures, 2003 through 2013-2015 biennium	\$4,093.7	105%	\$3,537.7	105%	\$423.2	142% ¹	\$132.8	63%
Original plan through 2015-2017 biennium	\$3,887.5	100%	\$3,380.1	100%	\$297.9	100%	\$209.5	100%
Current plan through 2015-2017 biennium	\$4,320.1	111% ¹	\$3,682.6	109% ¹	\$504.7	169% ¹	\$132.8	63%
Actual expenditures, 2003 through March 31, 2016	\$4,165.3	107% ¹	\$3,560.5	105% ¹	\$471.8	158% ¹	\$133.1	64%

Data source: WSDOT Capital Program Development and Management.

Notes: Expenditures are Nickel funds only. Totals do not include projects that cities, counties and tribes collaborate on with WSDOT to complete. ¹ The Legislature added funds for construction of a second 144-vehicle ferry for WSDOT Ferries and for highway construction during the first quarter (July through September) of the 2013-2015 biennium. These funds put Ferries above its original funding level and will result in continued over-performance by this program.

WSDOT completes eight TPA rail projects since 2005

WSDOT project delivery and budget update: Original 2005 Transportation Partnership Account

As of March 31, 2015 Dollars in millions

	Total program		Highways		Ferries		Rail	
Project delivery update	Number of projects	Percent of total	Number of projects	Percent of program	Number of projects	Percent of program	Number of projects	Percent of program
Project number and phase	248		229		4		15	
Completed projects	199	80%	190	83%	1	25%	8	53%
Total projects underway	29	12%	26	11%	0		3	20%
<i>In pre-construction phase</i>	9		8		0		1	
<i>In construction phase</i>	20		18		0		2	
Projects starting in the future	6	2%	2	1%	1	25%	3	20%
Projects deferred or deleted from program	15	6%	12	5%	2	50%	1	7%
<i>Number of legislatively-approved scope changes</i>	23		23		0		0	
<i>Pre-construction starts within six months</i>	1		1		0		0	
<i>Construction starts within six months</i>	0		0		0		0	

Data source: WSDOT Capital Program Development and Management.

Notes: Totals do not include projects that cities, counties and tribes collaborate on with WSDOT to complete. Percents may not add to 100 due to rounding. Since the Transportation Partnership Account program was passed in 2005, the Legislature has approved changes to WSDOT Ferries' construction program so that the current budget does not match the original budget. Among the changes, TPA funding was provided for three 64-car ferries. For definitions about terminology used in Original LEAP, see [Gray Notebook 53, p. 40](#).

	Total program		Highways		Ferries		Rail	
Project budget update	Budget	Percent of total	Budget	Percent of program	Budget	Percent of program	Budget	Percent of program
Total original legislative planned budget	\$6,982.1		\$6,678.5		\$185.4		\$118.3	
Original plan, 2005 through 2013-2015 biennium	\$6,472.5	93%	\$6,218.0	93%	\$136.3	74%	\$118.3	100%
Actual expenditures, 2005 through 2013-2015 biennium	\$4,627.1	66%	\$4,476.3	67%	\$77.1	42%	\$73.7	62%
Original plan through 2015-2017 biennium	\$6,472.5	93%	\$6,218.0	93%	\$136.3	74%	\$118.3	100%
Current plan through 2015-2017 biennium	\$5,716.9	82%	\$5,563.7	83%	\$77.1	42%	\$76.2	64%
Actual expenditures, 2005 through March 31, 2016	\$5,006.2	72%	\$4,854.0	73%	\$77.1	42%	\$75.1	64%

Data source: WSDOT Capital Program Development and Management.

Notes: Expenditures are TPA funds only. Totals do not include projects that cities, counties and tribes collaborate on with WSDOT to complete.

WSDOT advertises 104 Pre-existing Funds projects

WSDOT advertised 104 of 121 Pre-existing Funds projects in the third quarter (January through March 2016) of the 2015-2017 biennium.

Of the 104 advertised projects, 102 were on time and two (like the SR 410/Miner Creek Vicinity – Emergency Repairs) were due to unexpected, emergent events. Of the remaining PEF projects scheduled for advertisement this quarter, one was advertised in an earlier quarter, and 16 were delayed to a future quarter within the biennium. See below and [pp. 44-45](#) for this quarter's PEF advertisements, and [Gray Notebook 51, p. 38](#) for full definitions of PEF terms.

WSDOT's current cost to complete the 161 PEF projects actually advertised through the third quarter of the 2015-2017 biennium is \$268.5 million, about \$2.7 million (1%) more than the original value of \$265.8 million.

WSDOT completes 81.4% of Pre-existing Funds project advertisements on time for biennium 2015-2017 biennium (July 2015 through June 2017)

Project status	Quarter ¹	Cumulative ²
Projects advanced ³	0	16
Projects advertised on time	102	131
Emergent projects advertised	2	7
Late projects advertised	0	7
Total projects advertised	104	161
Projects advertised early ⁴	1	2
Projects delayed within the biennium	16	31
Projects deferred out of the biennium	0	2
Projects deleted	0	0

Data source: WSDOT Capital Program Development and Management.

Notes: 1 Quarter refers to January through March 2016. 2 Cumulative refers to July 2015 through June 2017. 3 Advanced includes projects that were moved up from future quarters. 4 Early includes projects from the quarter that were advertised in an earlier quarter.

The current estimated cost to complete the 469 advertisements planned for the 2015-2017 biennium is \$809.9 million, about \$45.2 million (5.3%) less than the original value of \$855.1 million for these projects. Much of this reduction is due to the lower cost of oil (a primary ingredient in asphalt and chip seal paving), which has led to reduced costs on PEF paving projects.

Improvement and preservation cash flows less than projections

Cumulatively, WSDOT planned to have \$236 million in improvement program cash flow during the third quarter of the 2015-2017 biennium, but had \$152 million instead

Actual cost to complete project advertisements indicates expenses lower than engineer's estimates

2015-2017 biennium (July 2015 through June 2017); Quarter ending March 31, 2016; Dollars in millions

	Number of projects	Original value	Current cost to complete
Total PEF advertisements planned for the 2015-2017 biennium	469	\$855.1	\$809.9
Planned advertisements through March 31, 2016	159	\$265.8	\$259.1
Actual advertisements through March 31, 2016	161	\$265.8	\$268.5

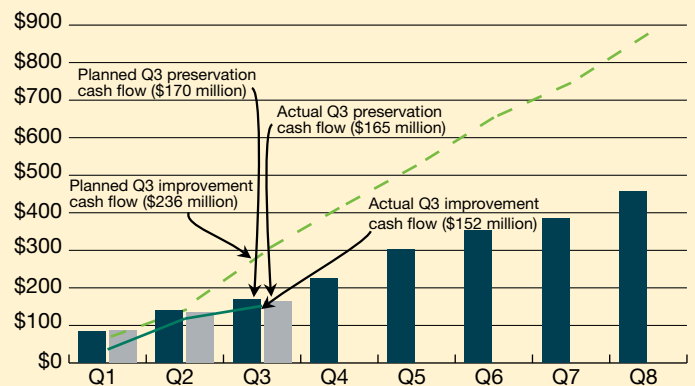
Data source: WSDOT Capital Program Development and Management.

(approximately 35.6% less). This variance was due to WSDOT basing initial improvement program allotments on historical averages for the quarter. WSDOT is adjusting these allotments to better reflect current spending plans. The improvement program funds projects that optimize highway capacity, enhance safety and reduce the environmental impact of construction projects.

Cumulatively, WSDOT planned to have \$170 million in the preservation program cash flow during the third quarter of the 2015-2017 biennium, but had \$165 million (approximately 2.9% less). The preservation program includes pavement, bridges and other projects that maintain the structural integrity of the existing highway system.

Contributors include Dean Walker and Joe Irwin

Cumulative Pre-existing Funds preservation and improvement cash flows lower than planned levels 2015-2017 biennium; Quarter ending March 31, 2016; Planned vs. actual expenditures



Data source: WSDOT Capital Program Development and Management.

Note: Q3 refers to the third quarter (January through March 2016) of the 2015-2017 biennium (July 2015 through June 2017).

WSDOT advertises 104 Pre-existing Funds projects

102 Pre-existing Funds projects advertised on time during quarter

January through March 2016

On Time (102)

North Central Region 2015-2017 Regionwide Shoulder Rumble Strip	U.S. 12/Elma Gate Rd. to East of Blockhouse Rd. – Chip Seal
I-5/Northbound Northeast 39th St. and SR 500/Northeast 15th Ave. – Intersection Improvements	U.S. 101/South of Lund Rd. to North of SR 110 – Chip Seal
I-5/Northbound Off Ramp at Fourth Plain Blvd. – Intersection Improvements	SR 112/Joe Creek – Remove Fish Barrier
U.S. 2/Moses Coulee to SR 17 – Seal	SR 509/East 21st St. to East 11th St. – Paving
U.S. 97A/Wenatchee North – Seal	I-705/North of Pacific Ave. to Schuster Parkway – Paving
SR 8/West of McCleary to Junction U.S. 101 – Paving	North Central Region – Regionwide Curve Warning Signing
SR 107/Chehalis River Bridge to Slough River Bridge – Paving	SR 203/SR 202 to Tolt River Bridge – Paving
SR 22/SR 221 Intersection – Replace Lighting System	SR 202/Northeast 124th St. Vicinity to Northeast Ames Lake Rd. – Paving
SR 22/SR 223 Intersection – Replace Lighting System	SR 202/SR 520 to 228th Ave. Northeast – ADA Compliance
SR9/Bowen Rd. Vicinity to Sumas Ave. Vicinity – Rumble Strip Installation	SR 507/Lacamas Creek Tributary to Muck Creek – Fish Barrier Removal
SR 99/SR 525 Interchange Vicinity to Lincoln Way Vicinity – Paving	SR 202/Little Bear Creek – Fish Barrier Removal
SR 99/SR 525 Interchange Vicinity to Lincoln Way Vicinity – ADA Compliance	I-5/Northbound Hill Ditch Bridge to Joe Leary Slough – Paving
SR 525/148th St. Southwest Vicinity to 132nd St. Southwest – Paving	I-5/Southbound Hill Ditch Bridge to Railroad Bridge – Paving
SR 525/132nd St. Southwest Vicinity to Lincoln Way Vicinity – ADA Compliance	SR 507/Golphnee Loop Southeast to 295th St. South – Paving
SR 536/SR 20 Vicinity to Mount Vernon – Rumble Strip Installation	U.S. 2/SR 211 to South Shore Rd. – Chip Seal
SR 544/SR 539 to Everson – Rumble Strip Installation	SR 20/Narcisse Rd. to Spruce Canyon Rd. – Paving
SR 117/U.S. 101 to Marine Drive – Paving	SR 27/Pullman-Albion Rd. to Palouse-Albion Rd. – Chip Seal
SR 129/2nd Street to Highland Ave. – Paving	U.S. 195/Idaho State Line to Colton – Chip Seal
SR 129/2nd Street to Highland Ave. – ADA Compliance	SR 167/Northbound South 212th St. to 43rd St. Vicinity – Paving
Eastern Region Guardrail Installation and Retrofit	U.S. 101/Swanson Creek – Remove Fish Barrier
2015-2017 Eastern Region Regionwide Basic Safety – Guardrail	SR 104/Grovers Creek – Remove Fish Barrier
SR 161/South Creek – Remove Fish Barrier	SR 307/Dogfish Creek – Fish Barrier Removal
I-5/I-405 Interchange – Southbound I-5 to I-405 – High Friction Surface	SR 307/Gamble Creek – Remove Fish Barrier
I-90/I-405 Interchange – Southbound to Westbound Ramp – High Friction Surface	I-90/Price Creek SnoPark Vicinity to Cabin Creek Vicinity Westbound – Paving
2015-2017 Olympic Region – Regionwide Curb Ramps – ADA Compliance	SR 18/Eastbound West Valley Highway South Vicinity to C St. Southwest Vicinity – Paving
South Central Region – Regionwide Curve Warning Signing – Chevron Alignment 2	I-82/Yakima River Bridge to 1.6 Miles East of Gibbon Rd. Interchange – Paving
SR 542/High Creek – Fish Passage	SR 546/Northwood Rd. – Intersection Improvements
U.S. 101/Skookum Creek Bridge to Deschutes Parkway – Paving	SR 108/Little Creek – Remove Fish Barrier
SR 121/Blooms Ditch – Remove Fish Barriers	I-90/Canyon Rd. Interchange Vicinity to Stevens Rd. Vicinity – Paving
I-82/I-90 Interchange Vicinity – Paving	I-82/Eastbound Lanes West of Yakitat Rd. Vicinity – Paving
I-90/U.S. 97 to Canyon Road Interchange Vicinity – Paving	I-90/West Summit Interchange – Paving
I-90/East Summit Interchange – Paving	I-90/Westbound Mercer Slough to West Lake Sammamish Parkway – Paving
I-90/Hyak Interchange – Paving	U.S. 12/Pasco Kahlottus Road Vicinity to Tank Farm Road Vicinity – Paving
SR 906/West Summit Interchange to Hyak Interchange – Paving	U.S. 12/SR 124 to McNary Pool Westbound – Paving

Table continued on [p. 45](#)

WSDOT advertises 104 Pre-existing Funds projects

102 Pre-existing Funds projects advertised on time during quarter

January through March 2016

On Time (102, continued from p. 44)

I-182/Queensgate Drive Interchange – Paving	SR 112/Jansen Creek – Remove Fish Barrier
I-182/Road 100 Interchange – Paving	Olympic Region – Regionwide Curve Warning Signing – Chevron Alignment 2
I-182/Road 68 Interchange – Paving	I-82/Selah Creek Eastbound Safety Rest Area – Water System Improvements Phase 1 – South Central Region
I-182/U.S. 395 South to SR 397 – Paving	I-90/Winchester Westbound SRA Well Repair – Minor Rehabilitation
I-182/U.S. 395 to SR 397 – ADA Compliance	North Central Region 2015-2017 Communications Upgrade
U.S. 395/West Kennewick Ave. to I-182 Bridge – Paving	SR 510/Yelm Ave West to SR 507 – Paving
U.S. 395/West Kennewick Ave. to I-182 Bridge – ADA Compliance	South Central Region 2015-2017 Regionwide Basic Safety – Guardrail
U.S. 101/South Bend – Bank Stabilization	2015-2017 South Central Region – Guardrail Installations
I-5/Fisher Creek – Fish Passage	U.S. 12/Yakima Vicinity – Install Four-Strand Cable Median Barrier
U.S. 12/Tucannon River Bridge to Pomeroy – Chip Seal	I-82/Yakima Vicinity – Install Four-Strand Cable Median Barrier
SR 22/Mabton to SR 221 – Chip Seal	I-182/Pasco Vicinity – Install Four-Strand Cable Median Barrier
U.S. 97/Yakima County Line to Satus Creek Vicinity – Chip Seal	SR 240/Kennewick Vicinity – Install Four-Strand Cable Median Barrier
SR 129/1.5 Miles South of Cemetery Road to 2nd St. – Chip Seal	North Central Region Centerline Rumble Strips/Section A
SR 221/Paterson to Prosser Vicinity – Chip Seal	North Central Region Centerline Rumble Strips/Section B
SR 397/Piert Rd. to S Yew Street – Chip Seal	US 2/4 Miles West of Waterville – High Friction Surface Treatment
SR 821/Selah Creek to Umtanum Recreation Site Vicinity – Chip Seal	U.S. 97/Chelan Falls South – Seal
SR 104/Hood Canal Bridge – Special Repair	SR 501/Smythe Road Vicinity – Slide Repair

Emergent (2)

I-5/Maytown and Scatter Creek Safety Rest Area Sewer Lift Pumps – Minor Rehabilitation	SR 410/Miner Creek Vicinity – Emergency Repairs
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Early (1)

SR 142/Klickitat River Bridge – Replace Bridge	
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Delayed (16)

I-82/Prosser Rest Area – ADA Compliance Delayed to allow for additional review.	SR 225/Benton City – ADA Compliance Delayed to allow for additional review.
SR 397/South 10th Ave. to I-182 – ADA Compliance Delayed to allow for additional review.	SR 24/Vernita Rest Area – ADA Compliance Delayed to accommodate design office workload.
I-90/Indian John Hill Rest Area Eastbound and Westbound – ADA Compliance Delayed to allow for additional review.	I-82/Selah Creek Rest Area Eastbound and Westbound – ADA Compliance Delayed to allow for additional review.
North Central Region Strategic Pavement Preservation 2015-2017 Delayed for environmental permitting.	SR 397/South Yew Street to South 10th Ave. – ADA Compliance Delayed to allow for additional review.
Northwest Region Intersection Safety Implementation 2015-2017 Work delayed and to be completed by state forces.	SR 524/Yew Way – Railroad Crossing Improvements Delayed for right of way easement.
SR 104/Sunset Ave. – Railroad Crossing Improvements Work delayed and to be completed by state forces.	SR 823/Yakima to Selah – Paving Delayed to accommodate design office workload.
SR 112/Nordstrom Creek – Remove Fish Barrier Delayed for a right of way easement.	U.S. 12/Old Naches Highway Vicinity to I-82 – Paving Delayed to accommodate design office workload.
SR 16/Tacoma Narrows Bridge – Replace Maintenance Platform Work delayed and to be completed by state forces.	U.S. 2/97 Lower Sunnyslope Rd. – Access Control Delayed to accommodate additional public comment.

Data source: WSDOT Capital Program Development and Management.

Gray Notebook subject index, archives and acronym list online

Readers can access the *Gray Notebook* subject index online at <http://bit.ly/GNBsubjectindex>. *Gray Notebook* editions are available at <http://bit.ly/GNBarchives>, and WSDOT's transportation acronym guide can be viewed at <http://bit.ly/WSDOTacronyms>.

Understanding reporting periods

WSDOT programs report their performance data during different periods to best fit the work they do. For example, a program that receives substantial federal funds may report performance based on the federal fiscal year.

The charts below show the reporting periods for *Gray Notebook* 61. January through March 2016 is the first quarter of the calendar year (Q1 2016); the third quarter of the state's fiscal year (Q3 FY2016); and the second quarter of the federal fiscal year (Q2 FFY2016). It is also the third quarter of the 2015-2017 biennium, which follows the current budget set by the Washington State Legislature.

Calendar, fiscal and federal fiscal quarters

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
GNB 61			GNB 62			GNB 63			GNB 64		
Q1 2016			Q2 2016			Q3 2016			Q4 2016		
Q3 FY2016			Q4 FY2016			Q1 FY2017			Q2 FY2017		
Q2 FFY2016			Q3 FFY2016			Q4 FFY2016			Q1 FFY2017		

2015-2017 biennial quarters

Period	Quarter	Period	Quarter
Jul – Sep 2015	Q1	Jul – Sep 2016	Q5
Oct – Dec 2015	Q2	Oct – Dec 2016	Q6
Jan – Mar 2016	Q3	Jan – Mar 2017	Q7
Apr – Jun 2016	Q4	Apr – Jun 2017	Q8

Notes: A calendar year begins January 1 and ends December 31. Washington state's fiscal year begins July 1 and ends June 30. The federal fiscal year begins October 1 and ends September 30. Biennia begin July 1 and end two years later on June 30.

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The *Gray Notebook* is developed and produced by the small team at WSDOT's Office of Strategic Assessment and Performance Analysis, and articles feature bylines indicating key contributors from dozens of WSDOT programs.

The *Gray Notebook* and *Gray Notebook Lite* are printed in-house by Ronnie Jackson, Trudi Phillips, Talon Randazzo, Larry Shibley, Oma Venable and Deb Webb. OSAPA's Linda Pasta coordinates distribution. WSDOT's graphics team of Jinger Hendricks, Diana Lessard, Fauziya Mohamedali, Erica Mulherin and Steve Riddle provides creative help and assists with graphics, while WSDOT communicators typically take the photographs featured throughout each edition.

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