GRAY NOTEBOOK

GNB

Washington State Department of Transportation

Quarterly performance analysis of WSDOT's multimodal systems and programs

Roger Millar, *Secretary of Transportation, PE, FASCE, FAICP*

Edition 75 ▪ September 2019

OVERDUE FOR AN OVERHAUL

WASHINGTON STATE FERRIES FACES INCREASING DEMANDS WITH AN AGING FLEET

Air time

WSDOT Aviation embraces technology to improve services

The right moves

WSDOT Active Transportation strides, pedals and rolls forward

All inclusive

WSDOT enhances its workforce through diversity

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The Gray Notebook team

WSDOT's Gray Notebook is produced by the Performance Management and Strategic Management offices of the Transportation Safety & Systems Analysis Division: Hide Aso, Dan Davis, Sreenath Gangula, Helen Goldstein, Joe Irwin, Lisa Mikesell, Dustin Motte and Yvette Wixson. TSSA is directed by John Milton.

PERFORMANCE HIGHLIGHTS reported for the quarter ending September 30, 2019

54 PERCENT of WSDOT-owned **primary buildings** are in poor condition

8 of 9 counties with permanent **pedestrian** and **bicyclist** counters reported increased trips from 2017 to 2018

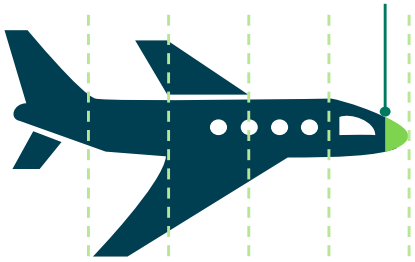
59 PERCENT farebox recovery rate by **WSDOT-sponsored Amtrak Cascades** in fiscal year 2019

66 stormwater **treatment facilities** were constructed by WSDOT in fiscal year 2019

$26.3 MILLION in economic benefit provided by WSDOT's **Incident Response** teams clearing 15,791 incidents during the quarter

Construction projects completed with **Nickel** or **Transportation Partnership Account** funds **383**

WSDOT SURPASSED ITS 95% GOAL FOR REGISTRATION COMPLIANCE WITH 6,529 WASHINGTON AIRCRAFT RENEWED



75 WSDOT'S STRATEGIC PLAN

WSDOT's Strategic Plan provides organizational alignment

WSDOT's strategic plan provides organizational alignment for the agency's employees statewide. This plan—developed in 2017—includes mission, vision and value statements that describe the agency's purpose, what it aspires to achieve and the beliefs that guide how WSDOT does business:

- **Mission:** WSDOT provides safe, reliable and cost-effective transportation to improve communities and economic vitality for people and businesses
- **Vision:** Washington travelers have a safe, sustainable and integrated multimodal transportation system
- **Values:** Safety, Engagement, Sustainability, Leadership, Integrity and Innovation

The strategic plan includes three goals that provide a road map for achieving the agency's mission and vision. The goals are Inclusion, Practical Solutions and Workforce Development.

Each goal is associated with a set of strategies that demonstrate how WSDOT is achieving the agency's mission and vision. More information about the goals and strategies can be found on WSDOT's Strategic Plan Dashboard at bit.ly/wsdotdashboard. WSDOT continually updates the dashboard to reflect progress to date.

WSDOT is implementing its Strategic Plan

The agency is working to implement the Strategic Plan and is furthering the Inclusion goal through robust support of apprenticeships.

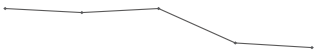
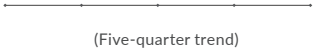
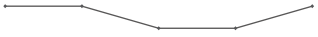
Apprentices worked 703,708 hours on WSDOT projects in 2018, gaining experience that is designed to help them advance in their trades. Of the apprentice hours reported, 312,741 hours (approximately 44%) were worked by women and minorities. These efforts show the high value WSDOT puts on diversity and inclusion, and how the agency is working to ensure fair and equal opportunities for everyone to participate in its contracts.

Gray Notebook 75 features an article on Inclusion, which details how WSDOT used strategies such as apprenticeship support, a mentor/protégé program and Disadvantaged Business Enterprise programs to support diversity. For more information, see pp. 45-49.

WSDOT'S Goals

- **Inclusion**
  Strengthen commitment to diversity and engagement in all of WSDOT's business processes, functions and services to ensure every voice is heard
- **Practical Solutions**
  Prioritize innovative, timely and cost-effective decisions with our partners to operate, maintain, plan and build our multimodal transportation system
- **Workforce Development**
  Be an employer of choice, creating a modern workforce while attracting and retaining quality workers to deliver our legislative, regulatory and service requirements

75 STATEWIDE TRANSPORTATION POLICY GOALS DASHBOARD

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 2017 & 2018)	0.92	0.88	<1.00[1]	✓		↓
Rate of **recordable incidents** for every 100 full-time WSDOT workers (Annual measure: calendar years 2017 & 2018)	4.7	5.0	<5.0	—		↓
Preservation						
Percentage of state **highway pavement** in fair or better condition by vehicle miles traveled (Annual measure: calendar years 2016 & 2017)	92.2%	91.8%	≥ 90%	✓		↑
Percentage of **state bridges** in fair or better condition by bridge deck area (Annual measure: fiscal years 2018 & 2019)	92.5%	92.9%	≥ 90%	✓		↑
Mobility[2] (congestion relief)						
Highways: Vehicle Miles Traveled **(VMT)** on state highways (Annual measure: calendar years 2017 & 2018)	34.6 billion	35.4 billion	*	N/A		↓
Highways: Average **incident clearance times** for all Incident Response program responses (Calendar quarterly measure: Q3 2018 & Q3 2019)	13.0 minutes	13.3 minutes	*	N/A	 (Five-quarter trend)	↓
Ferries: Percentage of trips departing on time[3] (Fiscal quarterly measure: year to year Q1 FY2019 & Q1 FY2020)	85.7%	85.5%	≥ 95%	—	 (Five-quarter trend)	↑
Rail: Amtrak Cascades on-time performance[4] (Annual measure: fiscal years 2017 & 2018)	56.3%[5]	53.9%	≥ 88%	—		↑
Environment						
Number of WSDOT **stormwater management facilities** constructed (Annual measure: fiscal years 2018 & 2019)	78	66	*	N/A		Not applicable
Cumulative number of WSDOT **fish passage improvement projects** constructed (Annual measure: calendar years 2017 & 2018)	330	345	*	N/A		↑
Stewardship						
Cumulative number of Nickel and TPA **projects completed**[6] and **percentage on time**[7] (Biennial quarterly measure: Q8 2017-2019 & Q1 2019-2021, trendline for percentage on time)	382/ 86%	383/ 86%	≥ 90% on time	—	 (Five-quarter trend)	↑
Cumulative number of Nickel and TPA **projects completed**[6] and **percentage on budget**[7] (Biennial quarterly measure: Q8 2017-2019 & Q1 2019-2021, trendline for percentage on budget)	382/ 91%	383/ 91%	≥ 90% on budget	✓	 (Five-quarter trend)	↑
Variance of total project costs[6] compared to **budget expectations**[7] (Biennial quarterly measure: Q8 2017-2019 & Q1 2019-2021)	Under budget by 1.6%	Under budget by 1.5%	On or under budget	✓	 (Five-quarter trend)	Not applicable

Data source: WSDOT Transportation Safety & Systems Analysis.
Notes: (*) = goal has not been set. Dash (—) = goal was not met in the reporting period. **1** The Statewide Transportation Policy Goal for this performance measure is different than the federal MAP-21 goal for the same measure. **2** Mobility does not yet include goals for people walking/ biking for transportation. **3** Washington State Ferries' on-time departures include any trip recorded by automated tracking as leaving the terminal within 10 minutes of scheduled time. **4** Amtrak Cascades' on-time performance includes any trip arriving within 10 or 15 minutes, depending on the route, of scheduled arrival time. **5** Amtrak Cascades' 2017 on-time performance was reported for calendar year 2017 in GNB 70 and 71. **6** Construction projects only. **7** Budget and schedule expectations are defined in the last approved state transportation budget. See p. 56 for more information.

75 MOVING AHEAD FOR PROGRESS IN THE 21ST CENTURY

WSDOT reports MAP-21 highway safety performance targets for 2019

WSDOT reported its Moving Ahead for Progress in the 21st Century highway baselines and safety targets for 2020 to the Federal Highway Administration on August 31, 2019. In December 2019, FHWA will make its first determination of whether WSDOT has made significant progress toward achieving its 2018 goals for highway safety (also referred to as PM1). For information on the 2018 targets, see the Highway Safety article on p. 7.

On May 20, 2018, WSDOT established its federally-required MAP-21 targets for bridges and pavement (also referred to as PM2), and highway system performance, freight, and Congestion Mitigation and Air Quality (also referred to as PM3). Like the PM1 targets, WSDOT needs to show significant progress toward meeting PM2 and PM3 targets.

Targets were established collaboratively by WSDOT and Metropolitan Planning Organizations. WSDOT and state MPOs submitted MAP-21 targets for PM2 and PM3 to the FHWA's Washington state division office in the Baseline Performance Report on October 1, 2018, and the targets were recommended for acceptance to the FHWA national headquarters office. This recommendation began a four-year reporting cycle for PM2 and PM3 performance measures, which includes WSDOT producing a Mid-Performance Period Progress Report (due October 1, 2020) and a Full-Performance Period Progress Report (due October 1, 2022).

When WSDOT and MPOs report on their progress toward achieving PM2 and PM3 targets in the 2020 mid-performance period progress report, they will provide updates on two-year condition/performance and investment strategy discussions as well as target adjustment discussions.

MAP-21 safety reporting on an annual cycle

Targets for the highway safety rules (included in PM1) are on an annual reporting cycle, which differs from the two-year and four-year reporting cycles for PM2 and PM3. The safety targets established for 2019 represent the second annual reporting cycle since the initial reporting of MAP-21 safety targets for 2018.

MAP-21 performance measures by program area	2014-2018 baseline	2020 target	Penalty[1]
Highway Safety (PM1) 23 CFR Part 490 ID No. 2125-AF49			
Number of traffic fatalities on all public roads[2]	≤ 531.8	≤ 433.2	Yes
Rate of traffic fatalities per 100 million vehicle miles traveled (VMT) on all public roads[2]	≤ 0.879	≤ 0.732	Yes
Number of serious traffic injuries on all public roads[2]	≤ 2,154.6	≤ 1,795.5	Yes
Rate of serious traffic injuries per 100 million VMT on all public roads[2]	≤ 3.562	≤ 2.968	Yes
Number of non-motorist traffic fatalities plus serious injuries	≤ 559.8	≤ 466.5	Yes
MAP-21 Special Rules (Safety)			
Rate of per capita traffic fatalities for drivers and pedestrians 65 or older	Show yearly progress		No
Rate of fatalities on high-risk rural roads[2]	Show yearly progress		Yes
Highway-railway crossing fatalities[3]	Show yearly progress		No

Data source: WSDOT Transportation Safety & Systems Analysis.

Notes: The PM1 targets for 2019 and 2020 were submitted on August 31, 2019, using the five-year rolling average of 2014-2018 for current baseline data. **1** Penalties will not be assessed if WSDOT shows significant progress on four of five PM1 targets. Significant progress is achieved if the five-year rolling average is less than or equal to the target or less than or equal to the baseline level. **2** Performance metric includes all individuals (for example, pedestrians and bicyclists) who died or were seriously injured as a result of a crash with a motorist in Washington. **3** Includes bicyclists and pedestrians.

WSDOT and MPOs can also adjust their four-year targets at that time, but must explain the basis for the changes and how adjusted targets support expectations documented in longer-range plans.

In 2022, FHWA will use the full-performance period progress report to determine whether WSDOT has made significant progress toward its PM2 and PM3 targets. WSDOT may face penalties (see table below) if it does not show necessary improvements on certain targets. While not showing significant progress toward targets triggers a penalty—and requires an explanation of what WSDOT will do to make future progress or require additional reporting—specific measures in PM1 and PM2 invoke financial penalties if targets are not met. These penalties require redistributing federal monies to help ensure significant progress toward specific targets in the future.

MAP-21 folios helping MPOs, stakeholders

WSDOT has developed informational folios to ensure the agency and its partners are aligned as MAP-21 work progresses. For links to WSDOT-specific MAP-21 folios, visit www.wsdot.wa.gov/Accountability/MAP-21.

MAP-21 performance measures by program area	Current data	2-year target[1,2]	4-year target[1,2]	Penalty
Pavement and Bridges (PM2) 23 CFR Part 490 ID No. 2125-AF53				
Pavement				
Percent of Interstate pavement on the NHS in good condition	32.5%[3]	N/A	30%	No
Percent of Interstate pavement on the NHS in poor condition	3.6%[3]	N/A	4%[4]	Yes
Percent of non-Interstate pavement on the NHS in good condition	18%[3]	45%	18%	No
Percent of non-Interstate pavement on the NHS in poor condition	5%[3]	21%	5%	No
Bridges				
Percent of NHS bridges classified in good condition (weighted by deck area)	32.8%	30%	30%	No
Percent of NHS bridges classified in poor condition (weighted by deck area)	7.8%	10%	10%[4]	Yes
Highway System Performance, Freight, and Congestion Mitigation & Air Quality (PM3) 23 CFR Part 490 ID No. 2125-AF54				
Highway System Performance (Congestion)				
Percent of person-miles traveled on the Interstate System that are reliable	73%	70%	68%	No
Percent of person-miles traveled on the Non-Interstate NHS System that are reliable	77%	N/A	61%	No
National Freight Movement Program				
Truck Travel Time Reliability (TTTR) Index	1.63	1.70	1.75	No
Congestion Mitigation & Air Quality Program				
Non-Single Occupancy Vehicle (SOV) travel in Seattle urbanized area (NHS)	32%	32.8%	33.2%	No
Peak hours of Excessive Delay per capita in Seattle urbanized area (NHS)	23	N/A	28	No
All Pollutants (kg/day)[2]	1,658.640	366.285	658.300	No
Carbon Monoxide (CO) (kg/day)[2]	313.160	309.000	309.060	No
Particulate Matter less than 10 microns (PM_{10}) (kg/day)[2]	435.690	0.305	224.000	No
Particulate Matter less than 2.5 microns ($PM_{2.5}$) (kg/day)[2]	36.820	2.100	8.700	No
Nitrogen Oxides (NOX) (kg/day)[2]	872.970	54.880	116.540	No

Data sources: WSDOT Pavement Office, WSDOT Bridge and Structures Office, WSDOT Transportation Safety & Systems Analysis, WSDOT Rail, Freight, and Ports Division, WSDOT Environmental Services Office.

Notes: Federal rule allows state and MPOs to adjust four-year targets during the mid-performance period progress report. **1** Two-year and four-year reports for PM2 and PM3 are due October 1, 2020, and October 1, 2022. **2** Base emissions are for the four-year period 2013-2016 as reported in the CMAQ Public Access System. **3** PM2 percentages (2016) are relative to four-year pavement targets only. **4** The National Highway Performance Program (NHPP) targets require the percent of Interstate pavement on the NHS in poor condition not exceed 5% and the percent of NHS bridges classified in poor condition (weighted by deck area) not exceed 10%.

75 HIGHWAY SAFETY ANNUAL REPORT

Washington not on track to meet Target Zero goal of no fatalities or serious injuries by 2030

WSDOT and safety partners statewide are considering necessary steps to achieve, or make significant progress toward, meeting Washington's 2030 goal of zero traffic fatalities and serious injuries.

The numbers of traffic fatalities and serious injuries have increased by 18.4% and 11.4%, respectively, from 2014 to 2018. Reversing this trend will require a well-coordinated, multi-agency strategic approach to identify and outline the appropriate investments and actions such as the Strategic Highway Safety Plan also known as Target Zero. See p. 9 for additional details on the 2019 Target Zero update.

WSDOT's safety program faces challenges due to a financially-constrained environment and the agency's need to fund competing priorities such as preserving agency assets at a State of Good Repair (bridges, pavement, facilities, etc.) and addressing multimodal mobility issues while making progress on injunctions such as the removal of fish passage barriers.

Through its priority programming process, WSDOT identifies and spends approximately $50 million on safety improvement projects each year. During the 2019-2021 biennium (July 2019-June 2021), WSDOT has identified approximately $41 million per year for safety improvements. In addition, the Legislature appropriated another $26.5 million per year to support standalone legislatively-identified projects.

WSDOT is building a diverging diamond interchange ahead of major development in Lacey north of I-5 to ease traffic congestion and reduce the potential for crashes. The $45.9 million I-5 - SR 510 Interchange - Reconstruct Interchange project is the first of its kind in Washington and will reduce conflict points from 26 to 14 for drivers as well as active transportation users. It is scheduled to be completed in winter 2020. A rendition of the south side of the interchange is pictured above.

Notable results

- *Annual statewide traffic fatalities decreased slightly from 2017 to 2018, from 563 in 2017 to 547 in 2018. However, the fatality count in 2018 represents an 18.4% increase since 2014*
- *The annual number of serious injuries increased slightly from 2,221 in 2017 to 2,232 in 2018, but the 2018 count represents an 11.4% increase since 2014*
- *Washington is currently not on track to meet its federal transportation safety targets for Moving Ahead for Progress in the 21st Century*

Safety performance metrics for motor vehicle crashes

Safety performance metrics can use either crash or individual injuries as a unit. Throughout this article, the metrics refer to individual people who died or sustained serious injuries in a motor vehicle crash. One fatal crash for example can include several fatalities, serious injuries, and other injuries because several individuals can be involved in a single crash.

Given the limited funding and increasing fatalities and serious injuries, WSDOT safety professionals are working diligently with partners to reduce the potential for these deaths and injuries across the state. However, the state's improving economy and growing population means more road users, which translates into increased exposure to crashes. Determining solutions through cross-agency collaboration to reduce traffic fatalities and serious injuries requires strategies that are referred to as the five E's in the Strategic Highway Safety Plan.

- Education
- Enforcement
- Emergency Medical Services
- Engineering
- Leadership/policy

State's traffic fatalities increase 18.4% since 2014

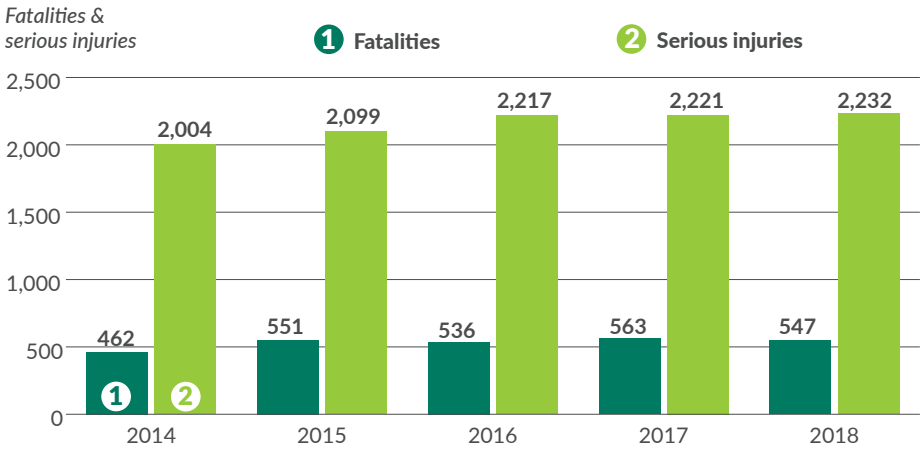
There were 547 traffic fatalities on all Washington state public roads in 2018. While this represents a 2.8% reduction compared to 2017, this also represents an increase in traffic fatalities by 18.4% since 2014, when there were 462. The five-year rolling average for fatalities shows an upward trend (see chart on p. 12).

Serious traffic injuries continue upward trend

The number of serious traffic injuries remained relatively unchanged between 2017 and 2018 (from 2,221 in 2017 to 2,232 in 2018). This represents an increase of 11.4% since 2014 when 2,004 people were seriously injured in motor vehicle

Fatalities, serious injuries continue five-year upward trend

2014 through 2018; Statewide traffic fatalities and serious injuries on public roadways

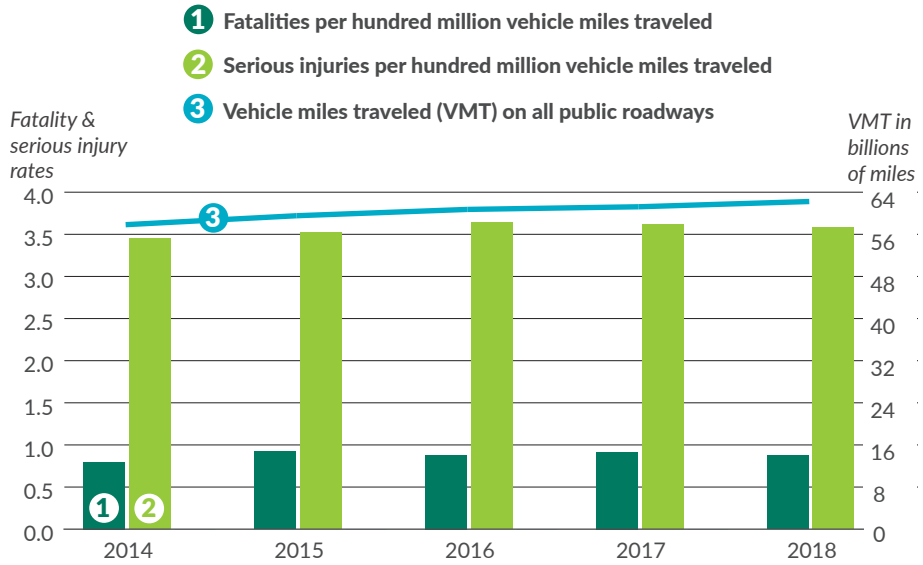


Data sources: Washington Traffic Safety Commission - Fatality Analysis Reporting System (FARS); WSDOT - Crash Database, Highway Performance Monitoring System; WSDOT - Transportation Data, GIS & Modeling Office.

Notes: Fatality data is from the preliminary fourth quarter of 2018 release of the WA-FARS Analytical File, and the final 2017 WA-FARS file. The serious injury count is as of June 2019 and represents the yearend data used for federal reporting. Both fatality and serious injury numbers are updated as new information becomes available and, as a result, may not match numbers from previous Gray Notebooks.

Fatality and serious injury rates show increases over past five years

2014 through 2018; Statewide traffic fatalities and serious injuries on public roadways per 100 million vehicle miles traveled (VMT) on public roadways; Statewide VMT on public roadways in billions of miles



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crashes in Washington. The five-year rolling average for serious injuries shows an upward trend (see chart on p. 12).

The rate of serious traffic injuries was 3.579 injuries per 100 million VMT in 2018, a 1.0% decrease from the rate of 3.616 in 2017. The serious traffic injury rate in Washington has increased 3.7% in the five years since 2014, when it was 3.452.

State updates Strategic Highway Safety Plan for 2019

The Washington Traffic Safety Commission, that includes the WSDOT Secretary of Transportation, approved the 2019 edition of the Strategic Highway Safety Plan (SHSP), Target Zero, in October 2019 and it is pending Gov. Jay Inslee's approval. The SHSP in Washington is updated every three years and represents a data-driven approach where safety partners statewide come together to identify emphasis areas and set priorities for the years to come. The federal government requires state DOTs to develop a SHSP with their safety partners and support the state's efforts by aligning performance measures, goals and objectives; and outlining emphasis areas along with effective strategies.

Target Zero, as the SHSP, reflects the vision of zero fatalities and serious injuries by 2030 and reflects a value system within which no death is acceptable. Whether or not the zero-based goal of Target Zero is achievable has often been debated; however, state safety partners recognize that reducing fatal and serious crashes to the largest extent possible with whatever resources are made available is paramount.

WSDOT uses Target Zero as a basis for its work on roadway infrastructure changes to prevent fatal and serious injury crashes and reduce the severity of crashes. To that end, WSDOT focusses on the planning, design, operation, and maintenance of roadway infrastructure along with the deployment of high-performing countermeasures known to reduce fatal and serious crashes. WSDOT also uses Target Zero to help identify investment strategies for the agency's safety program and to measure progress toward its safety performance goals.

The most recent Target Zero plan—which is based on data from 2015-2017—identifies and prioritizes emphasis areas based on the number of fatalities and serious injuries and the key elements necessary for success in reaching zero fatalities and serious injuries. The SHSP emphasis areas are organized into the following categories: high risk behavior, crash types, road users; and decisions and performance. The plan also identified some areas for monitoring.

Within the SHSP emphasis areas, WSDOT's primary focus is on those that the agency can directly affect by implementing infrastructure countermeasures: crashes involving roadway departure (lane departures), crashes that are

WSDOT sets safety goals based on Target Zero

WSDOT works with its partners and the public to update the state's Strategic Highway Safety Plan (SHSP), Target Zero, every three years. Data analysis and evaluation are used to review and revisit Washington's safety goals, priorities, and emphasis areas. Collaboration plays a key role to ensure the SHSP remains a relevant document to all stakeholders.

Target Zero brings safety partners together, where combined efforts can achieve greater results than independent efforts. Its aspirational goal of zero fatalities and serious injuries by 2030 provides a clear and common vision for improving Washington. For more information, visit targetzero.com.

intersection-related; and crashes involving the different user groups identified as priorities in the plan (younger drivers, older drivers, people walking, people biking, heavy vehicles, and motorcyclists).

The agency recognizes continuing improvements to decision-making, data collection, and analysis are essential in any efforts to effectively reduce fatalities and serious injuries on Washington roads.

Lane departure crashes: also known as "roadway departure crashes" are one of the leading crash types identified in the SHSP. In 2018, there were 260 lane departure fatalities and 752 lane departure serious injuries. The five-year rolling averages for both these metrics show an upward trend.

WSDOT uses widespread, lower-cost strategies aimed at reducing the incidence of high severity lane departure crashes through the use of enhanced warning signs, centerline and shoulder rumble strips that alert drivers when their vehicles are leaving the lane, and high-friction surface treatments; and reducing the severity of these crashes through the use of traffic barriers.

Intersection-related crashes: these are crashes that occur at or are related to intersections. There were 111 intersection-related fatalities and 798 intersection-related serious injuries in 2018. The five-year rolling averages for both these metrics show an upward trend.

WSDOT uses several strategies to reduce crashes at intersections, including installing—or converting four-way intersections—into roundabouts, installing compact roundabouts, optimizing traffic signal timing, providing dynamic intersection warnings, and installing refuge islands and curb extensions to reduce crossing distances for pedestrians at intersections.

Pedestrians and bicyclists: In the 2019 update of the Target Zero plan, pedestrians and bicyclists were combined into a single priority area. These road users are often referred to as active transportation and include users of mobility assistive devices. In 2018, there were 124 deaths among people walking and biking, and 520 of vulnerable road users suffered serious injuries in crashes with drivers. The five-year rolling averages for both these metrics show an upward trend.

In order to reduce the potential for crashes between drivers and active transportation users, state safety partners are designing roads with reduced speeds, working to reduce distances at road crossings, increasing visibility, separating infrastructure (e.g. bike lanes), completing transportation network connections, and reducing the risks of impaired-involved crashes.

The newly established Cooper Jones Active Transportation Safety Advisory Council for Washington state is also continuing the efforts of the Pedestrian Safety Advisory Council and Bicyclist Safety Advisory Council to reduce the potential of death and serious injury of those that are walking and biking.

Supporting systems and technology - Traffic Data Systems: Traffic data systems are critical to reducing fatalities and serious injuries because these provide the tools necessary to diagnose contributing factors associated with fatal and serious injury crashes as well as analyze roadway systems to identify locations or corridors with more fatal and serious injury crashes, assess the effectiveness of countermeasures, and identify innovative and targeted strategies to reduce fatal and serious crashes.

WSDOT traffic data systems are aging and rely on older technologies. This results in concerns about the required updates to these systems in times of limited budgets.

The WSDOT Public Crash Data Portal continues to provide access to summaries and maps of fatal and serious injury crashes to the public (see box on p. 13).

Evaluation, Analysis and Diagnosis: Traffic safety programs succeed when they address the factors that contribute to crashes with effective countermeasures. This is accomplished through timely and skilled evaluation, analysis and diagnosis (see chart below).

WSDOT uses evaluation to determine whether the incidence of a specific type of crash on a specific roadway are higher than expected on a similar roadways elsewhere; whether the number of fatal and serious injury crashes at a particular location is higher than at similar locations elsewhere; and whether the severity of crashes at a particular location is higher than at similar locations elsewhere. These approaches are part of the toolbox of the American Association of State Highway and Transportation Officials' Highway Safety Manual.

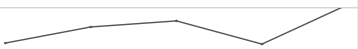
WSDOT's role in evaluation, analysis, and diagnosis of crashes

	Definition	Example
Evaluation	Assess the big picture or categories of data to evaluate performance against a pre-determined set of criteria. For Target Zero, this means looking at whether or not targets for traffic-related fatalities and serious injuries within priority areas were met. If a location or factor is not meeting expectations, it is identified for analysis.	A specific roadway has more crashes at intersections than expected for similar roads.
Analysis	Study the location or factor in depth, using different means or methods in order to interpret the data and understand why a location or factor is particularly high. For instance, using crash statistics to help determine why crashes are increasing, decreasing or staying the same.	Data are analyzed, thereafter determining that the majority of those crashes are related to impaired driving.
Diagnosis	Identify contributing factors to an increase or decrease in crashes. Done well, diagnostics help determine likely factors leading to a crash and the severity of injuries in the crash.	Experts diagnose that run-off-road crashes are related to people coming from bars in the local area, with two locations in particular that are known to overserve patrons.

Data source: Target Zero Strategic Highway Safety Plan for 2019.

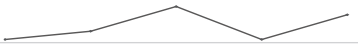
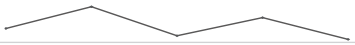
Washington State Highway Safety Plan measures show most five-year trends moving upward

Third quarter 2019; Preliminary 2018 number; Five-year average for 2014-2018; Five-year rolling average for 2014-2018

Area	Priority	Performance metrics	Preliminary 2018 number	Five-year average 2014 -2018	Five-year rolling average
Overall measures	N/A	Fatalities (Fatality Analysis Reporting System - FARS)[1]	547	531.8	
		Suspected serious injuries[2]	2,232	2,154.6	
High risk behavior					
Impairment	1	Impairment involved crash fatalities[1,3]	217	286.4	
		Impairment involved suspected serious injuries[2,4]	492	422.2	
Distraction	1	Distracted user involved crash fatalities[1,3]	132	153.6	
		Distracted user involved crash suspected serious injuries[2,4]	618	636.2	
Speeding	1	Speeding driver involved crash fatalities[1,3]	179	165.2	
		Speeding driver involved suspected serious injuries	522	524.8	
Unrestrained occupants	2	Unrestrained occupant fatalities[1]	90	102	
		Unrestrained motor vehicle occupants with suspected serious injuries[2]	233	227	
Crash type					
Lane departures	1	Lane departure crash fatalities[1]	260	260.2	
		Lane departure crash suspected serious injuries[2]	752	788	
Intersections	1	Intersection-related crash fatalities[1]	111	119.4	
		Intersection-related crash suspected serious injuries[2]	798	751.4	
Road Users					
Young drivers 16-25	1	Motor vehicle driver age 16 to 25 involved crash fatalities[1,3]	153	162.4	
		Motor vehicle driver age 16 to 25 involved crash Suspected Serious Injuries[2,4]	679	716.6	
Pedestrians and bicyclists	2	Active transportation user fatalities[1]	124	107.6	
		Active transportation user suspected serious injuries[2]	520	452.2	
Older drivers 70-plus	2	Motor vehicle driver 70-plus involved crash fatalities[1,3]	68	70.6	
		Motor vehicle driver 70-plus involved crash suspected[2,4] serious injuries	208	198.8	
Motorcyclists	2	Motorcyclist fatalities[1]	80	77	
		Motorcyclist serious injuries[2]	400	398.2	
Heavy trucks	2	Heavy vehicle involved crash fatalities[1,3]	65	55.8	
		Heavy vehicle involved crash suspected serious injuries[2,4]	139	139.2	

Data source: Target Zero 2019 Strategic Highway Safety Plan.

Notes: Refer to the Target Zero 2019 Strategic Highway Safety Plan for data definitions and rules. **1** Fatality data is from the preliminary 2018 fourth quarter release of the WA-FARS Analytical File, and the final 2017 WA-FARS, the best available data (final NHTSA FARS data is only available up to 2016)., Washington Traffic Safety Commission. **2** Serious injury data is from the WSDOT Engineering Crash Database and represents reported crashes involving at least one motor vehicle and meeting the requirements of RCW 46.52.070, RCW 46.52.030 and WAC 446-85-010 per the year-end snapshot used for federal and state reporting (June 1, 2019). **3** Involved crash fatalities refer to the total number of fatalities in crashes where the particular factor or user was involved. **4** Involved crash serious injuries refer to the total number of suspected serious injuries in crashes where the particular factor or user was involved.

Area	Performance metrics	Preliminary 2018 Number	Five-year average 2014-2018	Five-year rolling average
Other monitored emphasis areas				
Drowsy drivers	Drowsy driver involved crash fatalities[1,3]	13	14.6	
	Drowsy driver involved crash suspected serious injuries[2,4]	66	74.6	
Work zones	Workzone involved crash fatalities[1,3]	6	4.8	
	Workzone involved suspected serious injuries[2,4]	21	25.8	
Vehicle-train	Vehicle-train involved crash fatalities[1,3]	2	3	
	Vehicle-Train involved crash suspected serious injuries[2,4]	4	1.8	
Wildlife	Wildlife involved crash fatalities[1,3]	1	2.2	
	Wildlife involved crash suspected serious injuries[2,4]	6	15.6	
School buses	School bus involved crash fatalities[1,3]	2	1.2	
	School bus involved crash suspected serious injuries[2,4]	9	6.8	

Data source: Target Zero 2019 Strategic Highway Safety Plan.
Notes: Other emphasis areas are not priority ranked in the SHSP.

The AASHTO Safety Manual is a science-based tool for using data-driven practices in roadway safety. WSDOT adopted this tool and similar approaches in 2013 as part of its sustainable safety approach. Maintaining and training staff who can perform these tasks in the rapidly evolving field of safety will continue to be a focus for the Practical Solutions Highway Safety Manual training program as part of WSDOT's Strategic Plan goal of Workforce Development.

WSDOT moving toward the 'Safe Systems Approach'

WSDOT's approaches are proactive and reactive. The Safe Systems approach is proactive and considers factors such as:

- Speed control and separation of vulnerable users from motor vehicle traffic;
- Functional harmony—where roads are designed with all types of road users in mind;
- Predictability and simplicity—where road users know what to expect and the decisions they must make are simple;
- Forgiveness and restrictiveness— where mistakes don't result in fatalities and serious injuries; and
- Awareness—where users are able assess their capacity to handle driving, walking and biking tasks.

Crash data is online

WSDOT's public online Crash Data Portal provides full reporting on crashes statewide, and for all 21 Target Zero emphasis areas. Data is updated weekly to provide the most up-to-date statistics, and users can refine their queries by area, year and road type; visit bit.ly/WSDOTCrashDataPortal. Data in the portal may not match what is reported in other materials due to the use of different criteria.

Washington falling short of its federal highway safety targets

Initial analysis shows that Washington is falling short of showing significant progress toward its federally-mandated Moving Ahead for Progress in the 21st Century Act highway safety targets for 2018 (see chart below). FHWA established the measures to track traffic fatalities and serious injuries on all public roads in all states. In Washington, WSDOT and statewide safety partners aspire to reach target zero for all five measures by 2030.

Washington's 547 traffic fatalities in 2018 brought the state's five-year rolling average to 531.8 fatalities per year (2014-2018). WSDOT and the Washington Traffic Safety Commission had previously set a target of 415.5 or fewer fatalities per year for the five-year average in 2018.

There were 2,232 serious traffic injuries statewide in 2018, which brought the five-year average for this measure to 2,154.6 per year (2014-2018). Washington's statewide target for the five-year average in 2018 was 1,788.0 or fewer serious traffic injuries. In order to show significant progress for 2018, WSDOT has to either achieve the targets or be less than the baseline (2012-2016 five-year annual average) for a minimum of four of the five measures.

FHWA will review and make a determination on state and MPO progress toward the 2018 targets in December 2019 and report its decision in March 2020. If the U.S. Department of Transportation determines WSDOT has not met—or made significant progress toward achieving—its safety performance targets, WSDOT must:

- Dedicate its funding obligation equal to the apportionment for federal Highway Safety Improvement Program to the state for the prior year to highway safety improvement projects until the U.S. DOT determines that the state has made significant progress or met the targets; and
- Submit an annual safety implementation plan until the U.S. DOT determines that the state has made significant progress or met the targets.

In addition to the previously mentioned five federally mandated safety performance areas, Washington must show improvement in three areas: Rate of fatalities on high-risk rural roads, per-capita rate of fatalities to drivers and pedestrians aged 65 and older, and fatalities at highway-railway crossings.

Contributors include Mike Bernard, John Milton, Ida van Schalkwyk, Hide Aso, Anjali Bhatt, Dan Davis and Joe Irwin

MAP-21 details online

WSDOT's MAP-21 Safety folio contains full specifics on federal requirements for safety performance and on the state's target setting process; visit bit.ly/SafetyFolio.

WSDOT is not on track to meet 2018 MAP-21 highway safety targets

2014-2018 annual average; 2018 targets and baselines; Number of persons; Number of persons per 100 million vehicle miles traveled (rates); Washington public roads

Performance measure	2014-2018 actual annual average	2018 targets[1]	2018 baseline[2]	Target achieved or better than baseline (preliminary)
Fatalities	531.8	415.5	484.6	No
Fatality rate	0.879	0.709	0.827	No
Serious injuries	2,154.6	1,788.0	2,087.4	No
Serious injury rate	3.562	3.058	3.570	Yes
Non-motorists: fatalities and serious injuries[2]	559.8	431.5	504.2	No

Data sources: Washington State Traffic Safety Commission - Fatality Analysis Reporting System; WSDOT - Transportation Data, GIS & Modeling Office.
Notes: Fatality data is from the preliminary 2018 fourth quarter release of the WA-FARS Analytical File, and the final 2017 WA-FARS file. The serious injury data is revised as of September 2019. **1** Targets and baselines for 2018 were set in 2017 using 2012-2016 data. **2** Non-motorists include pedestrians and bicyclists.

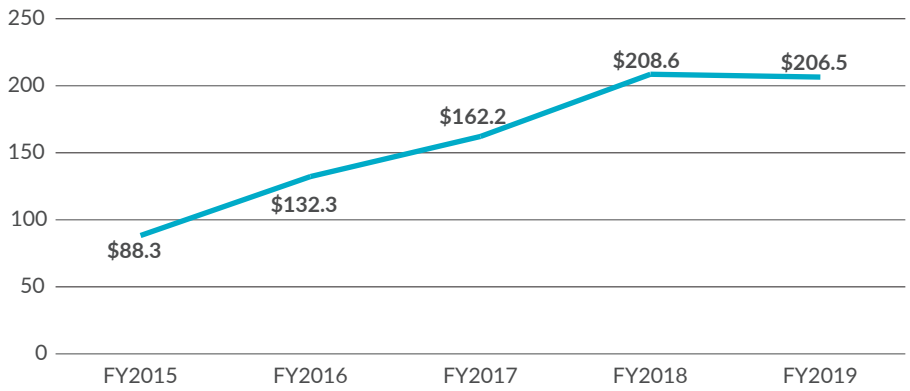
75 WASHINGTON STATE FERRIES VESSELS & TERMINALS ANNUAL REPORT

Washington State Ferries decommissions M/V *Hyak*, reducing vessel preservation backlog by $2.1 million

Washington State Ferries decommissioned the 52-year-old Motor/Vessel *Hyak* at the end of fiscal year 2019 (July 1, 2018 to June 30, 2019), decreasing WSF's vessel preservation backlog by $2.1 million. This represents a 1.2% decrease from FY2018, when the total backlog for WSF's fleet of 23 vessels was $208.6 million. Approximately 12% ($25.1 million) of the 2018 vessel backlog was attributable to the M/V *Hyak*. The preservation backlog is the estimated value of preservation activities that are overdue for completion.

Preservation backlog for WSF vessels decreases in FY2019, up from FY2015

Fiscal years 2015 through 2019; Dollars in millions



Data source: Washington State Ferries.
Notes: In 2019 dollars. Values have been rounded.

The decommissioned M/V *Hyak* was replaced by the M/V *Suquamish* in FY2018 but retained through FY2019 to support warranty repairs. While its decommissioning kept the total backlog from growing (the backlog for the remainder of the fleet increased by $22.5 million between FY2018 and FY2019), that came at the cost of reducing the fleet from 23 vessels to 22.

In 2019, WSF considered 18% (four) of the vessels in its fleet to be in poor condition—with more than 20% of systems overdue for preservation or renewal. Of the 22 vessels, 32% (seven) were in good condition—with less than 10% of systems overdue—and 50% (11) were in fair condition—with between 10% and 20% of systems overdue (see chart on p. 16).

WSF's average annual gap between preservation needs and funding for vessels is expected to be $71.0 million per fiscal year for the 10-year period from 2017 to 2027. This is the average amount that the preservation backlog will increase each year unless aging vessels are decommissioned and replaced. WSF faces challenges in keeping pace with preservation requirements due to limited capital funding, an insufficient number of spare vessels, and a limited number of shipyards in the region. Construction of new vessels is essential to sustain a serviceable fleet.

Notable results

- *The WSF vessel preservation backlog decreased by $2.1 million in fiscal year 2019*
- *In 2019, WSF determined that 18% of the vessels in its fleet were overdue for preservation or renewal*
- *WSF developed comprehensive asset management plans for vessel and terminal assets*
- *WSF developed backlog projections based on funding scenarios for terminal assets*

Olympic Class vessel contract extended

The Washington State Legislature has authorized the extension of the existing Olympic Class Vessel contract for up to five additional vessels. The new vessels will be powered by hybrid-electric propulsion systems. As of September 30, 2019, construction on the first of these vessels was scheduled to begin during the 2019-2021 biennium.

WSF develops a centralized vessel maintenance program

In 2019, WSF developed a centrally-managed vessel maintenance program to address challenges created by a rapidly changing workforce. WSF's most senior personnel are retiring at an increasing rate, taking valuable experience with them during a time when maintenance budgets are tight and the demand for vessel reliability is increasing. More than 53% of WSF's Chief Engineers will be eligible for retirement in the next five years.

Under this program, maintenance requirements are standardized by vessel class and progress is monitored through the State of Good Repair metrics in the asset management plan. WSF developed standardized maintenance procedures and crew training programs for the four Olympic Class vessels (the newest in WSF's fleet).

A feedback system is in place to provide opportunities for continuous improvement of the maintenance procedures and training programs. Standardizing these procedures and programs will help ensure WSF retains valuable knowledge that could otherwise be lost due to senior staff retiring.

In the 2019-2021 biennium, WSF is developing similar standardized procedures and training for the vessels in the Issaquah, Kwa-di Tabil and Jumbo Mark II Classes. These investments will help ensure sustained system reliability in the face of a changing workforce.

WSF vessel preservation backlog decreases in FY2019
Fiscal year 2018 and FY2019; Age in 2019; Condition in 2019; Dollars in millions

Vessel classes and vessels	Age	Condition in 2019[1]	Preservation backlog FY2018	Preservation backlog FY2019	Change in backlog
Jumbo Mark II Class (202-vehicle)					
M/V *Tacoma*	22	Fair	$12.6	$13.1	$0.5
M/V *Wenatchee*	21	Poor	$33.2	$33.6	$0.3
M/V *Puyallup*	21	Fair	$23.8	$23.3	-$0.5
Jumbo Class (188-vehicle)					
M/V *Spokane*	46	Fair	$10.9	$10.9	$0
M/V *Walla Walla*	46	Fair	$11.8	$11.9	$0.1
Super Class (144-vehicle)					
M/V *Hyak*	52	N/A	$25.1	N/A	-$25.1
M/V *Kaleetan*	52	Fair	$1.6	$1.6	$0
M/V *Yakima*	52	Fair	$4.9	$9.8	$4.8
M/V *Elwha*	52	Poor	$45.5	$33.1	-$12.4
Olympic Class (144-vehicle)					
M/V *Tokitae*	5	Good	$0	$0	$0
M/V *Samish*	4	Good	$0	$0	$0
M/V *Chimacum*	2	Good	$0	$0	$0
M/V *Suquamish*	1	Good	$0	$0	$0
Issaquah Class (124-vehicle)					
M/V *Issaquah*	40	Poor	$4.8	$8.8	$4.0
M/V *Kitsap*	39	Fair	$4.0	$4.0	$0
M/V *Kittitas*	39	Fair	$4.6	$8.0	$3.4
M/V *Cathlamet*	38	Fair	$10.4	$10.0	-$0.4
M/V *Chelan*	38	Fair	$3.4	$3.4	$0
M/V *Sealth*[2]	37	Poor	$6.0	$9.8	$3.8
Evergreen State Class (87-vehicle)					
M/V *Tillikum*	60	Fair	$4.2	$14.6	$10.4
Kwa-di Tabil Class (64-vehicle)					
M/V *Chetzemoka*	9	Good	$1.8	$4.5	$2.7
M/V *Salish*	8	Good	$0.6	$3.4	$2.8
M/V *Kennewick*	7	Good	$0	$2.8	$2.8
Fleet-wide	**Avg. 29**	**32% Good 50% Fair 18% Poor**	**Total $208.6**	**Total $206.5**	**Net Change -$2.1**

Data source: Washington State Ferries.
Notes: Numbers may not add perfectly due to rounding. **1** Good/Fair/Poor condition ratings are reported for 2019 while WSF transitions to reporting vessel conditions in terms of State of Good Repair. A vessel in Good condition has less than 10 percent of its systems overdue for preservation or renewal, a vessel in fair condition has between 10% and 20% of its systems overdue, and a vessel in poor condition has more than 20% of its systems overdue. **2** The M/V *Sealth* is a 90-vehicle vessel in the Issaquah Class.

WSDOT defines State of Good Repair metrics for vessels

Metric definition, reporting cycle and target

Metric	Definition	Cycle	Target
Vessel replacement	Age as a percentage of Useful Life Benchmark (60 years)	Annual	<100%
Vessel Preservation	Percentage of vessel Lifecycle Cost Model (LCCM) inventory items past due for investment based on inspection	Quarterly & Annual	<20%
Vessel Maintenance	Percentage of recurring preventative maintenance completed	Quarterly & Annual	>80%
Vessel Functionality (prior fiscal year)	Planned availability, less unplanned maintenance, preservation, repairs (including contract extensions).	Annual	>95%
Vessel Safety	Number of outstanding U.S. Coast Guard violations attributed to lack of maintenance or preservation.	Quarterly & Annual	0
Vessel Comfort & Reliability	Percentage of survey respondents dissatisfied.	Quarterly & Annual	<10%

Data source: Washington State Ferries.

WSF develops vessels asset management plan

In 2019, WSF developed comprehensive Asset Management Plans for its vessels and other assets. The plans, which will be updated once every two years, will be used to prioritize capital investments and to support high-level investment decisions.

A fundamental principle of the vessels AMP is State of Good Repair. The plan establishes criteria for assessing the status of each vessel asset (see table above) and sets a corresponding fleet performance goal of 90% of assets meeting the SOGR metrics.

In accordance with the vessel AMP, WSF will publish an annual SOGR report that summarizes the status of each of the 22 vessel assets to inform the following year's capital project list and budget request for operations.

WSF pursues vessel electrification

WSF is working to electrify its fleet in alignment with an executive order from Gov. Jay Inslee. Ongoing efforts include converting the Jumbo Mark II vessels to hybrid electric propulsion, designing and constructing hybrid electric Olympic class of vessels, and completing a Ferry System Electrification Study.

The 202-vehicle Jumbo Mark II class ferries are due for planned maintenance (mid-life propulsion system replacements), which provides an opportunity to upgrade them with minimal impacts on service. The design will replace two of four diesel engines with lithium ion energy storage systems and develop a rapid charging system capable of recharging ferries during each terminal stop. In addition to fuel cost savings and reduced maintenance costs, converting the Jumbo Mark II class vessels will reduce CO2 emissions by 48,565 metric tons per year—comparable to taking more than 10,000 cars off the road. Hybrid ferries would also cut NOx emissions, a toxic form of air pollution, by 184.5 metric tons per year once the Jumbo Mark II Class ferries are operating with hybrid electric propulsion.

The WSF 2040 Long Range Plan emphasizes the urgent need to build five additional Olympic Class vessels. The legislature authorized an extension of the Olympic Class vessel construction contract (for up to five 144-vehicle vessels). Construction on the first vessel is scheduled to begin in the 2019-2021 biennium.

The new hybrid electric Olympic Class vessels will be capable of traveling from Seattle to Bremerton on battery power alone. They will also emit lower levels of underwater noise to reduce the impact on the endangered Southern Resident Killer Whales. The vessels are tentatively earmarked for the Clinton – Mukilteo and Seattle – Bremerton routes.

In accordance with the Washington State Legislature's direction, WSDOT has started developing the WSF System Electrification Plan, an addendum to the WSF 2040 Long

Range Plan. This plan will evaluate alternatives and propose the best way to deploy hybrid electric vessels throughout the ferry system. WSF will complete the plan by June 30, 2020.

WSF monitors Puget Sound shipyard capacity

WSF relies exclusively on commercial shipyards for some essential maintenance activities, preservation and emergency repair needs. Availability of shipyard facilities is a persistent concern for WSF, as it has the potential to affect ferry system service, vessel reliability, operating costs and capital program delivery.

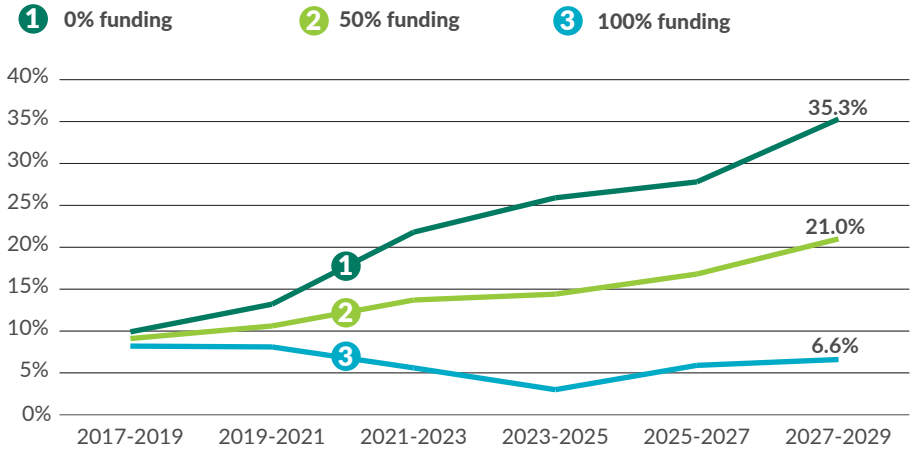
In 2019, the U.S. Navy contracted Vigor Shipyards—a partner WSF contracts with often—for maintenance on two missile cruisers. In order to fulfill the contract, Vigor Shipyards will increase its ship repair workforce, but the Navy work will consume a significant portion of the regional industrial base. WSF will continue to monitor developments in this critical element of its supply chain, and to communicate the agency's projected new construction, preservation and improvement requirements.

WSF had 93.4% of terminal assets in a State of Good Repair in FY2018

As of June 30, 2018, 93.4% of WSF's terminal assets were in a State of Good Repair (see chart on p. 17). The category of terminal system with the lowest percentage of assets in SOGR was pavement, with 84.3% of systems (weighted by replacement cost). Pavement systems generally do not become a priority when limited funding is available, because pavement not being in SOGR poses little to no risk to WSF operations. However, sections of pavement at the Mukilteo and Seattle terminals are currently being replaced as part of larger projects, and WSF plans to replace the Bainbridge Island parking lot in the next 10 years.

Projected preservation backlog for terminal assets dependent upon funding

2017-2019 biennium through 2027-2029 biennium; Projected percent of assets not in a state of good repair based on possible funding scenarios



Data source: Washington State Ferries.

WSF defines State of Good Repair

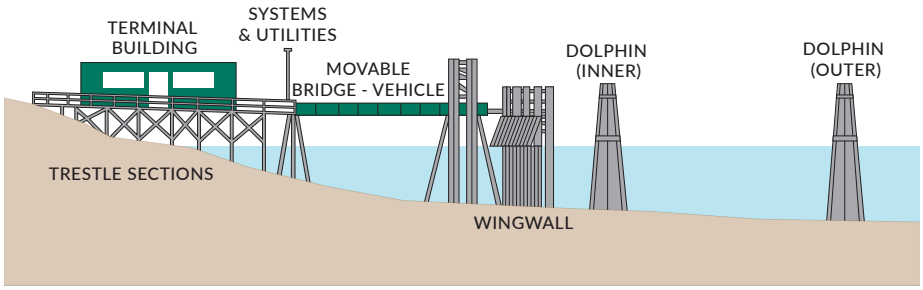
WSF is currently transitioning from condition-based life-cycle analysis to risk-based life-cycle cost analysis. The new analysis is based on the risks of operational failure and the economic consequences of these failures. As a result, a system with risk cost (excluding seismic risk) above the cost of maintenance and operations is not considered to be in a SOGR, and a system with risk cost (excluding seismic risk) at or below the cost of maintenance and operations is in a SOGR.

WSF develops terminal preservation backlog projections

As of the end of FY2019, the cost of clearing WSF's terminal preservation backlog was approximately $121.0 million, or 8.2% of the cost of replacing all 755 terminal systems. WSF's backlog for terminal assets is projected to decrease to 3.0% by the end of the FY2025, then increase to 6.6% by the end of the FY2029 (see graph above).

Two major terminal projects are currently under construction. The new Mukilteo terminal will open in the fall of 2020, and the new Seattle multimodal terminal will be complete in 2023. When construction of these two terminals is complete, the terminal preservation backlog is expected to temporarily decrease.

If the funding levels were reduced by 50%, the backlog percentages are predicted to increase steadily up to 21% by the end of the FY2029. A comparison of the 100% funding and 50% funding scenarios with



WSF identifies State of Good Repair baseline values for terminal assets

Facility or system type	Number of systems	In SOGR	Not in SOGR	Not rated
Buildings[1]	136	97.6%	2.0%	0.3%
Landing aids[2]	176	99.0%	1.0%	0.0%
Overhead loading systems[3]	66	90.0%	10.0%	0.0%
Passenger-only ferry facilities[3,4]	14	89.3%	10.7%	0.0%
Pavement	84	84.3%	15.7%	0.0%
Trestles and bulkheads	69	91.6%	8.4%	0.0%
Vehicle movable bridge systems[3]	210	91.6%	8.4%	0.0%
Total/average FY2018	**755**	**93.4%**	**6.6%**	**0.0%**

Data source: Washington State Ferries.

Notes: Percentages are weighted by replacement cost. Percentages may not add to 100 due to rounding. In previous Gray Notebooks, WSF reported on condition of terminal assets only. WSF now reports on SOGR. **1** Buildings include terminal buildings, agent buildings, storage buildings, maintenance buildings, and toll booths. **2** Landing aids ensure the ferry vessels are aligned correctly at the terminals, and include wingwalls and dolphins. **3** Systems include foundation supports, movable bridge span, electrical parts, and mechanical parts. **4** Passenger-only ferry systems are located in Seattle, Vashon Island and the Eagle Harbor maintenance facility.

the no-funding scenario helps to measure the relative effects of various levels of funding (see chart above). If WSF's terminals funding is reduced, there will likely be a reduction in service reliability and an increase in maintenance costs.

WSF assesses its terminal priorities every year based on updated information from inspections, risk costs and available funding. The use of an economic-based asset management model (see Gray Notebook 71, p. 21) incorporating updated information helps WSF reprioritize terminal projects based on economic cost-benefit analyses.

WSF develops terminals asset management plan

In accordance with requirements from the Federal Highway Administration, Federal Transit Administration and the state legislature, WSF completed a draft asset management plan for terminal assets in 2019. As of September 2019, the terminals AMP was awaiting final review by WSDOT executives.

The terminals AMP highlights the various terminal systems and explains the strategies and framework in which WSF makes investment decisions to provide safe, cost-effective and reliable public transportation. The terminals AMP includes:

- Goals and objectives of WSF specific to asset management;
- Measures that help determine if the objectives are met;
- Overview of inventory, and performance status of capital assets;
- Life cycle analysis and planning of assets;
- Enterprise-level and program-level risks faced by WSF terminal engineering staff and their management;
- Program revenues, financials and budgetary constraints;
- A look at performance scenarios at various hypothetical funding levels;
- Investment strategies supporting progress toward efficiently maintaining capital assets; and
- Implementation and systems discussing improvements to the asset management process.

WSF will update the terminal AMP data every two years. The asset management plan will serve as a guiding document for managing terminal assets in the future.

WSF identifies risks and challenges for terminals

After engaging in a risk management process, WSF identified enterprise- and program-level risks, analyzed and qualitatively evaluated the impact of those risks, and developed a risk response plan. Relevant highlights of the risk management process are:

- The seismic risk to WSF terminal systems is high. A seismic event that has a 40% chance of occurring in 50 years may result in up to eight routes not being operational. This is dependent on the location of the seismic event. At this time, WSF's treatment strategy for seismic risk is active acceptance—the event occurs and WSDOT absorbs the consequences. Seismic events cannot be avoided, but careful preparation can prevent loss of life and capital. WSF is working to identify critical routes for seismic resiliency, and including seismic risk in its prioritization of capital projects.
- The lack of redundancy in terminal systems poses a medium-level risk to service reliability. To mitigate this risk, WSF developed a preventive maintenance plan, inspection plan and asset management plan. WSF also has an on-call contract for repair work, in addition to dedicated terminal repair workers and craftspeople. WSF designs bridge systems to be as similar as possible to avoid operator errors. In the future, WSF will develop a training plan for crews to operate movable loading/unloading bridges, and have a refresher training plan to avoid operator errors. WSF needs additional training resources are needed to fully execute this response plan.
- WSF terminals also carry a medium-level risk due to vulnerabilities related to facility integrity, such as reduced service upon a vessel and dock collision, piling scour due to propeller wash, rotting of timber structures, and failure of bridge systems without redundancy. WSF's ongoing mitigation of this risk is by implementing inspection plans. In addition, WSF is also in the process of developing and implementing collision prevention training plans for vessel crews, improving vessel operations to reduce propeller wash and continuing with federally-required scour inspections. WSF anticipates a need for additional training resources to fully execute the response plan.
- WSF terminals have a medium-level risk of causing environmental harm by accidentally discharging pollutants into the water during construction activities, routine operations, and by causing excessive water-borne noise that interferes with marine wildlife. WSF is mitigating this risk by assessing the environmental impact of all construction, preservation and maintenance activities through appropriate permits and procedures, by carrying out stormwater permit monitoring activities, regularly exercising hazardous material release response, properly maintaining all pollution control equipment, and ensuring timely reporting of all releases of pollutants.
- WSF is also studying the effects of climate change on its facilities and will develop an action plan on completion of the study.

WSF terminal timber trestles have new load limit weights

FHWA directed all states to analyze load ratings for Special Hauling Vehicles. SHVs are closely-spaced, multi-axle, single-unit trucks (such as dump trucks, construction vehicles, solid waste trucks, and other hauling trucks) introduced by the trucking industry in the last decade.

With the new load ratings for SHVs, some bridges now require load postings. Timber trestles at the terminals are the controlling elements causing the load postings. Consequentially, all routes to and from these terminals have truck load postings:

- San Juan Islands
- Edmonds/Kingston
- Fauntleroy/Vashon/Southworth
- Point Defiance/Tahlequah

It is not possible to lift the postings along these routes without making significant upgrades to the timber trestles. The timber trestles at Anacortes, Southworth, and Edmonds terminals are aging and WSF plans to replace them within the next decade. Major seismic upgrades were performed on the Vashon Island timber trestle in 2016.

Contributors include John Bernhard, Jeri Bernstein, Srikanth Sree Ramoju, Donna Thomas, Matt Von Ruden, Joe Irwin and Dustin Motte

75 AVIATION ANNUAL REPORT

State leverages less than $900,000 to secure $46.5 million in federal funds for airport aid

WSDOT awarded $1.4 million through its Airport Aid Grant Program to be invested in airports during fiscal year 2020 (July 2019 through June 2020). Public-use airports in the state leveraged $871,967 of these funds to secure $46.5 million in federal grant funding. These federal grants will benefit 21 projects at 21 airports in FY2020. The leveraged WSDOT dollars make up 60.6% of the $1.4 million in total state funds for the Airport Aid Grant Program (see table below). The remaining $567,572 (39.4%) will assist airports not eligible for federal funding.

A total of $53.0 million in local, state and federal funding will be available for airport investment projects during FY2020. The majority of these funds ($46.8 million or 88.3%) are slated for pavement projects, including $500,000 to the Town of Twisp for taxiway realignment and reconstruction at the Twisp Municipal Airport. Projects that improve safety at airports account for 8.7% of the total dollars ($4.6 million), with the remaining 3.2% ($1.7 million) allocated for planning and environmental projects. For more information about WSDOT's Airport Aid Grant Program, visit: www.wsdot.wa.gov/aviation/Grants.

Majority of airport investment funding slated for pavement projects

Funding by source for fiscal year 2020; Dollars in millions

Project type	Local	State	Federal	Total
Pavement	$4.6	$1.2	$40.9	$46.7
Safety	$0.3	$0.1	$4.2	$4.6
Planning and environmental	$0.1	$0.1	$1.5	$1.7
Total	**$5.0**	**$1.4**	**$46.6**	**$53.0**

Data Source: WSDOT Aviation Division.

Notes: Some numbers may not add up due to rounding.

Airport pavement condition continues to deteriorate

The condition of pavement at 95 airports in Washington was evaluated in 2018. As of January 2019, WSDOT's aviation pavement management system (APMS) includes conditions of pavement from Seattle-Tacoma International (SEA), Spokane International (GEG), and Tri-Cities Airport (PSC). The inclusion of these airports in WSDOT's APMS offers a more comprehensive understanding of the pavement conditions for the entire state.

Notable results

- *Public-use airports leveraged less than $900,000 to secure $46.5 million in federal funding for airport investments in FY2020*
- *WSDOT completed 20-year projections of airport pavement needs*

WSDOT conducts Airport Master Record Reviews annually

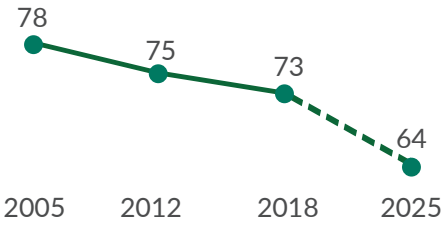
WSDOT conducts Airport Master Record Reviews each year on Washington Airports. The reviews, also known as 5010 Inspections, span all corners of the state. In 2019, 40 inspections were conducted statewide.

During the inspections, WSDOT seeks out and reports on all conditions at airports and describes the physical infrastructure, characteristics, services and operational environment. It also identifies conditions that may affect safety, including unmarked obstructions, deteriorating or cracked runways or taxiways, aircraft parked near runways or taxiways, and uneven or soft grounds, as well as areas of ponding or inadequate drainage.

The Federal Aviation Administration recommends that 5010 inspections occur every three years. Completed reports are available online at https://www. gcr1.com/5010web/.

WSDOT Aviation projected pavement condition index decreases in constrained funding scenario

2005-2018 PCI[1, 2]; 2025 projected PCI[3]



Data Source: WSDOT Aviation Division.

Notes:

1 PCI for 2005 and 2012 excludes Seattle-Tacoma International (SEA), Spokane International (GEG), and Tri-Cities Airport (PSC), Yakima and Boeing Field.

2 PCI for 2018 excludes SEA, GEG, and PSC.

3 Projected PCI for 2025 with a $4.5 million annual investment.

What WSDOT's aviation pavement management system accomplishes

The WSDOT aviation pavement management system was established in 2000 and was updated in 2005, 2012, and 2018. The APMS provides an updated inventory of pavement infrastructure and pavement conditions at the included airports.

The inventory and condition data are used to update the APMS and then analyzed by WSDOT to determine the overall health of the pavement system and estimate short- and long-term needs. WSDOT uses the APMS to develop recommendations for pavement maintenance and rehabilitation at airports.

The overall pavement area of the 98 airports (95 WSDOT-inspected facilities and SEA, GEG and PSC) in the APMS database is 153 million square feet and includes:

- Fifty-one million square feet of runway pavement;
- Forty-five million square feet of taxiway pavement;
- Fifty-five million square feet of apron/helipad pavement; and
- Two million square feet of T-hangar (plane storage) pavement.

Excluding SEA, GEG and PSC, the area-weighted Pavement Condition Index of airports was 73 and the area-weighted age of pavements was 27 years old. Repair types associated with PCI include 0-40 = reconstruction, 41-70 = major rehabilitation, and 71-100 = preventive maintenance. The PCI of WSDOT airports has steadily decreased since 2005, when the area-weighted PCI was 78.

Based on 2018 APMS data, approximately 74% of the pavement area requires routine and preventive maintenance, while 26% of the pavement area requires major rehabilitation or reconstruction. If no additional state, federal or local funding is expended for pavement maintenance and rehabilitation, the overall PCI is estimated to decrease from 73 to 64 by 2025, with approximately 42% of pavement area requiring costly major rehabilitation or reconstruction.

Approximately $395.4 million is needed over the next seven years to fund all recommended pavement maintenance and rehabilitation projects at the 95 airports. If a constrained budget of $4.5 million per year is expended over the next seven years, a backlog of $474.1 million in pavement projects would accrue and the area-weighted PCI would decrease to 66 by 2025 (see chart at left).

Comparing the long-term impact of different potential levels of state, federal or local funding over the next 20 years, the area-weighted PCI in 2038 is projected to be:

- 46, with no funding;
- 53, with $4.5 million per year; or
- 81, with $56.5 million per year.

Community Aviation Revitalization Loan Program assists airport projects

The Community Aviation Revitalization Loan Program was established following the recommendations of a 2015 Airport Investment Study and was initially funded with $5 million in 2018. The revolving loan program is for revenue-producing capital projects that help public-use general aviation airports become more self-sustaining.

The program funds will be distributed with the guidance of an eight-member Community Aviation Revitalization Board (CARB), which includes various aviation-minded members from across Washington.

The program provides low-interest loans of up to $750,000 to airports with fewer than 75,000 annual commercial enplanements, which includes passengers boarding or ticketed passengers. Eligible

projects include hangars, fueling facilities, business parks on airport property, paid parking facilities, passenger amenities, and other revenue-generating or cost-cutting developments that help make the airport more self-sufficient and less dependent on public funding.

The loan application became available in October 2019. The application deadline for the first round of loans was in November 2019. In December 2019, the CARB will select projects that meet the goals of the program for funding.

WSDOT successfully explores uses for Unmanned Aircraft Systems

In March 2018, WSDOT started its own small Unmanned Aircraft System (sUAS, also known as "drones") program. In the short time since its inception, the sUAS program has grown significantly. Now, all WSDOT regions and some individual divisions have their own sUAS coordinators and drones.

As of July 31, 2019, WSDOT had 34 licensed remote pilots and 14 sUAS. The list of uses for the sUAS is continually growing, but WSDOT's remote pilots have already used drones for:

- Construction and preservation site inspections;
- Surveying and monitoring sites;
- Communications and outreach
- Emergency response for natural disasters;
- Reconnaissance of tree-cutting sites; and
- Beaver dam inspections.

The WSDOT Aviation Division is responsible for overseeing the sUAS program at WSDOT and plans to use drones for additional tasks, including assisting with airport inspections for Master Record Reviews (see sidebar on p. 19) by mapping airport boundaries and locating and measuring obstructions in the airspace.

In the future, WSDOT may also use drones to help produce 3-D maps of airports, improving emergency operations planning. These maps would provide much more detailed information about space available for logistics staging, medical evacuation, casualty processing areas, displaced civilian evacuation marshalling areas, aircraft parking and staging areas, aviation maintenance areas, and water storage/distribution areas. This mapping information could then be shared with other state, local and federal agencies such as the Federal Emergency Management Agency to improve disaster response.

WSDOT begins Aviation Economic Impact Study

WSDOT is conducting a statewide Aviation Economic Impact Study (AEIS) of Washington's public-use airports. This study, which is expected to be complete in early 2020, measures the annual economic impact of airports on local communities and statewide.

The AEIS began in 2018 with detailed data collection. Key inputs include airport employment, construction, operating expenses and money spent by out-of-state visitors. The study also evaluates six activities that significantly affect airport facility needs and play an important role in Washington's economy: commercial passenger service, agriculture, pilot training and certification, business and corporate travel, air cargo, and aerospace manufacturing.

The AEIS will also assess how emerging technologies may affect the operation of Washington's aviation system. Emerging technologies such as electric aircraft, unmanned aircraft systems, and urban air mobility are entering—or are poised to enter—the market, potentially opening new opportunities for the delivery of goods and changing the way people travel within the state.

The AEIS results will be used by airport staff and WSDOT to communicate the value of airports to state and local policymakers and aviation stakeholders. The study will also enhance support and investment in the state's aviation facilities. Airports will also benefit from an online economic scenario calculator, which will improve understanding of how changes at the airport may impact the economy.

Additionally, the study is expected to deliver a geographic information system economic visualization tool. The GIS tool will be incorporated

WSDOT meets aircraft registration annual goal

WSDOT registered 6,529 aircraft and provided 3,534 exemptions to qualifying aircraft during the 2019 aircraft registration and renewal cycle. WSDOT has met its annual registration goal of 95% of aircraft in the state for 14 years in a row.

WSDOT launched a new aircraft registration system in September 2019, replacing a system that was put in place in 2002. The new system is more secure and allows users to report sales, add aircraft to accounts, print registration certificates, update account information and aircraft locations, view aircraft details and payment history, and request an updated aircraft registration number. For more information, visit: http://bit.ly/aircraftregistration.

Number of aircraft registered by type during 2019

Aircraft type	Quantity
Single Engine	4,670
Home built	1,045
Helicopter	199
Piston, multi-engine, small	213
Turbojet, multi-engine	147
Sail/Glider	127
Turboprop, multi-engine	47
Lighter than air	31
Piston, multi-engine, large	24
Aircraft 8,001-9,000 lbs.	12
Aircraft 4,001-6,000 lbs.	7
Aircraft under 4,001 lbs.	7
Total	**6,529**

Data source: WSDOT Aviation Division.

into WSDOT's existing GeoPortal map application, and will provide information about nearby businesses that are likely to use airports.

Fly Washington Passport Program taking off

The Fly Washington Passport Program promotes safety and education by encouraging pilots to take to the skies and visit Washington's public-use airports. The program—a collaborative effort of WSDOT Aviation Division, the City of Auburn, Auburn Municipal Airport, the Washington Airport Management Association, Washington Pilots Association, and the Port of Bremerton—also supports general aviation airports, area businesses, and tourism.

Licensed pilots from any state and their passengers can participate and earn levels of recognition and awards as they explore the airports of Washington state. The program relies on the voluntary participation of Washington's public-use airports, pilots, aviation enthusiasts, and sponsors.

Over 1,000 pilots, passengers, and aviation enthusiasts participate in the program, which has generated excitement in the aviation community as pilots have said it has encouraged them to visit new airports. The program launched in April 2019 with 106 airports and seaplane bases participating. Since that time, three individuals in Washington have visited 100% of the participating airports.

WSDOT reviews emerging aviation technology

WSDOT Aviation Division formed a legislatively-directed working group in 2018 to explore the possibilities of electric aircraft for use in regional air service. In June of 2019, WSDOT submitted a report to the legislature with the working group's findings.

One of the recommendations was to conduct a secondary study led by an aviation consultant to continue the work of the electric aircraft working group. This follows WSDOT Aviation's charter to encourage, foster and assist in the development of aeronautics in the state—a critical step in keeping pace with the rapid development of electric aircraft propulsion, unmanned aircraft systems and urban air mobility.

In addition to regional air service, electric propulsion has the potential to make flying taxis, otherwise referred to as Urban Air Mobility (UAM), a reality. UAM has many potential benefits, including reducing greenhouse gas emissions, and reducing traditional automobile congestion on roadways. WSDOT's Aviation Division has worked closely with the Department of Commerce to assist companies seeking to do business in the UAM space in Washington state and connect them with stakeholders in local communities.

One of the main drivers of UAM is the technology currently being used and developed for Unmanned Aircraft Systems, otherwise known as drones. In 2018, the Federal Aviation Administration's reauthorization bill included

expansion of applications for UAS allowing for further use of the technology in areas such as beyond line of sight, night operations, remote identification, and flights over people. WSDOT Aviation has been working with partners on UAS and helping make connections to bring more unmanned development to Washington state.

Senate establishes Commercial Aviation Coordinating Commission

In 2019, the state Legislature approved Substitute Senate Bill 5370, establishing a coordinating commission to identify the location for a new primary commercial aviation facility in Washington. Primary airports are defined as those which see more than 10,000 passengers a year.

The bill calls for three reporting dates to the state transportation committees:

- A short list of six locations by January 1, 2021;
- The top two locations from the six by September 1, 2021; and
- A single preferred location by January 1, 2021.

The commission must also project a timeline for the development of a facility that is functional by 2040.

WSDOT Aviation is responsible for providing staff support to coordinate and administer the commission, offering technical support to commission members and hiring a consultant as resources allow. The initial commission meeting convened on October 30, 2019.

The commission includes 15 voting members (13 appointed by Gov. Jay Inslee) and 11 nonvoting members. The commission will review existing data and conduct research on the long-term commercial aviation facility needs, the feasibility of constructing a facility, and the potential environmental and economic impacts in each area considered.

Contributors include Dave Chenaur, Christina Crea, Rob Hodgman, Eric Johnson, John MacArthur, Tracy Paul, Max Platts, Paul Wolf, Patrick Wright, Joe Irwin and Dustin Motte

WSDOT-managed airports provide areas for collaborative rescue training efforts

Various emergency responders from Seattle Fire Department, Seattle Police Department, Snohomish County Technical Rescue, King County Sheriff's Office and Snohomish County Sheriff's Office used WSDOT-managed Skykomish Airport for their 2019 Regional Aviation Training in October.

The life-saving training was successful and all objectives were met, including:

- Establishing a safe and organized emergency helispot
- Establishing effective air/ground communications
- Reviewing helicopter safety procedures
- Training in airborne tactical extraction platform operations
- Providing insertion and extraction training to emergency response crews.

First responders train in safety using an Airborne tactical extraction platform during an exercise.

75 CAPITAL FACILITIES ANNUAL REPORT

Notable results

- *As of September 2019, 54% of WSDOT-owned primary buildings were in poor condition, an increase of nine percentage points from 45% of buildings in poor condition in 2017*
- *Seventy-two percent of Safety Rest Area bathrooms were in fair or better condition as of September 30, 2019*

Condition guide

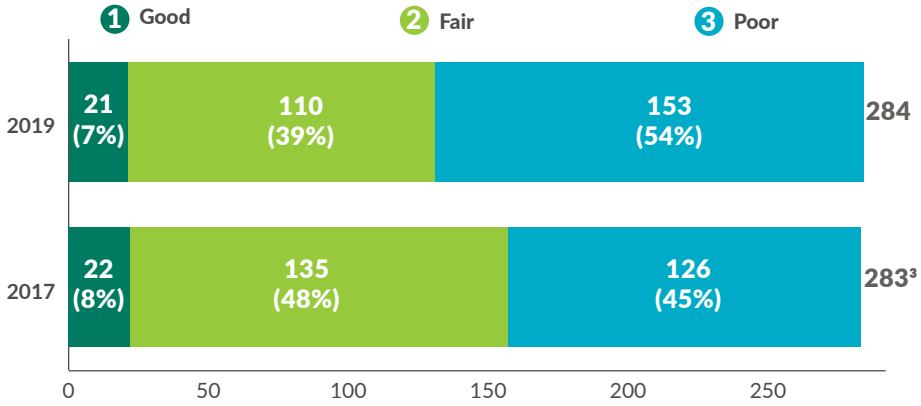
- **Good condition:** system components are in good condition, with some elements showing signs of deterioration that require attention, but are typically safe and reliable with minimal capacity issues and low risk of failure.
- **Fair condition:** the facility shows signs of deterioration and requires attention, some elements exhibit significant deficiencies in condition and functionality, and there is an increased risk of failure with some components approaching the end of their service life.
- **Poor condition:** a large portion of systems exhibit significant deterioration, and condition and capacity are of serious concern. There is a strong risk of component/system failure. These multiple major deficiencies will lead to unexpected repairs and unbudgeted costs.

Majority of WSDOT's primary buildings are in poor condition as they continue to age

As of September 2019, 153 (54%) of WSDOT's primary buildings were in poor condition, a net increase of 27 over the 126 (45%) buildings in poor condition in 2017 when building conditions were last assessed. The agency owned 284 primary buildings (buildings over 2,000 square feet) as of September 2019. During the 2019 building condition assessment, 21 (7%) buildings achieved a good condition rating, one fewer than the 22 (8%) rated good in 2017. Primary buildings considered to be in fair condition decreased to 110 (39%), compared to 135 (48%) in 2017. The condition of agency-owned primary buildings directly affects the ability of staff to meet the agency's mission and strategic goals.

Majority of WSDOT's primary buildings in poor condition

Number and percentage[1] of WSDOT primary[2] buildings by condition; September 2019 compared to September 2017



Data source: WSDOT Capital Facilities Office.

Notes: **1** Percentages may not add to 100 due to rounding. **2** Primary buildings are agency-owned buildings 2,000 square feet or larger. **3** WSDOT added one new primary building to its inventory between 2017 and 2019.

WSDOT owns over 1,000 buildings that support more than 6,000 staff and house equipment and supplies to maintain agency operations. Of these buildings, 284 are considered primary. WSDOT focuses on these buildings for reporting because they represent the largest capital investment by the agency in buildings, and are key infrastructure that supports staff and operations.

WSDOT's primary buildings average 46 years old

The average age of WSDOT's primary buildings is 46 years. Of the agency's 284 primary buildings, 72 (25%) are 25 years old or less, while 102 (36%) primary buildings are between 26 and 50 years old. WSDOT owns 110 (39%) primary buildings that are more than 50 years old, with 34 (12%) of these having been built in the 1930s.

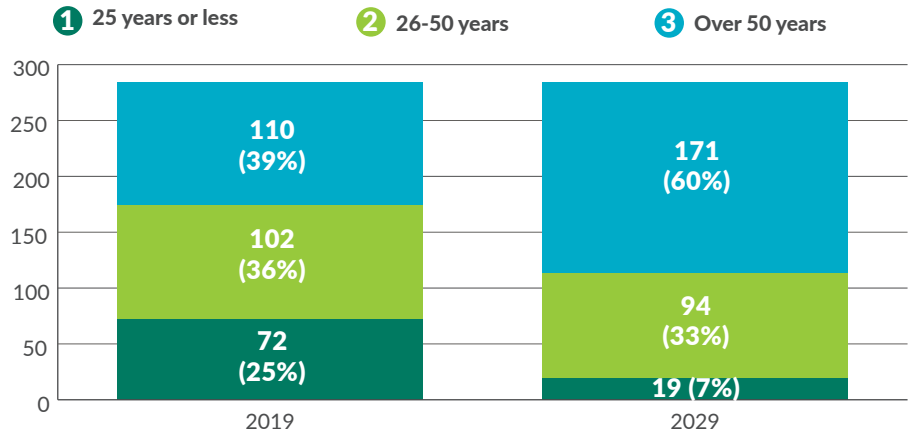
By 2029, 19 (7%) of WSDOT's current primary buildings will be 25 years old or less, 94 (33%) will be between 26 and 50 years old, and 171 buildings (60%) will be more than 50 years old. WSDOT follows guidance from the Washington State Office of Financial Management which states that buildings over 50 years of age have reached the end of their useful service life.

Nearly half of SRA restroom buildings will be more than 50 years old by 2029

The average age of WSDOT safety rest area restroom buildings is 33 years. As of September 2019, 23 restroom buildings (37%) are less than 26 years old, while 29 (46%) are between 26 and 50 years old. The remaining 11 (17%) buildings are over 50 years old. In 10 years, 49% of restroom buildings will be more than 50 years old (see chart below). Aging buildings produce additional maintenance needs which can result in increased closures to address repairs.

Approximately 60% of WSDOT's buildings will be over 50 years old by 2029

Number of WSDOT primary buildings by age; September 2019; Projected for September 2029[1]

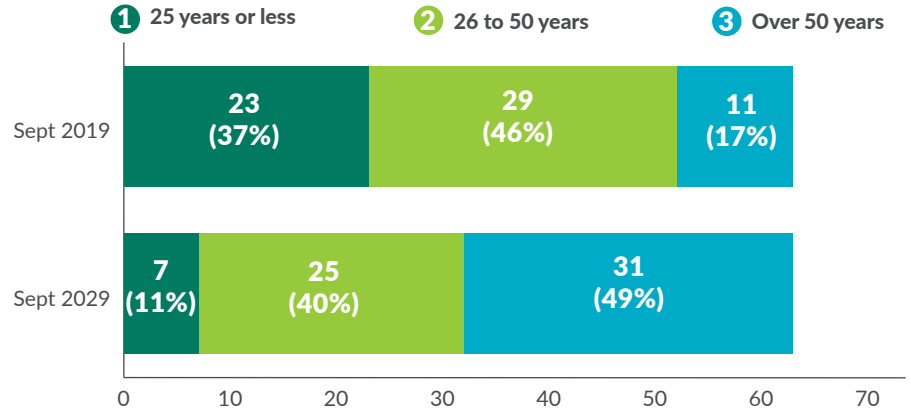


Data source: WSDOT Capital Facilities Office.

Notes: Percentages may not add to 100 due to rounding. **1** Projections based on current inventory.

Over half of safety rest area restroom buildings are over 26 years old in FY2019

Number and percentage of WSDOT rest area bathroom buildings by age; September 2019; projected for 2029



Data source: WSDOT Capital Facilities Office.

WSDOT primary building deteriorates to poor condition

One of the primary buildings that deteriorated to poor condition in 2019 is the Equipment Storage and Radio/ Electric Shop located at the Vancouver Area 1 Maintenance Facility. This 48-year-old primary building's estimated replacement cost is $3.3 million.

WSDOT uses this building daily to support striping crews, and its heated bays store temperature-sensitive materials. The building also houses equipment and shop space that has been configured for radio and electric repair, key work that saves the agency money by fixing rather than replacing broken equipment.

Without major renovations, buildings this old do not have the design or infrastructure to meet a modern workforce's needs, which may result in difficult investment decisions between upgrading and replacing buildings.

Most safety rest area restroom buildings in fair or better condition

As of September 2019, 13 (21%) of WSDOT safety rest area restroom buildings are in good condition, and 32 (51%) are in fair condition. However, 18 (29%) are in poor condition—meaning they have major deficiencies that will likely impact services.

Safety rest area usage decreases by 2.3% in 2018

WSDOT's network of 47 safety rest areas had 23.8 million visitors in 2018, a 2.3% decrease from 24.4 million in 2017.

Costs for operating and maintaining safety rest areas averaged 28 cents per visitor in 2018. Costs ranged from 10 cents per visitor in the busiest rest areas to 80 cents per visitor at more rural sites. Lower-use rest areas are often located on stretches of road that may not have other services available, providing a key benefit and helping keep travelers safe. Learn more about WSDOT's safety rest areas in the interactive online map at: http://bit.ly/GNBrestareasmap.

WSDOT's preventive maintenance completion rate expected to decrease

During the 2017-2019 biennium, WSDOT completed 83% of its Facilities Preventive Maintenance Plan tasks. This is a slight improvement over the 2015-2017 completion rate of 82%.

While the preventive maintenance completion rate has been relatively steady, WSDOT expects it to decline due to budget challenges. As facilities continue to age, costs for emergency repairs are expected to significantly increase with the resulting unplanned spending decreasing the amount that can be spent on preventive work.

WSDOT has already begun to experience the consequences of deferring routine maintenance. In August 2018, a water supply line at a WSDOT facility in Spokane failed and flooded over 2,000 square feet of the office, extensively damaging carpets, ceilings and walls. Plumbing inspections had been deferred for more than a decade due to budget constraints.

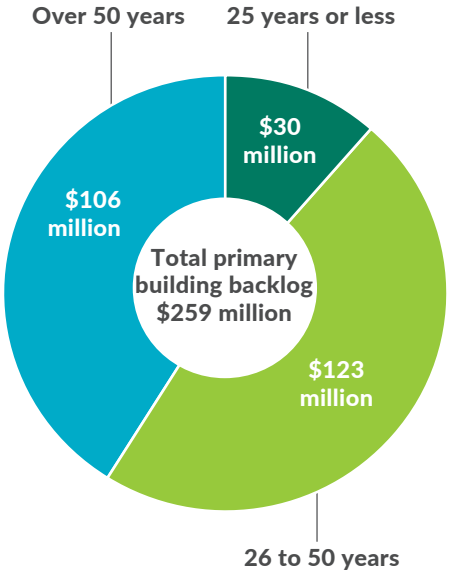
Restoring the building cost approximately $28,000, while the estimated cost of a plumbing inspection is $66.80. Cleanup required the use of emergency contractors for flood mitigation, damage repair and mold prevention. Restoring the building to full service took three weeks and affected over 90 employees and their project timelines.

Maintenance backlog increases as buildings age

As of September 2019, the total maintenance backlog for WSDOT primary buildings was $259 million, an increase of $7.1 million from the 2017 backlog estimate of $252 million due to additional need (see chart at right). This is less than the average two year backlog increase of $16.4 million between 2014 and 2018 (all numbers in 2019 dollars).

Maintenance backlog increases as WSDOT primary buildings age

As of September 2019



Data source: WSDOT Capital Facilities Office.
Note: These numbers are adjusted for inflation to align with 2019 dollars.

WSDOT uses Practical Solutions to help address maintenance backlog

WSDOT has implemented practical solutions to address the maintenance backlog by strategically investing funds and staff time.

For example, WSDOT improved the condition of the Forks Equipment Storage building from fair to good during the 2017-2019 biennium. WSDOT accomplished this by finding ways to spend the same funds more effectively, reassessing staffing needs and stationing a maintenance tech in Port Angeles. Having staff closer to remote facilities on the Olympic Peninsula reduced travel time, increased time on-site, and also reduced the use of contracted vendors for maintenance and repairs.

WSDOT selling surplus buildings as part of North Central Region Headquarters replacement efforts

WSDOT is in the process of selling two 1930s buildings in Wenatchee that have been replaced by newer buildings at the North Central Region Headquarters complex (See Gray Notebook 71, p. 25). Once those buildings are sold, their maintenance will no longer be the agency's responsibility and the backlog is expected to shrink by roughly $8.7 million, from $259 million to approximately $250 million.

WSDOT completes asset management plan for capital facilities

In October 2019, WSDOT completed a capital facilities Asset Management Plan that establishes and communicates the agency's process for managing its capital facility assets. This plan is used to communicate program needs and shortfalls, as well as to inform investment strategies. Future editions of this plan will outline capital facilities lifecycle planning and tradeoff analysis.

WSDOT identifies capital facilities funding gap of $62 million

In fiscal years 2019-2029, WSDOT plans for an average biennial budget of approximately $57 million for capital facility asset management. The estimated funding needed to bring the agency's capital facilities assets to a state of good repair is an average of $118 million per biennium over the next 10 years. The resulting funding gap is approximately $62 million per biennium.

WSDOT has developed a backlog reduction plan that includes:

- A prioritized list of specific facility deficiencies and capital projects to address the deficiencies;
- Cost estimates for each project;
- A schedule for completing projects over a reasonable period of time; and
- Identification of normal maintenance activities to reduce future backlogs.

However, this backlog reduction plan has not been funded.

Two major capital facilities projects underway in 2019

WSDOT has several capital facilities projects planned for the 2019-2021 biennium as of September 30, 2019.

Construction underway on Olympic Region headquarters complex

Construction has begun on the new $58.5 million WSDOT Olympic Region Headquarters. Located on Marvin Road in Lacey, the project will replace the current regional headquarters building (built in 1938) and is on schedule for completion in spring 2021.

The new 20-acre complex will house over 300 staff in a multistory administrative office building (totaling approximately 40,000 square feet) and in light industrial buildings (totaling approximately 90,000 square feet).

WSDOT making progress on Dayton Avenue building remodel

WSDOT is designing the $46.5 million Northwest Region headquarters renovation to create a modern work environment. The project will renovate all six floors, consolidate WSDOT's footprint, and allow it to lease office space to the Department of Ecology in a mutually beneficial arrangement. Located on Dayton Avenue in Shoreline, this project is on schedule and due to be completed in June 2021.

WSDOT plans for $4.52 million in minor projects during 2019-2021

WSDOT is planning to spend $4.52 million in the 2019-2021 biennium to support ongoing preservation and repair projects, including:

- Spokane Street Section Maintenance Facility — Roof Replacement, $60,000;
- Tumwater Materials Laboratory — Roof Replacement, $1.7 million;
- Lakeview Area Maintenance Facility Building — Lift Replacement, $32,000;
- Grouse Creek Section Maintenance Facility — Water Line Replacement, $54,000;
- Bullfrog Area Maintenance Facility — Well Replacement, $52,000.

Contributors include Brian Brannies, Tim Hall, Steve Holloway, Lisa Mikesell and Yvette Wixson

75 ACTIVE TRANSPORTATION MOBILITY & ACCESSIBILITY ANNUAL REPORT

Notable results

- *Active Transportation trips increased between 2017 and 2018 in eight of the nine counties with permanent bicyclist and pedestrian counters*
- *WSDOT analyzed bicyclist and pedestrian Level of Traffic Stress on state highways as part of its Active Transportation Plan*
- *WSDOT invested $6.5 million in Americans with Disabilities assets during the 2017-2019 biennium (July 1, 2017 through June 30, 2019)*
- *Washington State Ferries provided access to 7,262,396 walk-on passengers in 2018, an increase of 1.2% over 7,177,062 walk-on passengers in 2017*

WSDOT continues to expand bicyclist and pedestrian permanent counter program

As of September 2019, WSDOT had installed 56 permanent bicyclist and pedestrian counters near trails and transit centers in 14 counties across the state, up from 53 in 2018. Many of the existing counters were installed after 2017. As a result the chart below reflects only the 23 counters that recorded full-year data for both 2017 and 2018: 12 counters in King County, four in Spokane County, and one each in Douglas, Kitsap, Benton, Clark, Clallam, Thurston and Yakima Counties.

Between 2017 and 2018, the number of active trips increased in eight of the nine counties with permanent bicyclist and pedestrian counters (see table below). These increases ranged from 0.4% (Clallam County) to 31% (Benton County). Kitsap County saw a 3% decrease in active transportation trips.

WSDOT continues to expand its automated bicyclist and pedestrian count program to better understand when and where people are bicycling and walking. The additional data from this expansion will help WSDOT and its partners make better-informed decisions on system upgrades to improve safety, mobility, and accessibility for people who bicycle, walk or use other active transportation mobility devices such as wheelchairs, scooters and skateboards.

Active transportation trips increase between 2017 and 2018 in eight of nine counties with permanent counters

Bicyclist, Pedestrian and all active trips in thousands; By county

County (number of counters)	Bicyclist trips			Pedestrian trips			All active trips		
	2017	2018	% Change	2017	2018	% Change	2017	2018	% Change
Benton (1)	43.4	47.1	9%	41.7	64.0	53%	85.1	111.1	31%
Clallam (1)	18.1	18.6	3%	73.0	72.9	0%	91.1	91.5	0.4%
Clark (1)	20.0	20.5	3%	2.9	3.8	31%	22.9	24.3	6%
Douglas (1)	27.0	29.2	8%	21.1	25.3	20%	48.1	54.5	13%
King (except UW Transit Center 2; 11)[1]	1,567.6	1,594.9	2%	2,508.5	3,483.7	39%	4,076.1	5,078.6	25%
Kitsap (1)[2]	39.7	38.7	-3%	N/A	N/A	N/A	39.7	38.7	-3%
Spokane (4)	90.0	93.5	4%	193.2	212.0	10%	283.2	305.5	8%
Thurston (1)	35.9	37.0	3%	14.7	15.0	2%	50.6	52.0	3%
Yakima (1)	23.3	29.3	26%	52.7	53.1	1%	76.0	82.4	8%

Data source: WSDOT Active Transportation Division.

Notes: Includes only counters that recorded full years of data in both 2017 and 2018. Numbers have been rounded and may not add to totals. **1** Data from the permanent counter located at UW Transit Center 2 indicates very large differences between 2017 and 2018. Because similar differences are not seen in any of the nearby counters, data from this counter is excluded. **2** Bicycle counter only.

ATP update expands scope of active transportation analysis at WSDOT

WSDOT's new Active Transportation Plan (see box at right) will expand the scope of active transportation analysis at the agency, and will help the agency develop active transportation decision-making tools—such as a list of statewide active transportation needs—that are informed by multiple performance measures.

Historically, performance measures for active transportation mobility have been focused on trips taken by bicyclists and pedestrians. These measures have included year-round counts of bicyclists and pedestrians recorded by permanent counters in a small number of fixed locations, short-duration volunteer count data from a somewhat larger number of locations (see box below), and the percentages of commute trips made entirely by bicycle or on foot (available through the U.S. Census Bureau).

WSDOT suspends volunteer bicycle and pedestrian count in 2019

WSDOT has suspended its annual short-duration volunteer bicycle and pedestrian count for 2019. WSDOT is using this time to work with its partners on implementing recommendations from the guide on active transportation counting methodology that the agency commissioned in 2017 (see bit.ly/AT_guide).

While counting bicyclist and pedestrian trips is essential, such measures alone cannot tell the full active transportation story because they do not account for the effects of barriers to active transportation. WSDOT's ATP expands beyond count data to include analysis of potential demand for active transportation and Level of Traffic Stress (see p. 30). The ATP is a step toward a future in which active transportation connections are complete and comfortable.

WSDOT maps the demand for active transportation

In 2019, WSDOT worked with a consultant to estimate and map the potential demand for walking and bicycling statewide. The estimates were based on a model that included land-use characteristics such as:

- Employment density;
- Population density;
- Access to transit and other modes;
- The presence of colleges and universities;
- Retail employment density; and
- Access to non-work destinations.

WSDOT will use these estimates to identify locations in which improvements to active transportation network connectivity are needed. For example, if the model indicates that high demand for bicycling is expected in an area with relatively few actual bicyclist trips observed, that location might need a network connectivity improvement.

WSDOT updates Active Transportation Plan

WSDOT is developing its updated Active Transportation Plan. The ATP, which will replace an existing bicyclist and pedestrian plan, is scheduled for completion in 2020. It aims to improve mobility by creating decision-making tools that address:

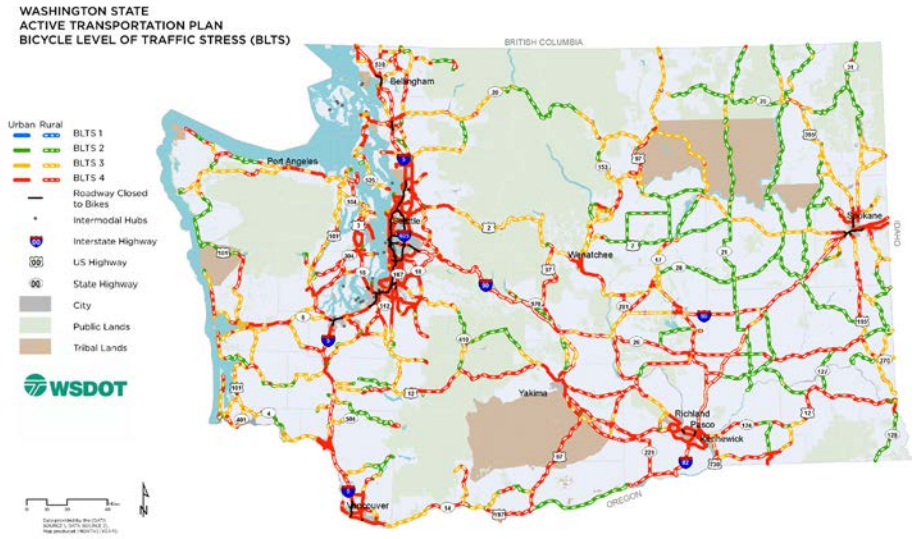
- Analyzing connections, gaps and barriers;
- Prioritizing changes to WSDOT right of way and connections on local systems to work toward achieving complete, comfortable connections for all travelers;
- Connecting active transportation networks to transit, ferries, rail and air travel;
- Managing active transportation assets;
- Understanding funding and policy; and
- Measuring active transportation performance.

In fall 2019, WSDOT held an online open house for its ATP. The event included a draft analysis of bicyclist and pedestrian Level of Traffic Stress, as well as a questionnaire to collect data on transportation usage, barriers to active transportation use, and priorities. To learn more and provide input, visit: http://bit.ly/WSDOT-ATP-Online-Open-House.

Level of Traffic Stress

Level of Traffic Stress is a methodology for assessing how stressful it is to walk or ride a bicycle on a particular road.

Using a combination of roadway characteristics, geographic location and surrounding land use, it rates roads from LTS 1 (least stressful) to LTS 4 (most stressful). LTS is calculated separately for bicyclists and pedestrians. For an in-depth description of LTS methodology, see Gray Notebook 71, p. 31.



An image of WSDOT's Statewide Bicycle Level of Traffic Stress map. An interactive online version of this map, which also includes Pedestrian Level of Traffic Stress, can be viewed at bit.ly/LTS_Map.

WSDOT evaluates Bicyclist and Pedestrian Level of Traffic Stress on highways

As of September 30, 2019, WSDOT had completed its analysis of bicyclist and pedestrian Level of Traffic Stress on all state highways (see box above). This analysis, which is a component of the ATP, is calculated separately for bicyclists and pedestrians—so each road segment receives two ratings.

Like the other components of the ATP, the LTS analysis will help WSDOT identify and prioritize active transportation needs across the state. Additionally, this analysis is a step forward in developing mobility performance measures around network completeness and network quality. To view an online version of WSDOT's Bicycle and Pedestrian LTS map, visit bit.ly/LTS_Map.

WSDOT studies state highway crossing needs

WSDOT partnered with FHWA and Walla Walla Valley Metropolitan Planning Organization in 2019 for a pilot study on how state highways may act as barriers for bicyclist and pedestrian travel in Walla Walla.

The study evaluated locations where it is possible for pedestrians and bicyclists to cross highways based on their proximity to destinations such as schools and stores. The study also categorized crossings according to how much they exposed users to stressful traffic elements such as high speeds or volumes of vehicle traffic. Additionally, the study analyzed how far out of their way a bicyclist or pedestrian must travel in order to make trips that involve crossing state highways.

Analysis of the Walla Walla study results will be completed in winter 2019, as will a similar analysis of all state highways. Beginning in 2020, WSDOT will be able to use the results of these analyses—along with the results of other work being done as part of the Active Transportation Plan—to inform future corridor studies and project plans.

WSDOT develops ADA Asset Management Plan

In 2019, WSDOT continued its work on asset management planning for assets associated with the Americans with Disabilities Act. Title II of the ADA (1990; 28 CFR Part 35), a civil rights statute, requires highways, streets and walkway facilities to be accessible.

WSDOT's ADA asset management plan, which will ultimately describe

the state of ADA assets and their management statewide, as well as additional needs in this area, is a component of the agency's Statewide Transportation Asset Management Plan. Its development is also an item in the implementation of the agency's 2018 ADA Transition Plan (see Gray Notebook 71 p. 31 and bit.ly/WSDOT_ADA). It will be included in future ADA progress reports to FHWA.

The plan will improve tracking, reporting and management of ADA assets. Managing assets, including ADA assets, involves maintenance and preservation work in addition to design and construction. Changes to an ADA asset over time, such as deterioration or obstructions caused by overgrown vegetation, can cause the asset to become non-compliant with the ADA and may result in required maintenance or preservation work.

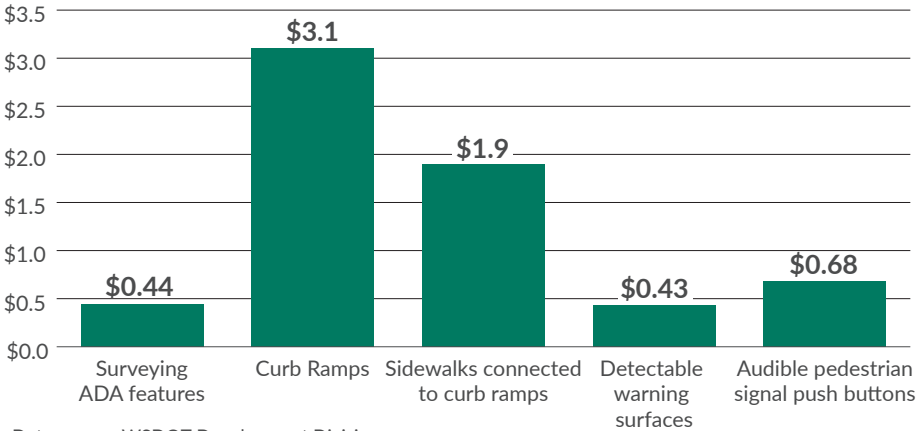
WSDOT's ADA assets are also active transportation elements, and asset management will be addressed in the update to the state Active Transportation Plan. Implementation of the agency's ADA Asset Management Plan, in combination with the ADA Transition Plan and the Active Transportation Plan will move the state toward accessible active transportation.

WSDOT invests $6.5 million in ADA assets during 2017-2019 biennium

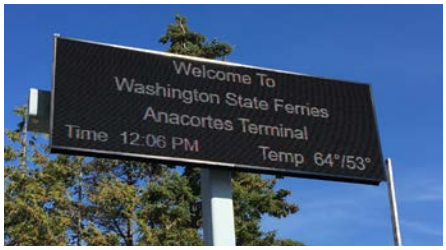
During the 2017-2019 biennium (July 1, 2017 through June 30, 2019), WSDOT invested $6.5 million in ADA assets within the public right of way (see chart below). The majority of this investment—approximately $5 million—went toward projects to construct curb ramps and sidewalk segments connected to curb ramps throughout the state.

WSDOT invests $6.5 million in ADA pedestrian assets[1] during the 2017-2019 biennium

2017-2019 biennium (July 1, 2017 through June 30, 2019); Investments in ADA pedestrian assets[1] in millions of dollars



Data source: WSDOT Development Division.
Notes: **1** ADA pedestrian assets listed in this chart include only those which were coded as ADA Standard Pay items in their respective contracts. Data for any ADA investments which may not have been separately coded is not available.



A visual paging sign at the Anacortes Ferry Terminal in Skagit County.

All 22 Washington State Ferries vessels are ADA accessible

All 22 vessels that are owned and operated by Washington State Ferries were listed as ADA accessible in the 2016 National Census of Ferry Operators, with the most ADA accessible features available on the Olympic Class vessels (the Motor/Vessel *Chimicum*, M/V *Samish*, M/V *Suquamish*, and M/V *Tokitae*), which were built between 2014 and 2018.

Fourteen of WSF's 22 vessels are now equipped with visual paging systems. WSF terminals are being equipped with visual paging signage (see photo above).

WSF passenger numbers continue upward trend

Washington State Ferries provided access to 7,262,396 walk-on passengers in 2018, an increase of approximately 1.2% over the 7,177,062 walk-on passengers in 2017. Due to reporting constraints at WSF, accurate data for bicyclists traveling on ferry vessels is not available and those numbers are included in walk-on passenger totals.

Contributors include Barb Chamberlain, Charlotte Claybrooke, Ida van Schalkwyk, Gary Sea, Larry Watkinson, Jay Wells, Brian Wood and Helen Goldstein

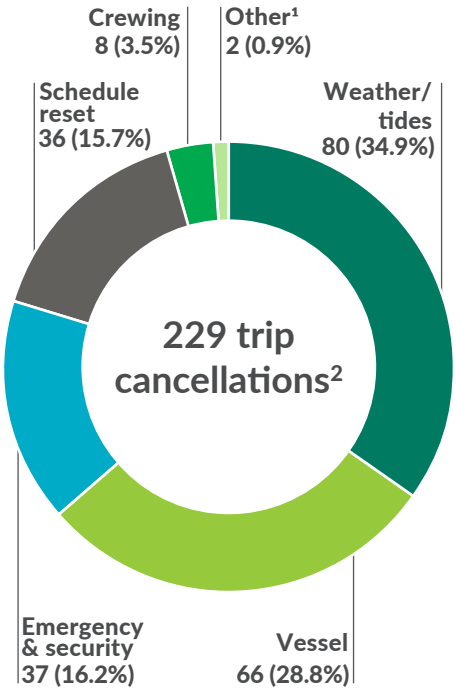
75 WASHINGTON STATE FERRIES QUARTERLY UPDATE

Notable results

- *WSF completed 42,631 (99.6%) of its 42,817 regularly scheduled trips in the first quarter of fiscal year 2020*
- *WSF ridership was approximately 7.32 million in the first quarter of fiscal year 2020, which was 281,315 (3.7%) fewer than the corresponding quarter in FY2019*

Tides and vessel issues cause most cancellations for the quarter

First quarter (July - September) FY2020



Data source: Washington State Ferries.

Notes: Fiscal years run from July 1 through June 30. As a result, July through September 2019 represents the first quarter of FY2020.
1 The category for "Other" includes issues at terminals, and events like disabled vehicles, environmental reasons and non-vessel related incidents that can impact operations.
2 WSF replaced 43 of the 229 canceled trips for a total of 186 net missed trips.

WSF service reliability increases to 99.6%

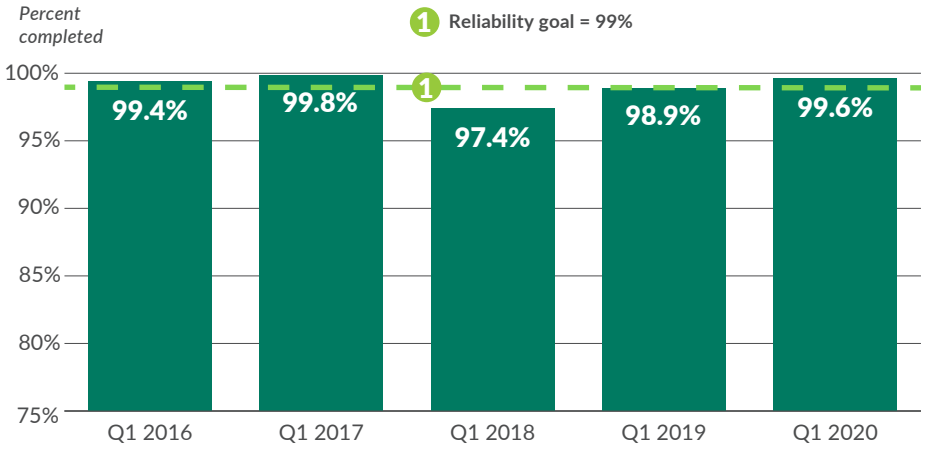
There were 42,817 regularly scheduled ferry trips during the first quarter of FY2020 (July through September 2019). Washington State Ferries completed 99.6% (42,631) of these trips. This exceeds the annual service reliability performance goal of 99% and is an improvement of 0.7 percentage points compared to the same quarter in FY2019 (see table on the next page).

In the first quarter of FY2020, WSF canceled 229 trips but was able to replace 43 of them, resulting in 186 net missed trips (see chart at left). This was 284 fewer net missed trips compared to the same quarter in FY2019.

During the first quarters of the last five fiscal years, WSF met the system-wide goal of 99% reliability in FY2016, FY2017 and FY2020. WSF missed the goal by 1.6% in the first quarter of FY2018 and by 0.1% in the first quarter of FY2019 (see graph below). Multiple vessels were out of service for unplanned maintenance during the first quarters of FY2018 and FY2019, which contributed to the lower reliability rates.

WSF trip reliability remains relatively steady in five-year trend

First quarters; Fiscal years 2016 through 2020; Percent of scheduled ferry trips completed



Data source: Washington State Ferries.

Notes: Fiscal year = July 1 through June 30. As a result, July through September 2019 represents the first quarter of FY2020.

On-time performance decreases during the fall quarter

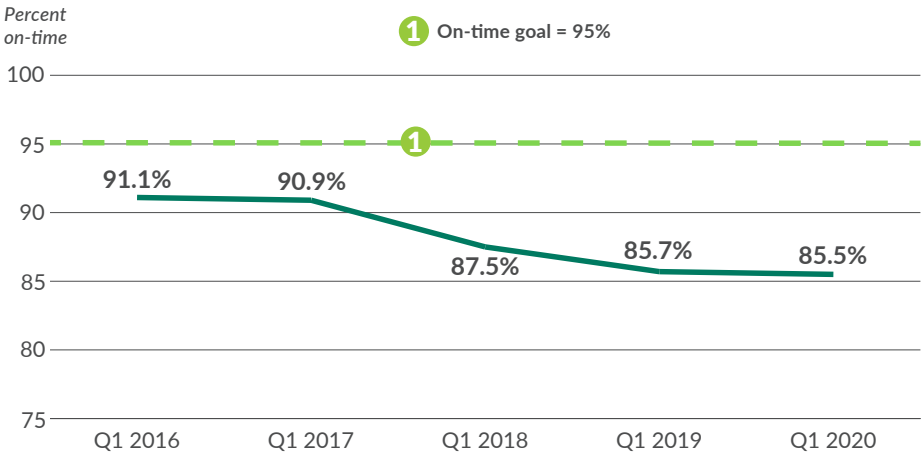
On-time performance was 85.5% in the first quarter of FY2020, 0.2 percentage points lower than the same quarter in FY2019. The quarterly rate is below WSF's annual on-time performance goal of 95%.

On-time performance increased on four of the nine routes compared to the first quarter of FY2019. The Anacortes - San Juan - Sidney route had the largest increase (15.1%) compared to the same quarter last year, when performance was negatively affected by domestic route slowdowns due to

vessel mechanical issues. Deliberate slowdowns in the Haro Strait near Sidney, B.C.—to support Southern Resident Killer Whale recovery—also impacted on-time performance. This route had a low number of sailings, so minor changes in performance resulted in high rates of change.

On-time performance for WSF down slightly in five-year trend

First quarters; Fiscal years 2016 through 2020; Percent of ferry trips reported as on-time[1]



Data source: Washington State Ferries.

Notes: Fiscal year = July 1 through June 30. As a result, July through September 2019 represents the first quarter of FY2020. **1** A trip is considered delayed when a vessel leaves the terminal more than 10 minutes after the scheduled departure time.

During the first quarters of the last five fiscal years, WSF missed the annual goal of 95% of trips completed on-time. On-time performance during these time periods has steadily decreased from the five-year high of 91.1% in FY2016 to 85.5% in FY2020. These delays can be attributed to schedules with insufficient dwell time (time spent loading and unloading while docked) to accommodate the busy sailing season.

The tradeoff to increase dwell time would be to reduce the number of sailings, which is not viable due to the increased service demand WSF is experiencing.

Vessels could travel at faster speeds to make up this time, but operating them at maximum capacity for long periods of time could result in additional mechanical breakdowns.

WSF on-time performance down slightly, reliability up in the first quarter of fiscal year 2020

July through September FY2019 and FY2020; Annual on-time goal = 95%; Annual service reliability goal = 99%

	On-time performance (first quarter)				Trip reliability (first quarter)			
Route	**FY2019**	**FY2020**	**Status**	**Trend**	**FY2019**	**FY2020**	**Status**	**Trend**
San Juan Domestic	75.2%	70.9%	-4.3%	↓	99.2%	99.7%	0.5%	↑
Anacortes/Friday Harbor – Sidney, B.C.	67.4%	82.5%	15.1%	↑	88.5%	100%	11.5%	↑
Edmonds – Kingston	87.2%	90.9%	3.7%	↑	99.6%	99.9%	0.3%	↑
Fauntleroy – Vashon – Southworth	89.9%	90.6%	0.7%	↑	100%	99.7%	-0.3%	↓
Port Townsend – Coupeville	92.8%	92.7%	-0.1%	↓	89.5%	99.5%	10.0%	↑
Mukilteo – Clinton	87.8%	85.8%	-2.0%	↓	99.5%	97.3%	-2.2%	↓
Point Defiance – Tahlequah	94.8%	93.6%	-1.2%	↓	99.9%	99.9%	0.0%	↔
Seattle – Bainbridge Island	78.6%	78.0%	-0.6%	↓	99.6%	99.8%	0.2%	↑
Seattle – Bremerton	84.1%	89.7%	5.6%	↑	100%	99.9%	-0.1%	↓
Total system	**85.7%**	**85.5%**	**-0.2%**	↓	**98.9%**	**99.6%**	**0.7%**	↑

Data source: Washington State Ferries.

Notes: FY = fiscal year (July 1 through June 30). As a result, July through September 2019 represents the first quarter of FY2020. A trip is considered delayed when a vessel leaves the terminal more than 10 minutes after the scheduled departure time. WSF 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. Numbers shown in the table have been rounded to the tenth and may not add to 100%.

Ridership decreases during the first quarter of FY2020

WSF ridership was approximately 7.32 million during the first quarter of FY2020. This was 302,823 fewer riders than projected for the quarter and 281,315 (3.7%) fewer than the corresponding quarter in FY2019.

This is the third quarter in a row in which ridership was lower than the corresponding quarter in the preceding year even though WSF's trip reliability remained above 99% for each of those quarters. The "Seattle Squeeze" likely contributed to the reduction in ridership. The Seattle Squeeze refers to congestion in downtown Seattle due to multiple construction projects at or near the Colman Dock ferry terminal that was exacerbated by the closing and teardown of the Alaskan Way Viaduct. During and prior to the AWV shutdown, commuters in the area were advised to find alternate means to get to work, including the use of telecommuting—resulting in decreased ridership for WSF.

Passenger-only fast ferries operated by Kitsap Transit between Bremerton and Seattle, and between Kingston and Seattle have also affected WSF ridership. These ferries operate six days per week during the summer sailing schedule, providing a 30-minute trip between Seattle and Bremerton and a 40-minute trip between Seattle and Kingston. WSF vessels, which accommodate motor vehicles, provide a 60-minute trip between Seattle and Bremerton and do not offer trips between Kingston and Seattle.

Passenger injuries increase, employee injuries decrease

The rate of passenger injuries per million riders increased from 1.84 in the first quarter of FY2019 to 1.91 in the first quarter of FY2020, representing an increase from six to 14 total passenger injuries. The passenger injury rate during the quarter was above WSF's goal of 1.0 injuries or less per million riders.

The rate of Occupational Safety and Health Administration recordable crew injuries per 10,000 revenue service hours decreased from 5.7 in the first quarter of FY2019 to 4.1 during the same period in FY2020. This remains below WSF's annual goal of having a rate of fewer than 7.6 crew injuries per 10,000 revenue service hours.

Revenue follows ridership, down for the quarter

WSF's farebox revenue was approximately $63.6 million for the first quarter of FY2019. Farebox revenue was about $500,000 (0.8%) less than the same quarter in FY2019, and was $795,000 (1.2%) below projections.

Passenger complaints increase for the quarter

There were 1,013 complaints during the first quarter of FY2020 compared to 369 during the same period in FY2019. The category with the most complaints was Terminal/ Vessel Operations at 312. Employee Behavior was the second highest category at 176. There were 36 compliments this quarter compared to 37 for the corresponding quarter in FY2019.

Contributors include Matt Hanbey, Donna Thomas, Joe Irwin and Dustin Motte

The online version of this article links to an interactive map at bit.ly/GNBferriesmap.

Customer feedback: WSF goes above and beyond

"I will be the first to complain out loud when the boat is late because some knucklehead doesn't load right. Today I was that knucklehead. I was bringing my wife home from the hospital after having a full hip replacement. I told the gate agent that we had a medical pass but forgot to tell her that I would have to get my wife out of the car—per doctor's orders—at least once every hour to alleviate the potential for blood clots. That hour would happen during the crossing. I have been a wreck and I wasn't thinking clearly when I got on the boat (I ride the Bainbridge Island boat five days a week) and panicked while loading. The first mate and the crew handled me expertly, got me into position and I was able to get my wife up and out of the car. I can't express how impressed I am with the crew of the Tacoma. Their job is difficult on most days but today it was more so and they handled me and the few other knuckleheads with expertise and grace. Please let them know I am thankful for their help and patience."

(Comment edited and is an excerpt)

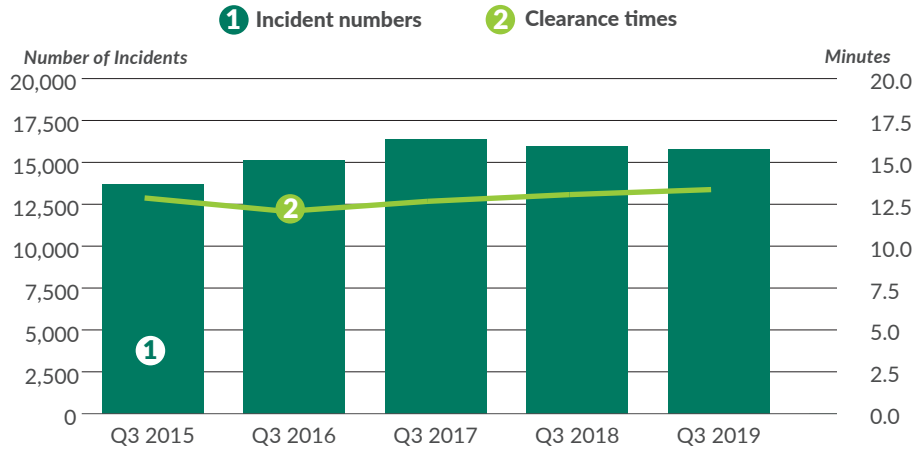
75 INCIDENT RESPONSE QUARTERLY UPDATE

WSDOT Incident Response teams help improve driver safety at 15,791 incidents

WSDOT's Incident Response teams assisted at 15,791 incidents during the third quarter (July through September) of 2019. This averages to IR teams responding to an incident scene every eight minutes and 23 seconds during the quarter. There were 157 (1.0%) fewer incidents during the third quarter of 2019 compared to the same quarter in 2018 (15,948).

On average, IR teams cleared each of the 15,791 incidents in 13 minutes and 18 seconds. This is 18 seconds (2.3%) slower than the average incident clearance time for the same quarter in 2018.

Average clearance times increase slightly over past five years
Third quarters; 2015 through 2019; Number of incident responses; Clearance times in minutes



Data sources: Washington Incident Tracking System.

Notes: The data above only accounts for incidents to which an IR unit responded. IR data reported for the current quarter (Q3 2019) is considered preliminary. In the previous quarter (Q2 2019), WSDOT responded to 16,268 incidents, clearing them in an average of 12.3 minutes. These numbers have been confirmed and are now finalized.

Of the 15,791 total incidents, 11,785 (74.7%) lasted less than 15 minutes, 3,793 (24%) lasted 15-90 minutes and 213 (1.3%) incidents lasted more than 90 minutes.

During the third quarter of 2019, there was a 2.7% decrease in incidents lasting more than 90 minutes, while there were 5.9% more incidents lasting 15-90 minutes and 3.0% fewer incidents lasting less than 15 minutes.

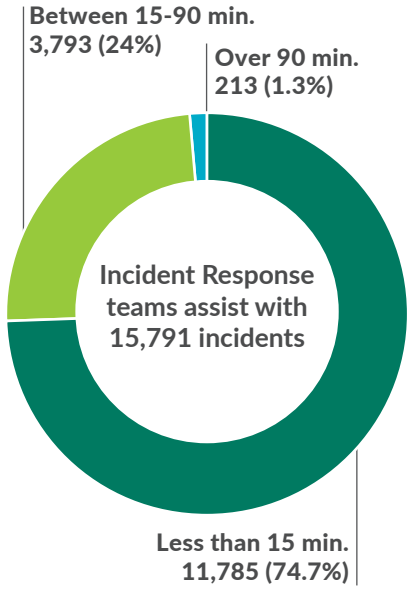
WSDOT teams respond to 213 over-90-minute incidents

IR teams provided assistance at the scene of 213 incidents that lasted more than 90 minutes during the third quarter of 2019. This is six fewer incidents—a 2.7% decrease—than the same quarter in 2018. While these over-90-minute incidents accounted for 1.3% of all incidents, they resulted in 19.8% of all incident-related delay costs (see chart on p. 39).

Notable results

- *WSDOT responded to 15,791 incidents during the third quarter of 2019, 157 (1%) fewer than during the same quarter in 2018*
- *WSDOT cleared incident scenes in an average of 13 minutes and 18 seconds during the third quarter of 2019, 18 seconds (2.3%) slower than the same quarter in 2018*
- *In the third quarter of 2019, IR teams provided an estimated $26.3 million in economic benefit by reducing the effects of incidents on drivers*
- *Based on WSDOT's budget for IR, every $1 spent on the program provided drivers roughly $17.51 in economic benefit*

WSDOT clears majority of traffic incidents in 15 minutes or less
Third quarter 2019; Times to clear incidents; Number and percentage of incidents



Data source: Washington Incident Tracking System.

Incident Response helps reduce congestion

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 $12 million, about 59 full-time equivalent positions and 69 dedicated vehicles. Teams are on-call 24/7 and actively patrol approximately 1,300 centerline miles (3,400 lane miles) of highway on major corridors around the state during peak traffic hours. This covers approximately 18% of all state-owned centerline miles statewide.

Nine of the 213 over-90-minute incidents took six hours or more to clear (referred to as extraordinary incidents). This is three fewer extraordinary incidents than the same quarter in 2018. The nine extraordinary incidents took an average of nine hours and 28 minutes each to clear, accounting for 2.8 % of all incident-induced delay costs for the quarter.

The average incident clearance time for all over-90-minute incidents was two hours and 49 minutes. This is about 16 minutes faster than the same quarter in 2018. Excluding the nine extraordinary incidents, WSDOT's average clearance time for over-90-minute incidents was two hours and 31 minutes.

WSDOT focuses on safety when clearing incidents, working to reduce incident-induced delay as well as the potential for secondary incidents. Secondary incidents occur in the congestion resulting from a prior incident and may be caused by distracted driving, unexpected slowdowns or debris in the roadway.

Benefit of Incident Response teams helping drivers

The IR teams help alert drivers about incidents and clear the roadway to reduce the likelihood of new incidents.

WSDOT's assistance at incident scenes provided an estimated $26.3 million in economic benefits during the third quarter of 2019 by reducing the impacts of incidents on drivers. This benefit is provided in two ways:

- WSDOT reduces the time and fuel motorists waste in incident-induced traffic delay by clearing incidents quickly. About $14.8 million of IR's economic benefit for the quarter result from reduced traffic delay.

WSDOT's Incident Response teams provide an estimated $26.3 million in economic benefit

Third quarter 2019; Incidents by duration in minutes; Time in minutes; Costs and benefits in millions of dollars

Incident duration	Number of incidents[1]	Percent blocking[2]	Average incident clearance time[3] (all incidents)	Cost of incident-induced delay	Economic benefits from IR program[4]
Less than 15 min.	11,785	15.4%	4.8	$14.2	$6.6
Between 15 and 90 min.	3,793	52.7%	31.0	$33.4	$14.7
Over 90 min.	213	82.4%	169.3	$11.7	$5.0
Total	15,791	25.2%	13.3	$59.3	$26.3
Percent change from the third quarter of 2018	**↓1.0%**	**↓0.6%**	**↑2.3%**	**↑0.9%**	**↑1.3%**

Data source: Washington Incident Tracking System.

Notes: Some numbers do not add up to 100% due to rounding.

1 Teams were unable to locate 771 of the 15,791 incidents. Because an IR team attempted to respond, these incidents are included in the total incident count. Other performance measures do not include the incidents that, IR teams were unable to locate.
2 An incident is considered blocking when it shuts down one or more lanes of travel.
3 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.
4 Estimated economic benefits include benefits from delay reduction and prevented secondary incidents. See WSDOT's Handbook for Corridor Capacity Evaluation, 2nd edition, pp. 45-47 for WSDOT's methods to calculate IR benefits.

- WSDOT helps prevent secondary incidents by proactively managing traffic at incident scenes. About $11.4 million of IR's economic benefits results from preventing an estimated 3,004 secondary incidents and resulting delay. This figure is based on Federal Highway Administration data that indicates 20% of all incidents are secondary incidents.

Based on WSDOT's budget for IR, every $1 spent on the program during the third quarter of 2019 provided drivers roughly $17.51 in economic benefit.

Incident numbers do not always directly influence the cost of incident induced delay

The 15,791 incidents during the quarter had a total incident-induced delay cost of $59.3 million. The majority of these incidents were less than 15 minutes. The cost of these 11,785 incidents, which comprised 74.7% of all incidents, was $14.2 million (23.9% of the total cost). There were 3,793 incidents lasting 15-90 minutes, which accounted for 24% to the total number, and cost $33.4 million (56.3% of the total cost). Incidents lasting more than 90 minutes made up 213 (1.3%) of all incidents for the quarter and cost $11.7 million (19.8% of the total cost during the quarter).

Performance data reported in this article is from WSDOT's Washington Incident Tracking System, which tracks incidents to which a WSDOT IR team responded.

For more information on how WSDOT calculates these figures and all IR performance metrics, see WSDOT's Handbook for Corridor Capacity Evaluation, 2nd edition, pp. 45-47.

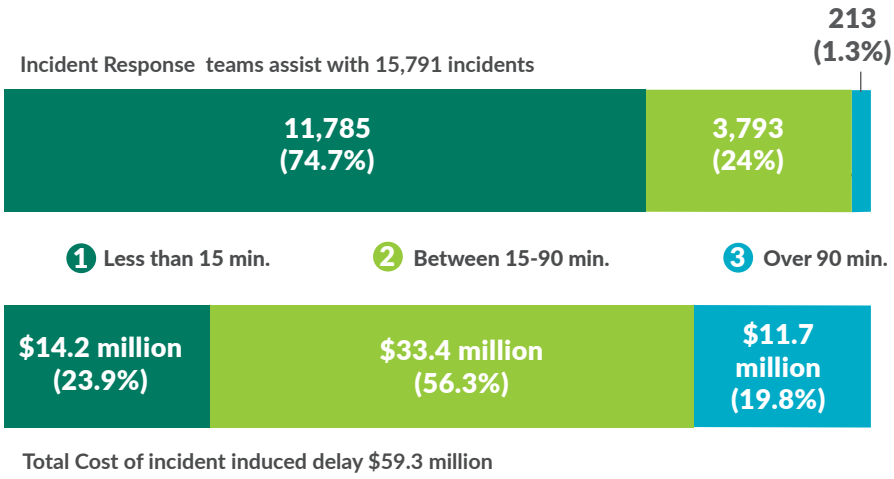
Contributors include Tony Leingang, Ron Vessey, Michele Villnave, Takahide Aso

Customer feedback:

- "Aaron was professional, efficient, thorough and polite. An amazing case of a true rescue! Nothing but HIGH PRAISE!"
- "Unbelievably helpful! Richard was terrific."
- "Chuck was our guardian angel on this day. He was courteous, professional and proud of the fact he could help people. Hurrah for Chuck and your program."

Cost of incident-induced delay not proportional to response numbers

Third quarter 2019; Number and percentage of incidents; Cost of incident induced delay; Time to clear incidents



Data source: Washington Incident Tracking System.

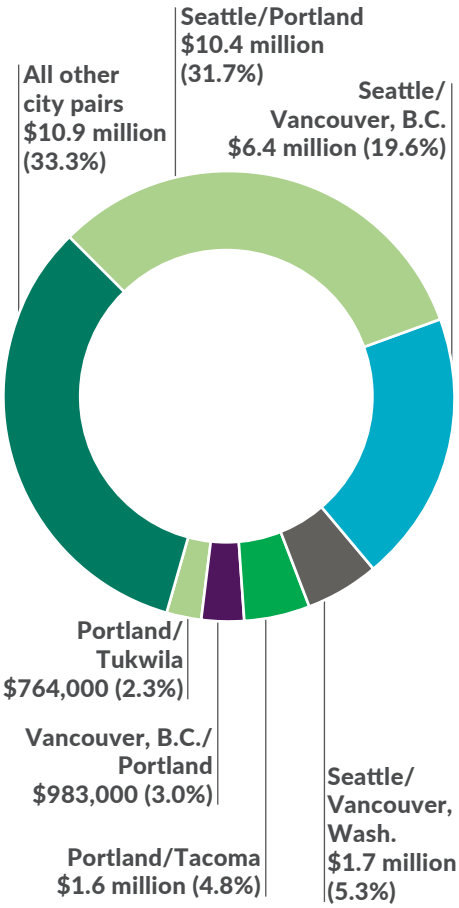
75 RAIL: AMTRAK CASCADES QUARTERLY UPDATE

Notable results

- *Total Amtrak Cascades ticket revenue rose to $32.8 million in FY2019, up 8.5% from $30.0 million in FY2018*
- *The Amtrak Cascades farebox recovery rate was 59.0% in FY2019, down from 59.6% in FY2018 due to increased operating costs*

Amtrak Cascades ticket revenue reaches $32.8 million

Fiscal year 2019; Ticket revenue in dollars by segment; Percentage of total ticket revenue by segment



Data source: WSDOT Rail, Freight and Ports Division.

Notes: Amtrak Cascades runs 467 miles from Vancouver, B.C. to Eugene, Oregon. Percentages may not add to 100 due to rounding.

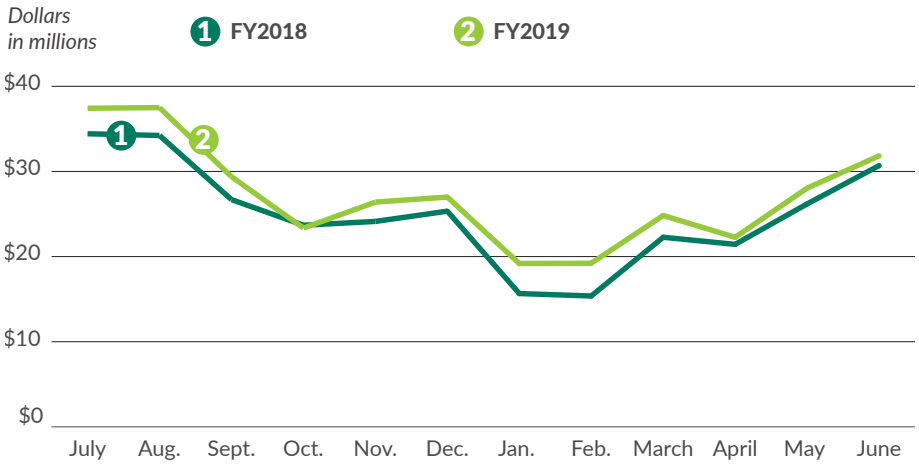
Amtrak Cascades ticket revenue rises 8.5% to $32.8 million in fiscal year 2019

Amtrak Cascades ticket revenue totaled $32.8 million in fiscal year 2019 (July 1, 2018 through June 30, 2019), up 8.5% from $30 million in FY2018. This increase was primarily due to a shift from everyday travel discounts to brief flash sales that encourage travel during off-peak periods that occurred shortly before the beginning of FY2019.

The historically slow months of January and February saw increases in revenue of 22.6% and 25.0%, respectively, over the same months in 2018 (see graph below). These months also saw increases in sales of higher-priced business class tickets (a 30.3% increase in January and a 27.1% increase in February), which rose by 13.8% over the full fiscal year.

Amtrak Cascades ticket revenue increases in most months of FY2019

Fiscal years 2018 and 2019; Ticket revenue by month in millions of dollars



Data source: WSDOT Rail, Freight and Ports Division.

The Seattle-to-Portland travel segment accounted for the largest share (31.7%) of ticket revenue in FY2019 (see graph at left), up from 31.3% in FY2018. The segment's $10.4 million in ticket revenue was $1.0 million more than in FY2018, accounting for more than one third of the total ticket revenue increase for the entire Amtrak Cascades system. The Seattle-to-Vancouver, B.C. segment also saw substantial growth, with an $800,000 increase from $5.6 million in FY2018 to $6.4 million in FY2019.

WSDOT-only Amtrak Cascades revenue reaches $30.4 million in FY2019

WSDOT sponsors the Amtrak Cascades service jointly with the Oregon Department of Transportation (see box at right). Ticket revenue generated only from the WSDOT-sponsored section of the corridor totaled $30.4 million in FY2019, 9.0% higher than in FY2018 ($27.9 million). As with overall Amtrak Cascades revenue, this increase was due primarily to shifting from everyday travel discounts to brief flash sales. In both years, sales on the WSDOT-sponsored portion of the Amtrak Cascades comprised nearly 93% of ticket sales for the entire Eugene-to-Vancouver, B.C. corridor.

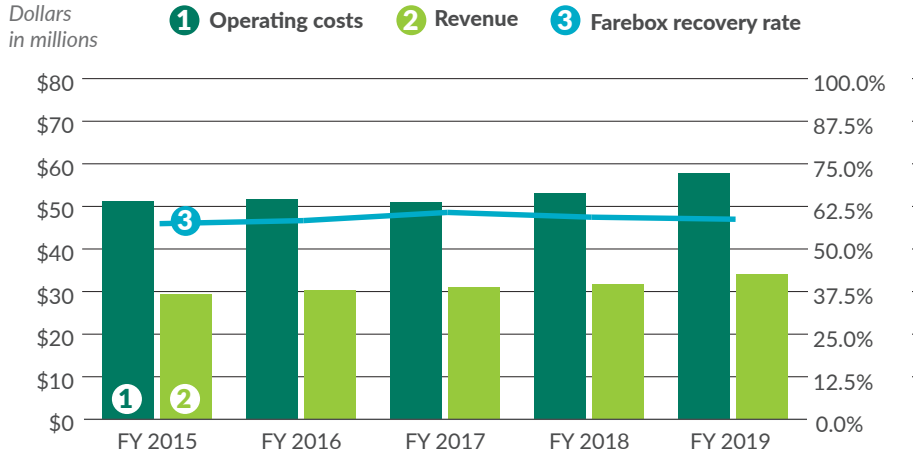
In addition to the $30.4 million in ticket revenue for WSDOT-sponsored service, the Amtrak Cascades service also generated $3.8 million in additional revenue for WSDOT through food and beverage sales and other fees. This total revenue of $34.2 million for FY2019 was a 7.9% increase over the previous fiscal year's $31.7 million total revenue.

Farebox recovery rate decreases to 59.0% in FY2019

Total revenue (tickets, food and beverage, and other fees) covered 59.0% of WSDOT-funded Amtrak Cascades operating costs in FY2019. This percentage, called the farebox recovery rate, was 0.6% lower than in FY2018 (59.6%). While revenue increased from FY2018 to FY2019, it was not enough to make up for a 9.2% increase in operating costs over the same period (see graph below).

Amtrak Cascades revenue and costs increase, farebox recovery rate decreases

Fiscal years 2015 through 2019; Amtrak Cascades operating costs and revenues by fiscal year in dollars; Farebox recovery rate by fiscal year



Data source: WSDOT Rail, Freight and Ports Division.

Amtrak Cascades

Amtrak Cascades is an intercity passenger rail service that operates between Vancouver, B.C. and Eugene, Oregon.

The service is jointly funded and managed by WSDOT and the Oregon Department of Transportation. WSDOT oversees the portion of the Amtrak Cascades corridor between Vancouver, B.C. and Portland, Oregon, while ODOT has primary reponsibility for service between Portland and Eugene. WSDOT and ODOT pay Amtrak to operate the service.

Amtrak Cascades operates on privately owned tracks; BNSF owns the tracks in Washington and British Columbia, and Union Pacific owns the tracks in Oregon. Dispatching services are provided by BNSF in Washington, Union Pacific in Oregon and Canadian National in British Columbia.

The $4.9 million increase in operating costs in FY2019 was primarily due to two factors: First, the December 2017 train derailment near DuPont resulted in the loss of a WSDOT-owned locomotive and trainset. The agency has therefore had to pay to use Amtrak-owned equipment to supplement the fleet and maintain service levels. When insurance reconciliations related to the derailment are finalized, WSDOT will be able to recover these costs.

Secondly, FY2019 was the first full fiscal year since the completion of the capital improvement projects funded by the American Recovery and Reinvestment Act (see Gray Notebook 68, p. 36). Many of these capital improvements are on BNSF land, and WSDOT is contractually obligated to pay BNSF for their maintenance. WSDOT is required to ensure that capital improvements made with federal ARRA funding are kept in a state of good repair.

Amtrak Cascades encounters challenges with additional round trips and new equipment

Amtrak Cascades revenue was projected to significantly increase in FY2018 following the planned addition of two daily round trips between Seattle and Portland. These additional trips were scheduled to provide more options for business and leisure travelers seeking to travel between the two cities in a single day, by offering earlier morning and later evening trips in each direction. The additional trips were postponed following the December 2017 derailment, after which Amtrak Cascades service reverted to the previous service level and route.

Following a 17-month investigation by the National Transportation Safety Board, WSDOT and other involved agencies are now responding to NTSB recommendations (available online at bit.ly/NTSBdupont), which include adding safety measures and replacing certain train equipment. WSDOT is working with Amtrak, Sound Transit and the Federal Railroad Administration to address the NTSB recommendations. The intent is to replace WSDOT-owned passenger rail cars with substitute equipment for the next four to five years until new replacement equipment is manufactured and delivered. Amtrak anticipates it will be able to provide substitute equipment in spring 2020. Once the interim equipment is acquired, Cascades service will be able to return to the new route along the Point Defiance Bypass (see Gray Notebook 68, p. 36) and ultimately add the two additional round trips between Seattle and Portland.

Adding two more daily round trips on the busiest section of the Cascades corridor between Seattle and Portland is expected to significantly increase revenue, but will also lead to additional operating costs. WSDOT projects that revenue will increase more than operating costs, allowing the agency to maintain or exceed its current farebox recovery rate in the future.

Contributors include Barbara LaBoe, Janet Matkin, Cara Motte and Helen Goldstein

75 WATER QUALITY ANNUAL REPORT

WSDOT builds 66 new stormwater facilities during fiscal year 2019

WSDOT built 66 stormwater treatment and flow control facilities during FY2019 (July 2018 through June 2019) to help prevent adverse effects to rivers, lakes and other water bodies. Of the 66 facilities, 47 were constructed in urban areas of the state covered by the agency's municipal stormwater permit.

All 66 stormwater facilities were components of larger WSDOT transportation projects. The number of new stormwater facilities WSDOT builds each year depends on how many transportation projects are under construction. For example, when WSDOT adds new lanes to a highway, the agency is required to add a stormwater facility such as a biofiltration swale (a vegetated ditch that helps remove pollutants from stormwater before it flows into a river, lake or groundwater).

WSDOT prevents sediment from reaching water bodies

During FY2019, WSDOT collected 2,983 cubic yards of sediment, the equivalent of more than 3,300 bathtubs. Of this sediment, 2,914 cubic yards came from catch basins and stormwater facilities while 69 cubic yards came from ferry terminals. This was 860 cubic yards (22.4%) less than the 3,843 cubic yards removed in FY2018. Many variables impact the amount of sediment removed each year, such as the weather and sanding needs for icy roads, the number of stormwater facilities in need of maintenance and available funding. Once removed, sediment is considered a solid waste and WSDOT disposes of it accordingly.

Notable results

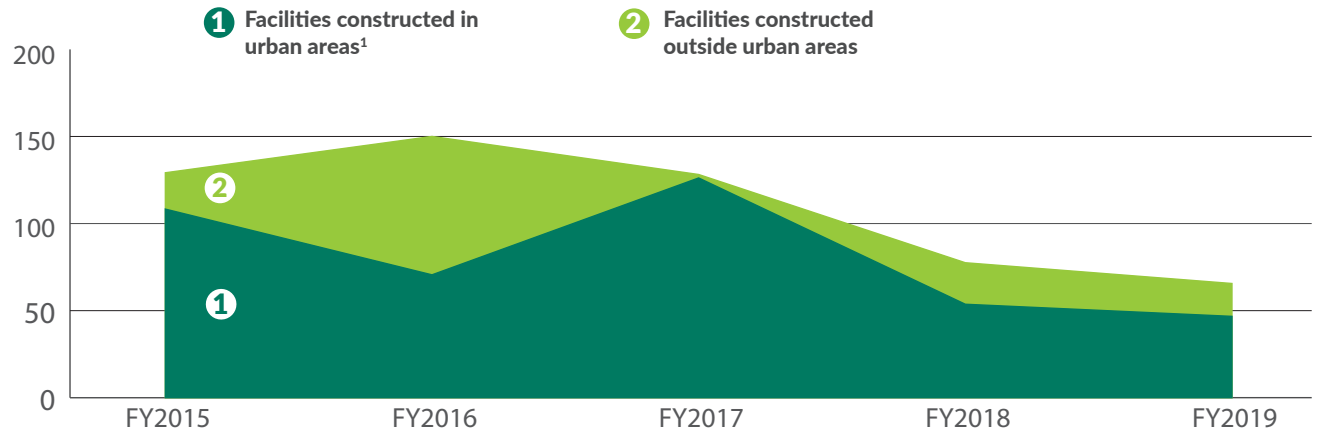
- *WSDOT built 66 stormwater treatment and flow control facilities in FY2019*
- *WSDOT prevented 2,983 cubic yards of sediment from reaching water bodies in FY2019*

Sediment

Sediment is loose particles of sand, clay, silt and other substances produced by erosion and decomposing material. It can be deposited in, transported by or suspended in water. Sediment that reaches a body of water can decrease water clarity, prevent sunlight from reaching aquatic plants, smother fish spawning areas and cause a variety of other problems.

Most stormwater management facilities constructed in urban areas in FY2019

Fiscal years 2015-2019; number of facilities constructed



Data source: WSDOT Environmental Services Office.

Note: **1** Urban areas are defined as areas covered by the municipal stormwater permit, which authorizes WSDOT to discharge stormwater into state waters and sets requirements for pollution reduction.

What the municipal stormwater permit does

The municipal stormwater permit, issued by the Washington State Department of Ecology, authorizes WSDOT to discharge stormwater from highways in urban areas into state waters. It also sets requirements for pollution reduction. For more information, see http://bit.ly/stormwaterpermit

WSDOT employs various operational best management practices—such as street sweeping and regularly cleaning debris from stormwater catch basins—to prevent sediment from entering stormwater runoff and discharging to lakes, streams and other water bodies.

Ecology reissues WSDOT's municipal stormwater permit

The Department of Ecology reissued WSDOT's municipal stormwater permit in spring 2019 (see box at left). The new permit added the City of Shelton, the City of College Place, and Clallam County's unincorporated urban growth area to the places in which WSDOT must implement the permit requirements. It also added new areas that require watershed cleanup plans (known as Total Maximum Daily Loads). These watersheds include Clarks Creek, the North Fork Palouse River, the Deschutes River, Percival Creek, and Budd Inlet tributaries system.

The permit also requires WSDOT to develop a Stormwater Management Program Plan describing how the agency will implement the permit requirements. The plan documents the procedures and practices used to reduce the discharge of pollutants from storm sewer systems owned or operated by the agency. While the agency implements some pollution prevention activities statewide, the plan specifically applies to areas covered by the permit. WSDOT is required to submit an updated stormwater plan to Ecology by October 31 each year.

Contributors include Gregor Myhr, Sheena Pietzold, Robert Price, Cory Simon, Garrett Starks, Trett Sutter, Anjali Bhatt and Lisa Mikesell

A bird's-eye look at Budd Inlet in Olympia. Streams flowing to Budd Inlet were included in one of the watershed cleanup plans that was added to WSDOT's 2019 Municipal Stormwater Permit.

75 INCLUSION ANNUAL REPORT

WSDOT supports diversity and inclusion through apprenticeship opportunities

Apprentices worked 703,708 hours on WSDOT projects in 2018, gaining experience that is designed to help them advance in their trades. Of the apprentice hours reported, 312,741 hours (approximately 44%) were worked by women and minorities. WSDOT values diversity and inclusion; the agency is working to ensure fair and equal opportunities for everyone to participate in its contracts.

The agency requires construction contractors to employ apprentices on agency projects estimated to cost more than $3 million. This helps individuals gain experience and ensures the availability of skilled construction industry workers to complete projects in the future.

Pre-apprenticeship grants fund efforts to increase minorities and women in the trades

WSDOT received $2 million in Connecting Washington funding for the 2019-2021 biennium to provide Pre-Apprenticeship Support Services grants. PASS grants are awarded to pre-apprenticeship programs (which help potential apprentices find and prepare for apprenticeship opportunities) that increase the number of minorities and women gaining meaningful employment in the highway construction trades.

As of September 30, 2019, WSDOT has awarded PASS grants to eight providers of pre-apprenticeship programs. Grant recipients have begun their outreach, training and education efforts.

WSDOT and FHWA partner to provide tuition assistance

In partnership with the Federal Highway Administration, WSDOT's On the Job Training Support Services Program will award more than $90,000 in tuition assistance grants to students across the state during federal fiscal year 2020 (October 1, 2019 - September 30, 2020). This program targets students who are either starting a pre-apprenticeship program, just beginning their apprenticeships with the operating engineers, or are already electricians or diesel technicians. The program is designed for individuals interested in the highway construction trades.

WSDOT program pairs 65 mentors with 78 protégés

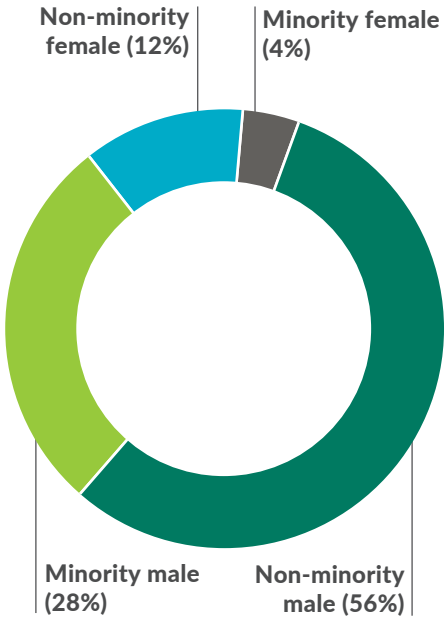
WSDOT has paired 65 mentors with 78 protégés since the agency launched the Capacity Building Mentorship Program in summer 2017. The Minority Business Development Agency – Tacoma Business Center (MBDA) administers the program, which pairs contractors and consultants (mentors) with owners of firms who are certified by the Office of Minority and Women's Business Enterprises or registered as a small or veteran-owned business (protégés).

Notable results

- *In 2018, apprentices worked 703,708 hours on WSDOT projects, with 44% of hours completed by women and minorities*
- *WSDOT increased contract spending with small businesses from 10.76% in FY2017 to 11.29%, in FY2018 exceeding the goal of 5%*
- *Employee survey results reveal that 71% of WSDOT employees feel their work environment is inclusive*
- *As of April 2019, WSDOT's Community Engagement Training reached 481 employees*

Forty-four percent of apprentice hours worked by women and minorities

2018; Percentage of 703,708 total hours



Data source: WSDOT Office of Equal Opportunity.

Created in response to Gov. Jay Inslee's diverse business participation goal as part of his Results Washington initiative, this program seeks to enhance the capabilities of small, minority-, veteran-, and women-owned business enterprises and increase their participation in the transportation sector.

Additionally, the nonprofit Business Impact NW has been chosen to administer up to $750,000 in loans available from local credit unions to protégés participating in the program. WSDOT, Sound Transit, and MBDA completed the application and assessment rounds for the third group of mentors and protégés, and hosted a meet-and-greet in Tukwila in June 2019. This meeting allowed new program participants to discuss potential partnerships, which resulted in pairing 17 new mentors with 17 protégés.

WSDOT completes Washington State Airport Disparity study

In January 2018, WSDOT launched the Washington State Airport Disparity study with the support of Federal Aviation Administration Airport Improvement Program funds. The completed study, which is scheduled for release in December 2019, will provide airports in Washington state with tools to set goals for and enhance implementation of their own DBE programs. The agency's DBE program aims to create equal opportunity for firms owned by socially and economically disadvantaged individuals to work on projects that receive funding from the FAA, the Federal Highway Administration and the Federal Transit Administration.

The Washington State Airport Disparity study evaluates contracting data for 64 Washington state airports to determine the availability and utilization of minority- and women-owned firms on FAA funded projects during federal fiscal years 2012-2016.

Stakeholder benefits of the study include:

- Reduced time and cost spent by conducting one DBE disparity study for all 64 airports (instead of 64 separate studies);
- Assurances that each airport's DBE program disparity study will meet federal requirements;
- A legal foundation to evaluate data, which is required to properly implement airport DBE programs;
- The ability to identify specific areas for improvement and allow for the development of best practices for airport DBE programs; and
- Airports, contractors and consultants obtain a greater understanding of Washington state's airport construction market.

DBE Supportive Services receives $163,000

WSDOT's DBE Supportive Services Program recently received approximately $163,000 in federal funding to distribute during federal fiscal year 2019-2020 to firms that are certified as DBEs by the Office

Skilled Trades Preparation graduates, many of them Pre-Apprenticeship Support Services fund recipients, during their second day of class with Spokane Heat & Frost Insulators.

of Minority and Women's Business Enterprises. Platinum Group, LLC was awarded a contract in September 2019 to administer the program beginning October 2019 in collaboration with WSDOT's Office of Equal Opportunity.

WSDOT makes progress on three diversity goals

WSDOT exceeded one of its voluntary state diversity goals and made progress on two others for certified or state registered DBE businesses during state fiscal year 2018; July 1, 2017 - June 30, 2018 (see chart below).

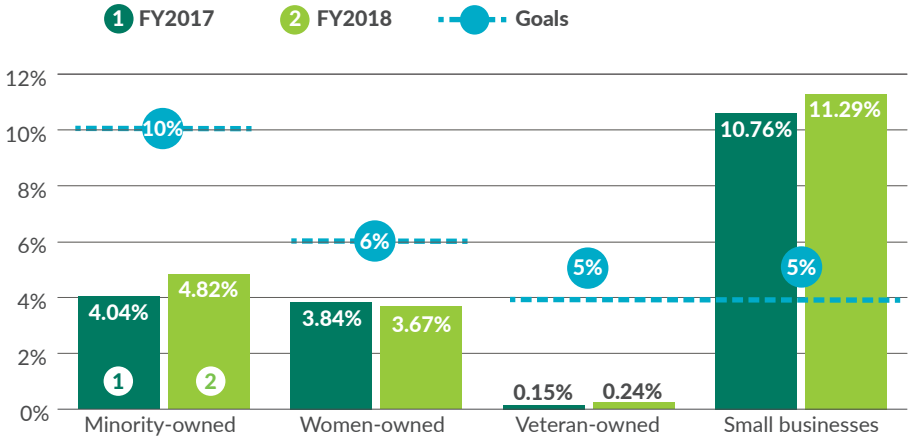
From FY2017 to FY2018, WSDOT's rates of contract spending for DBE groups changed in the following ways:

- Contract spending with small businesses increased from 10.76% to 11.29%, exceeding the goal of 5%. Minority and women's businesses also count toward the small business goal.
- Contract spending with minority-owned businesses increased from 4.04% to 4.82%, missing the goal of 10%.
- Contract spending with women-owned businesses decreased from 3.84% to 3.67%, missing the goal of 6%.
- Contract spending with veteran-owned businesses increased from 0.15% to 0.24%, missing the goal of 5%.

To increase the number of DBE contractors, WSDOT has an outreach team that attends events to connect with veteran-, minority- and women-owned businesses.

WSDOT makes progress on three of four diverse business goals

Voluntary goals for WSDOT construction and consulting spending; State fiscal year 2017[1] through FY2018[2]



Data source: Office of Minority and Women's Business Enterprises State Supplier Diversity Reporting.
Notes: **1** July 1, 2016 through June 30, 2017. **2** July 1, 2017 through June 30, 2018.

What is a Disadvantaged Business Enterprise?

According to the United States Department of Transportation, "DBEs are for-profit small business concerns where socially and economically disadvantaged individuals own at least a 51% interest and also control management and daily business operations. African Americans, Hispanics, Native Americans, Asian-Pacific and Subcontinent Asian Americans, and women are presumed to be socially and economically disadvantaged. Other individuals can also qualify as socially and economically disadvantaged on a case-by-case basis."

How WSDOT measures DBE participation

For voluntary Minority, Women, Small and Veteran Business Enterprises DBE goals, the agency tracks the percentage of spending on DBEs for construction and consultant services.

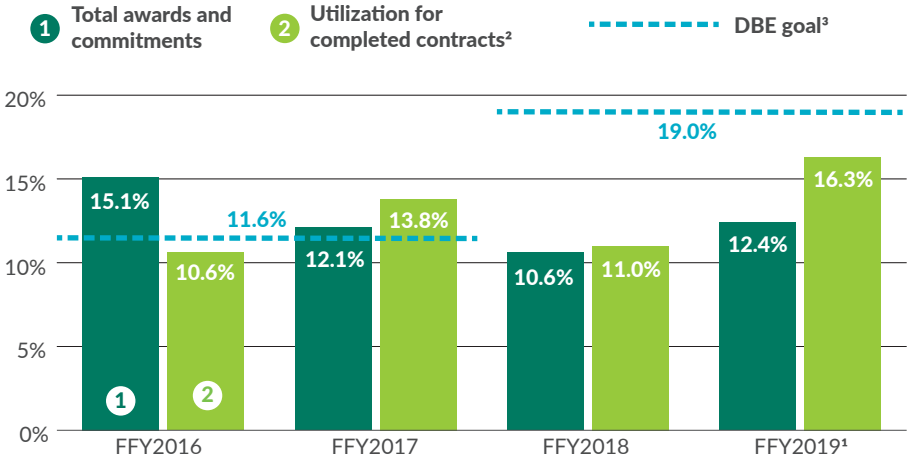
For federal DBE goals, the agency tracks the percentage of the federal share of spending on construction and consulting projects is earned by minority- and women-owned businesses.

WSDOT Implements new Federal Small Business Enterprise Program

On August 1, 2019, as part of the DBE Program, WSDOT implemented a Federal Small Business Enterprise Program to eliminate barriers for small businesses participation and increase race neutral and voluntary DBE participation by setting enforceable Federal Small Business Enterprise goals on design-bid-build projects. For more information, visit: bit.ly/FSBEprogram.

WSDOT's FHWA Disadvantaged Business Enterprise program not meeting goal in the first half of FFY2019

Federal fiscal years 2016 through the first half of FFY2019[1]



Data source: WSDOT Office of Equal Opportunity.
Notes: **1** FFY2019 refers to the first half of FFY2019 (October 2018 through March 2019)
2 Utilization for completed contracts refers to those completed within the stated time.
3 The DBE goal changed from 11.6% in FFY2017 to 19% in FFY2018. This change was based on 2017 DBE program disparity study findings.

WSDOT falls short of federal DBE goal in first half of FFY2019

In the first half of FFY2019, WSDOT's diverse business enterprise awards and commitments were 12.4% of the federal share of construction and consulting projects, an increase of 1.8 percentage points from the 10.6% achieved for all of FFY2018 (see chart above). The rate of contracts completed during the time period was 16.3% in the first half of FFY2019, an increase of 5.3 percentage points above the 11% achieved during FFY2018.

WSDOT was unable to meet the overall Federal Highway Administration Disadvantaged Business Enterprise goal of 19% in FFY2018 primarily due to the impact of the white women-owned business waiver. The waiver was implemented in June 2017 and excludes DBEs owned by white women who contract with WSDOT from counting toward project goal credit. WSDOT requested the waiver after a DBE Program Disparity Study in 2012 showed there was no way, based on the data available, for FHWA to tell which businesses owned by white women were facing a disparate impact. In December 2016, USDOT granted the waiver. WSDOT completed a DBE Program Disparity Study in 2017 and requested the waiver be repealed, and is waiting for USDOT to respond. For more information on how DBE goals are set, see Gray Notebook 53, p. 27.

Survey emphasizes diversity and inclusion at WSDOT

According to the 2018 Washington State Employee Engagement Survey, 84% of WSDOT employees feel their work environment supports diversity. In 2018, WSDOT added several agency-specific questions to the annual Survey. Employees were asked to rate their agreement with two agency-specific questions in the 2018 survey that addressed diversity. An average of 84% of WSDOT employees indicated they agreed with both of the following statements:

- I am comfortable seeking perspectives of people who are different than me
- The people I work with treat others with dignity and respect

These results establish the baseline for the agency moving forward. The agency's goal is to increase positive answers to these questions by two percentage points by 2021.

In addition to the statewide diversity statements, WSDOT added five statements about workforce inclusion, listed below. On average, 71% of employees agreed with each statement. Statements marked with an asterisk appeared for the first time in the 2018 survey.

- I have the opportunity to give input on decisions affecting my work—65% (on track to meet goal of 66% by 2021)
- My agency consistently demonstrates support for a diverse workforce—75% (goal met)
- At my workplace, I feel valued for who I am as a person*—68%
- I take initiative to incorporate other's opinions into my work*— 86%
- My thoughts and opinions matter at work*—61%

The results of the Employee Engagement Survey will be used to set future workforce inclusion goals.

WSDOT promotes a culture of diversity and inclusion through orientation materials

To ensure all new employees entering the agency receive a consistent message relating to diversity and inclusion, WSDOT developed a video about inclusion that is shown during new employee orientation. The video can be viewed at bit.ly/WSDOTDiversity.

WSDOT launches local Diversity Advisory Groups

As of June 2019, the agency has started five local Diversity Advisory Groups throughout the state, with three more scheduled to launch by the end of 2019. The established groups have been working to create a charter and set annual goals and actions. These groups will also align DAG efforts with existing inclusion and workforce development efforts. Once all local diversity groups have been created, each group will select one or two members to be a part of the Statewide Leadership Diversity Advisory Group. The advisory group will be a community of practice where representatives share ideas to enhance diversity, equity and inclusion efforts that support the agency's direction.

WSDOT trains 481 employees in community engagement

During FY2019, 181 staff received community engagement training. This brings the total number to 438 staff who have received training on conducting effective, inclusive community engagement. In addition, approximately 43 staff have been trained to deliver the class, for a total of 481 employees reached since trainings began in 2017.

These trainings are part of the WSDOT Community Engagement Plan, which provides agency-wide policy and guidance to engage traditional and underrepresented stakeholders in decision making.

Contributors include Jackie Bayne, Bill Bennion, Michael Carpenter, Angie Davis, Diane Gard, Olga Peterman, Jane Rockwell, Rafeaah Sok, Allison Spector, Lisa Mikesell and Yvette Wixson

More information on diversity and inclusion

The Strategic Plan Dashboard contains more detailed information about WSDOT's diversity and inclusion goals. Visit bit.ly/wsdotdashboard to learn more.

75 CAPITAL PROJECT DELIVERY PROGRAMS QUARTERLY UPDATES

Notable results

- *WSDOT has completed 383 Nickel and TPA projects since 2003, with 86% on time and 91% on budget*
- *WSDOT advertised 24 of 40 Pre-existing Funds projects during the first quarter of the 2019-2021 biennium*

WSDOT's Watch List projects available online:

To streamline work and ensure accuracy and consistency, the Watch List is no longer featured in the quarterly Gray Notebook. It is now reported monthly at http://bit.ly/ProjectDeliveryReports. This change helps the Gray Notebook better align with WSDOT's Capital Program Development and Management Office and its monthly online version of the Watch List of projects that have or may have significant changes in scope, schedule or budget.

WSDOT completes I-90/Snoqualmie Pass East - Hyak to Keechelus Dam project

WSDOT completed the second phase of a four-phase mega project to improve the I-90 corridor east of Snoqualmie Pass during first quarter of the 2019-2021 biennium. The $564.5 million I-90/Snoqualmie Pass East – Hyak to Keechelus Dam – Corridor Improvement project was funded by the Transportation Partnership Account. The project, which started in 2009, widened I-90, built and replaced bridges—including two new avalanche bridges—stabilized rock slopes and expanded chain-up and chain-off areas.

WSDOT also completed a $15.3 million Connecting Washington project in collaboration with the Tulalip Tribe to complete a diamond interchange at I-5 and 116th St. NE near Marysville. WSDOT has completed 17 highway program CW projects (including studies) since the funding package was passed in 2015.

WSDOT has completed a total of 383 Nickel and TPA construction projects since July 2003, with 86% on time and 91% on budget. The cost at completion for the 383 Nickel and TPA construction projects was approximately $10.3 billion, 1.5% less than the baseline cost of $10.5 billion. The agency currently has four Nickel and TPA projects underway (see p. 55 for additional information).

Nickel and Transportation Partnership Account funding continues to be lower than original projections

Fuel tax collections show 2003 and 2005 revenue forecasts, which were used to determine 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. As such, reduced gasoline and diesel consumption and sales lead to reduced tax revenue.

Fuel tax funding from the 2005 TPA package has been lower than the original March 2005 projection. The original projection for the TPA account was $4.9 billion over a 16-year period from 2005 through 2021. Current TPA projections through 2021 are $4.0 billion, roughly $930 million (18.9%) less than the original 2005 projection. 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 were 10.2% lower than the original March 2003 projection.

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

Beige Page contributors include Mike Ellis, Penny Haeger, Heather Jones, Thanh Nguyen, Aaron Ward, Dan Wilder, Joe Irwin and Lisa Mikesell

75 CURRENT LEGISLATIVE EVALUATION & ACCOUNTABILITY PROGRAM QUARTERLY UPDATE

Combined Nickel & Transportation Partnership Account Status of projects to date; 2003 through September 30, 2019; Dollars in millions	Number of Projects	Value of Program
Subtotal of completed construction projects[1]	**383**	**$10,485.5**
Non-construction projects that have been completed or otherwise removed from Nickel/TPA lists[2,3]	*9*	*$205.0*
Projects included in the current transportation budget but not yet complete	11	$4,989.7
Projects that have been deferred indefinitely or deleted and removed from Nickel/TPA lists[3,4]	*13*	*$499.2*
Projects now funded by Connecting Washington and removed from Nickel/TPA lists (see GNB 63, p. 35)	*5*	*$103.3*
Total number of projects[4] in improvement and preservation budget	421	$16,282.7

Schedule and budget summary Nickel & TPA combined: Results of completed construction projects in the current Legislative Transportation Budget and prior budgets; Dollars in millions	Completed in 2019- 2021 Biennium Budget	Cumulative Program
Total number of projects completed	1	383
Percent completed early or on time	*0%*	*86%*
Percent completed under or on budget	*100%*	*91%*
Baseline cost at completion	$564.9	$10,485.5
Current cost at completion	$564.5	$10,330.3
Percent of total program over or under budget	0.1% under	1.5% under

Advertisement record: Results of projects entering the construction phase or under construction	Combined Nickel & TPA
Total current number of projects in construction phase as of September 30, 2019	4
Percent advertised early or on time	*100%*
Total number of projects advertised for construction during the 2019-2021 biennium (July 1, 2019 through June 30, 2021)	0
Percent advertised early or on time	*N/A*

Projects to be advertised: Results of projects now being advertised for construction or planned to be advertised	Combined Nickel & TPA
Projects being advertised for construction (October 1, 2019 through March 31, 2020)	2
Percent on target for advertisement on schedule or early	50%

Budget status for the 2019-2021 biennium; Dollars in millions	WSDOT biennial budget
Budget amount for 2019-2021 biennium	$556.4
Actual expenditures in 2019-2021 biennium to date	$57.8
Total 2003 Transportation Funding Package (Nickel) expenditures	*$2.8*
Total 2005 Transportation Partnership Account expenditures	*$52.6*
Total Pre-existing Funds expenditures	*$2.3*

Data source: WSDOT Capital Program Development and Management.
Notes: Numbers have been rounded. This chart was updated in GNB 63 to reflect reconciled Nickel and TPA project counts, and as a result it does not exactly match Current Legislative Evaluation and Accountability Program charts from editions prior to GNB 63. **1** Cumulative projects completed from July 1, 2003 to September 30, 2019. **2** Non-construction projects include commitments for engineering and right of way work. **3** Projects that have been deferred indefinitely or deleted include projects that have no funding available, projects that have been halted by the Legislature and those for which other entities (e.g., cities and counties) are now serving as the lead agency. **4** 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 Bridge Seismic Retrofit). See Gray Notebook 38, p. 55 for more details.

75 COMPLETED PROJECTS & CONTRACTS UPDATE

GNB reporting on projects and contracts

The Gray Notebook differentiates completed projects from completed contracts. Larger projects frequently include smaller contracts (for example pavement replacement on a section of I-5 that is part of a larger concrete rehabilitation project). Completing contracts does not mean that these larger projects are finished. For example, a project can involve three contracts total and have two contracts finished. This project would be complete when the third and final contracts is done.

WSDOT completes one TPA project and one Connecting Washington project

WSDOT completed one Transportation Partnership Account project and one Connecting Washington project during the first quarter of the 2019-2021 biennium (July through September 2019).

I-90/Snoqualmie Pass East - Hyak to Keechelus Dam - Corridor Improvement

KITTITAS COUNTY (TPA - PROJECT)

WSDOT completed the second phase of a four-phase mega project to improve the Interstate 90 corridor east of Snoqualmie Pass this quarter. The $564.5 million I-90/Snoqualmie Pass East - Hyak to Keechelus Dam - Corridor Improvement project was funded by the 2005 Transportation Partnership Account.

The project, which started in 2009, widened I-90, built and replaced bridges—including two new avalanche bridges—stabilized rock slopes and expanded chain-up and chain-off areas. Two contracts that were part of this project (described below and on the next page) were finished during the quarter, bringing this project to completion.

I-90/Snowshed to Keechelus Dam Phase 1C - Replace Snowshed and Add Lanes

KITTITAS COUNTY (TPA – CONTRACT)

This contract constructed additional lanes and a new snowshed on the new I-90 alignment.

Contract benefits: This contract increased the capacity on I-90 by adding a new lane in each direction. The work, which included replacing deteriorating concrete pavement, improved safety by reducing road closures due to avalanches, adding and replacing bridges and culverts, straightening sharp curves, and stabilizing rock slopes.

Budget performance: The contract was delivered for $251.4 million, which is below the last approved amount of $251.8 million.

Schedule performance: This contract was delivered in September 2019, one month behind the last approved schedule.

Highlights/challenges: This contract was delayed while WSDOT explored and implemented a new design of two elevated bridges instead of a wider snowshed. For the same cost as a snowshed, the elevated bridges will save the agency approximately $650,000 annually on fire and life safety system operating costs that would have been required for a snowshed. The contract was further delayed due to union labor negotiations.

I-90/Keechelus Dam to Stampede Pass - Add Lanes/Build Wildlife Bridge

KITTITAS COUNTY (TPA - CONTRACT)

This contract constructed a wildlife bridge, expanded I-90 to a six-lane freeway and extended the westbound chain-up area.

Contract benefits: The contract increased capacity by adding a new lane in each direction. It improved safety by replacing concrete pavement, stabilizing rock slopes, building a wildlife crossing, straightening the roadway and adding a new chain-up area.

Budget performance: The contract was delivered for $103.2 million, which is below the last approved amount of $105.3 million.

Schedule performance: This contract was delivered in September 2019, three months behind the last approved schedule.

Highlights/challenges: Due to the higher than anticipated bids, fencing was removed from the scope of work funded by this contract. The fencing work may be funded in the future with contract savings or funding from the legislature.

The wildlife bridge crossing on I-90 in Kittitas County reduces the potential for crashes between vehicles and animals on I-90 by providing an unobstructed path between habitats on both sides of the highway.

I-5/116th St. NE Interchange - Tulalip Tribe Lead

SNOHOMISH COUNTY (CONNECTING WASHINGTON - PROJECT)

This project, completed in collaboration with the Tulalip Tribe, is the fourth and final phase in the diamond interchange replacement project on Interstate 5 at 116th Street Northeast near Marysville.

Project benefits: This project realigned existing diamond ramps into a new configuration, and added a single traffic signal and new lighting. Crews also completed stormwater and landscaping improvements, laid down pavement markings, added signage, and improved water and sewer infrastructure.

Budget performance: The project was delivered for $15.3 million, which is the same as the last approved amount of $15.3 million.

Schedule performance: This project was delivered in July 2019, one month behind the last approved schedule.

Highlights/challenges: The posting of the initial advertisement notice was delayed by four months, postponing the start of the project.

75 ADVERTISEMENT RECORD QUARTERLY UPDATE

Connecting Washington Account projects in construction[1] Through September 30, 2019; (County); Dollars in millions	Schedule status	Completion date	Total project cost
I-5/Joint Base Lewis-McChord Corridor Improvements (Pierce)			
I-5/Steilacoom-DuPont Rd. to Thorne Ln. - Corridor Improvements	On schedule	Apr-2021	$332.5
SR 167/SR 509 Puget Sound Gateway (multiple counties)			
SR 509/SeaTac Stage 1 Elements (WSDOT Contribution)	Advanced	Aug-2022	$49.3
SR 167/I-5 to SR 509 - Stage 1A	On schedule	Apr-2021	$57.4
I-405/Renton to Bellevue - Corridor Widening (King)			
I-405/Renton to Bellevue - Corridor Widening & ETL (Stage 2)	Delayed	Dec-2024	$876.0
Land Mobile Radio Upgrade (multiple counties)			
Wireless Communication	Delayed	Nov-2021	$37.0
SR 520 Seattle Corridor Improvements - West End (King)			
SR 520/Montlake to Lake Washington - Interchange and Bridge Replacement	On schedule	Apr-2023	$628.1
US 395 North Spokane Corridor (Spokane)			
US 395/North Spokane Corridor BNSF - Second Railroad Alignment	Delayed	Oct-2021	$77.9
I-5/Marvin Road/SR 510 Interchange (Thurston)			
I-5/SR 510 Interchange - Reconstruct Interchange	Delayed	Jul-2020	$46.2
I-82/ Eastbound/Westbound On- and Off-Ramps (Yakima)			
I-82/South Union Gap Interchange - Construct Ramps	Advanced	Jun-2020	$22.9
US 2 Highway Safety (Snohomish)			
US 2/Corridor Improvements	Delayed	Jul-2020	$2.0
SR 107/Chehalis River Bridge (S. Montesano Bridge) Approach & Rail Repair (Grays Harbor)			
SR 107/Chehalis River Bridge - Structural Rehabilitation	Delayed	Jul-2020	$21.9
SR 14 Access Improvements (Clark)			
SR 14 Access Improvements	On schedule	Aug-2020	$7.5
I-90/Medical Lake & Geiger Interchanges (Spokane)			
I-90/Medical Lake Interchange to Geiger Field Interchange - Reconstruction	On schedule	Oct-2020	$16.0
US 395/Safety Corridor Improvements (Spokane)			
US 395/Safety Corridor Improvements	Delayed	Sep-2020	$13.6
SR 14/Wind River Junction (Skamania)			
SR 14/Wind River Rd. - Intersection Improvements	Delayed	Jul-2020	$8.2
I-90/Eastgate to SR 900 - Corridor Improvements (King)			
I-90/Eastgate to SR 900 - Corridor Improvements	Delayed	Oct-2020	$73.0
US 12/Walla Walla Corridor Improvements (Walla Walla)			
US 12/Nine Mile Hill to Frenchtown Vicinity - Build New Highway	Delayed	Nov-2021	$160.7

Data source: WSDOT Capital Program Development and Management.
Note: **1** Connecting Washington advertisements show projects currently in construction, and do not represent a comprehensive list of completed Connecting Washington projects.

Nickel & TPA projects in construction Through September 30, 2019; (County); Dollars in millions	Fund type	Advertised on time	Ad date	Operationally complete date	Award amount
I-5 Concrete Rehabilitation Program (King)	**Nickel**				
I-5/Northbound Boeing Access Rd. to Northeast Ravenna Bridge - Pavement Repair	Nickel	N/A	Dec-2018	Oct-2019	$38.6
Work associated with the I-5/Northbound South Spokane St. Vicinity - Concrete Pavement Replacement, and I-5/Northbound I-90 Vicinity to James St. Vicinity - Concrete Pavement Replacement is included in I-5/Northbound Boeing Access Rd. to Northeast Ravenna Bridge - Pavement Repair.					
I-5/Southbound South Lucile St. to Spring St. - Pavement Repair	Nickel	N/A	Mar-2018	Oct-2019	$8.2
SR 99 Alaskan Way Viaduct Replacement (King)	**Nickel/ TPA**				
SR 99/South King Street Vicinity to Roy Street – Viaduct Replacement	Nickel/ TPA	√	May-2010	Feb-2021	$1,089.7
The SR 99 Tunnel opened to traffic in February 2019. The award amount is for the SR 99 Tunnel contract. The Viaduct Demolition, Battery Street Tunnel Decommissioning and Surface Street Improvements are in process.					
SR 99/Alaskan Way and Elliot Ave Surface Street Restoration	Nickel/ TPA	√	Nov-2018	Jan-2023	$116.8
WSDOT will partially fund the City of Seattle led Alaskan Way/Elliott Ave - S. King St. to Bell St Project. The award amount shown above is WSDOT's share of the total bid $189.1 at award.					
I-5/Tacoma HOV Improvements (Pierce)	**Nickel/ TPA**				
I-5/SR 16 Interchange - Construct HOV Connections	TPA	√	Feb-2016	Nov-2019	$121.6
I-5/Portland Ave to Port of Tacoma Rd. - Northbound/Southbound HOV	Nickel/ TPA	Late	Jan-2018	Oct-2023	$152.6
I-90/Concrete Rehabilitation (multiple counties)	**Nickel**				
I-90/Bullfrog Rd. Vicinity to Cle Elum Vicinity - Replace/Rehabilitate Concrete	Nickel	N/A	Jan-2019	Nov-2020	$8.2

Data source: WSDOT Capital Program Development and Management.

75 SCHEDULE & BUDGET SUMMARIES QUARTERLY UPDATE

Biennial summary of Nickel and Transportation Partnership Account projects

Costs estimated at completion; Dollars in millions

Cumulative to date	Fund type	Advertised on time[1]	Completed on time	Within scope	Baseline cost	Current cost	Completed on budget[2]
2019-2021 biennium summary *This information is updated quarterly during the biennium*	0 Nickel 1 TPA	1 on time 0 late	0 on time 1 late	1	$546.9	$564.5	1 on budget 0 over budget
2017-2019 biennium summary	0 Nickel 5 TPA	3 on time 2 late	3 on time 2 late	2	$2,983.7	$2,939.3	4 on budget 1 over budget
2015-2017 biennium summary	0 Nickel 11 TPA	7 on time 4 late	10 on time 1 late	11	$809.9	$777.7	10 on budget 1 over budget
2013-2015 biennium summary	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	5 Nickel 36 TPA	31 on time 10 late	32 on time 9 late	41	$1,485.5	$1,459.6	37 on budget 4 over budget
2009-2011 biennium summary	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	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	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	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** Projects are "on time" if they are operationally complete within the quarter planned in the last approved schedule. **2** Projects are "on budget" if the costs are within 5% of the last approved budget.

WSDOT has one change order of $500,000 or more during the quarter

WSDOT had one change order of $500,000 or more during the quarter ending September 30, 2019. The $580,000 change order for the SR 99/Alaskan Way Viaduct Demolition, Decommissioning, and Surface Street project resolved multiple issues including: adding 6th Avenue and Battery Street ADA Ramps, deleting a driveway at Aurora Avenue and John Street from the project; deleting a northbound turn lane on Aurora Avenue from the project; installing a curb bulb in the Wall Street vicinity; adding a sidewalk at Thomas Street and Southbound Aurora Avenue; replacing a Portland Cement Concrete Pavement panel; adding a sidewalk to Aurora Avenue; and deleting a driveway at the Quality Inn from the project.

After extensive reviews—which can involve subject matter experts, contract specialists and other outside stakeholders—WSDOT sometimes changes 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.

75 PRE-EXISTING FUNDS QUARTERLY UPDATE

WSDOT advertises 24 Pre-existing Funds projects so far during the 2019-2021 biennium

WSDOT advertised 24 of 40 Pre-existing Funds projects in the first quarter of the 2019-2021 biennium (July through September 2019). Of the 24 total projects advertised this quarter, 23 were on time and one was emergent or unplanned (see p. 58 for more information). Additionally, two projects were advertised in an earlier quarter, 12 projects originally scheduled to be advertised during the quarter were delayed within the biennium, and three were deleted.

At the beginning of the 2019-2021 biennium, WSDOT's current cost to complete the 24 planned PEF projects advertised during the quarter was about $32.0 million, approximately $200,000 (6.0%) less than the original value of $32.2 million. See chart at right for additional information.

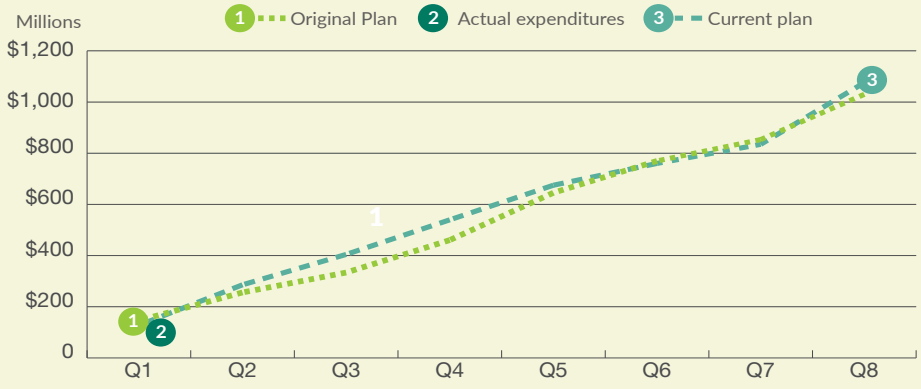
Combined improvement and preservation cash flows currently lower than original projections

WSDOT originally planned to have $146.3 million in cumulative combined PEF improvement and preservation cash flows at the end of the first quarter of the 2019-2021 biennium, but had $127.6 million (approximately $18.7 million, 12.9% less).

The original plan—which is the 2019 delivery plan—will remain the same for the first four quarters of the biennium. It may be updated in the fifth quarter to reflect any revisions in the 2020 delivery plan. As the biennium continues, the agency will use these original plans as goals to achieve while working to meet projections set forth in the current plan. The current plan is more fluid and reflects quarterly changes in response to projects being emergent, delayed, deferred, advanced and deleted.

Cumulative Pre-existing Funds improvement and preservation combined cash flows during the 2019-2021 biennium slightly lower than planned

Quarter ending September 30, 2019; Planned vs. actual expenditures; Dollars in millions



Data source: WSDOT Capital Program Development and Management.

Note: Q1 refers to the first quarter (July through September 2019) of the 2019-2021 biennium, which runs from July 2019 through June 2021.

Current cost to complete actual Pre-existing Fund advertisements $200,000 less than original value

2019-2021 biennium (July 2019 through June 2021); First quarter (ending September 30, 2019); Dollars in millions

	Number of projects	Original value	Current cost to complete
Total PEF advertisements planned for the 2019-2021 biennium	276	$1,671.5	$1,677.8
Actual PEF advertisements Sept. 30, 2019	24	$32.2	$32.0

Data source: WSDOT Capital Program Development and Management.

WSDOT advertises 26 PEF projects during the 2019-2021 biennium

Advertisement status	Quarter[1]	Cumulative[2]
Advanced[3]	0	0
On time	23	23
Emergent[4]	1	1
Late	0	0
Total projects advertised	**24**	**24**
Early[5]	2	2
Delayed within the biennium	12	12
Deferred out of the biennium	0	0
Deleted	3	3

Data source: WSDOT Capital Program Development and Management.

Notes: **1** Quarter refers to July through September 2019. **2** Cumulative refers to July 2019 through June 2021. **3** Advanced refers to projects that were moved up from future quarters. **4** Emergent refers to emergency or unanticipated projects. **5** Early refers to projects planned for the quarter that were advertised in a previous quarter.

WSDOT advertises 23 Pre-existing Funds projects on time during the first quarter of the 2019-2021 biennium

July through September 2019

On time (23)	
I-5/Toutle River Southbound Safety Rest Area (SRA) - Decommission Well - Southwest Region	Southwest Region Regionwide Basic Safety - Signing 2019-2021
I-90/Schrag Westbound/Eastbound SRA - Water Pump Replacement - Eastern Region	Southwest - Strategic Pavement Preservation 2019-2021
I-90/Sprague Lake Westbound SRA - Pump Control Replacement - Eastern Region	SR 433/Lewis and Clark Bridge - Electrical Upgrades
I-5/Bow Hill Southbound Weigh Station - Weigh Station Preservation	SR 503/NE 154th St. to SR 502 - Median Barrier
SR 531/19th Dr. NE Vicinity - Railroad Crossing Improvements	South Central Region 2019-2021 Regionwide - Strategic Pavement Preservation
North Central Region Strategic Pavement Preservation 2019-2021	US 12/US 730 Junction - Wallula Weigh Station Improvements
Olympic Region Strategic Bridge Preservation 2019-2021	SR 24/Vernita Weigh Station - Preservation
Olympic Region Strategic Pavement Preservation 2019-2021	SR 221/Paterson Vicinity - Install Virtual Weigh-in-Motion
US 12/SR 107 Interchange - Railroad Crossing Improvements	Eastern Region Strategic Pavement Preservation 2019-2021
Southwest Regionwide Basic Safety - Signing 2017-2019	2019-2021 Eastern Region Regionwide Basic Safety - Signing
Southwest Strategic Bridge Preservation 2019-2021	I-90/Danekas Rd. Undercrossing - Bridge Repair
I-5/Southbound Interstate Bridge to NE 78th St. Vicinity - Active Traffic Management	
Emergent (1)	
I-90/Cle Elum Port of Entry - Weigh Station	
Early (2)	
I-5/Interstate Bridge - Restore Lift Span Lock Bar Bearing Clearances	I-5/Interstate Bridge - Restore Load Shoe Clearances on Span 5
Delayed (12)	
Statewide - Telemetry Alarm Dialers Installation	SR 109/Grass Creek Bridge - Special Repair
US 2/Nason Creek SRA - Replace Sewer Panel - North Central Region	SR 512/East of Pacific Ave. S to East of Canyon Rd. E - Paving
I-5/Toutle River Northbound/Southbound SRA - Skylight Safety Guards - Southwest Region	SR 512/SR 512 Bridge over Waller Rd. - Bridge Repairs
I-5/Bow Hill Eastbound/Westbound SRA - Rehabilitate Manholes - Northwest Region	Southwest Region/Regionwide Curve Warning Sign Update 2017-2019
I-5/Bow Hill Northbound SRA - Decommission Well - Northwest Region	I-5/Interstate Bridge - Electrical Control System Upgrade
I-90/Schrag Westbound SRA - RV Dump Station Rehabilitation	SR 397/E Bruneau Ave. - Railroad Crossing Improvements
Deleted (3)	
I-5/Bow Hill Northbound SRA - Replace Sidewalks - Northwest Region	I-5/Maytown & Scatter Creek SRA - Fiber Installation - Olympic Region
I-5/Bow Hill Southbound SRA - Replace Sidewalks - Northwest Region	

Data source: WSDOT Capital Program Development and Management.

75 STATEWIDE TRANSPORTATION POLICY GOALS & GRAY NOTEBOOK INFORMATION GUIDE

Statewide transportation policy goals

Laws enacted in 2007 established policy goals for transportation agencies in Washington (RCW 47.04.280). Throughout its editions, WSDOT's Gray Notebook reports on progress toward the six statewide transportation policy goals that include:

- **Safety:** To provide for and improve the safety and security of transportation customers and the transportation system;
- **Preservation:** To maintain, preserve, and extend the life and utility of prior investments in transportation systems and services;
- **Mobility (Congestion Relief):** To improve the predictable movement of goods and people throughout Washington, including congestion relief and improved freight mobility;
- **Environment:** To enhance Washington's quality of life through transportation investments that promote energy conservation, enhance healthy communities, and protect the environment;
- **Economic Vitality:** To promote and develop transportation systems that stimulate, support, and enhance the movement of people and goods to ensure a prosperous economy; and
- **Stewardship:** To continuously improve the quality, effectiveness, and efficiency of the transportation system.

Gray Notebook edition archives available online

Readers can access past GNB editions online at GNB archives. The archives include every GNB published to date. Online versions can include corrections and may not exactly match print versions.

GNB 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 (see charts below).

Calendar, state fiscal and federal fiscal quarters

	Jan	Feb	Mar	Apr	May	Jun	**Jul**	**Aug**	**Sep**	Oct	Nov	Dec
	GNB 73			GNB 74			**GNB 75**			GNB 76		
Calendar	Q1 2019			Q2 2019			**Q3 2019**			Q4 2019		
State Fiscal	Q3 FY2019			Q4 FY2019			**Q1 FY2020**			Q2 FY2020		
Fed. Fiscal	Q2 FFY2019			Q3 FFY2019			**Q4 FFY2019**			Q1 FFY2020		

2019-2021 biennial quarters (used by Legislature)

Period	Quarter	Period	Quarter
Jul – Sep 2019	**Q1**	Jul – Sep 2020	Q5
Oct – Dec 2019	Q2	Oct – Dec 2020	Q6
Jan – Mar 2020	Q3	Jan – Mar 2020	Q7
Apr – Jun 2020	Q4	Apr – Jun 2020	Q8

GNB credits

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