

Multimodal Safety Report

WSDOT's annual summary of transportation safety performance reports

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MULTIMODAL SAFETY HIGHLIGHTS

537
highway fatalities occurred in Washington in 2016, a 2.5% decrease from 551 fatalities in 2015

486
serious injuries involving pedestrians and bicyclists in 2016, a 19% increase from 393 in 2015

32
PERCENT
of highway fatalities in 2016 were associated with lane departure crashes

13
train-related fatalities in 2016, a decrease of 14 from 2015

106
pedestrian and bicyclist fatalities in 2016, an increase of six compared to 2015

321
transit-related injuries in 2016, an increase of 9% from 295 in 2015

52
PERCENT
of WSDOT employees were participating in SmartHealth activities in 2017

5
aviation fatalities in 2017, a decrease of 2 from 2016

CREDITS

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68 MULTIMODAL SAFETY PERFORMANCE DASHBOARD

Statewide policy goal/ WSDOT performance measure	Previous period	Current period	Goal	Goal met	Five-year trend (unless noted)	Desired trend
Highway						
Total number of fatalities on Washington state public roads ¹ (Calendar years 2015 & 2016)	551	537	416 ²			
Total number of serious injuries on Washington state public roads ¹ (Calendar years 2015 & 2016)	2,100	2,209	1,788 ²			
Number of fatalities per 100 million vehicle miles traveled on Washington state public roads ¹ (Calendar years 2015 & 2016)	.92	.88	.709 ²			
Serious injuries per 100 million vehicle miles traveled on Washington state public roads ¹ (Calendar years 2015 & 2016)	3.52	3.63	3.058 ²			
Pedestrians & Bicyclists						
Number of combined pedestrian and bicyclist fatalities and serious injuries ¹ (Calendar years 2015 & 2016)	493	592	431 ²			
Ferries						
Passenger injuries per million passenger miles traveled ³ (Fiscal years 2016 & 2017)	0.42	0.70	<1.0		 (Three-year trend)	
OSHA recordable crew injuries per 10,000 revenue service hours ^{3,4} (Fiscal years 2016 & 2017)	5.6	3.4	<7.6		 (Three-year trend)	
Rail						
Total number of train-related fatalities in Washington state ⁵ (Calendar years 2015 & 2016)	27 ⁶	13	* N/A	N/A		
Aviation						
General aviation fatalities in Washington state ⁷ (Calendar years 2016 & 2017)	7	5 ⁸	* N/A	N/A		
Public Transit						
Fatalities involving Washington state public transportation (Calendar years 2015 & 2016)	3	8	* N/A	N/A		
Injuries involving Washington state public transportation (Calendar years 2015 & 2016)	295	321	* N/A	N/A		

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

Notes: N/A = not available or not applicable. Asterisk (*) = goal has not been set. Dash (–) = goal was not met or is not on track in the reporting period. **1** Fatality and serious injury data for the current period was finalized in January 2017. Pedestrians include people walking or using assistive mobility devices. **2** These figures are the 2018 statewide targets for federal MAP-21 safety performance reporting, and are based on the goal of reaching zero fatalities in 2030. **3** Ferries safety records in previous GNBs had been updated quarterly but have now been changed to reflect annual periods based on fiscal years. **4** OSHA = Occupational Safety and Health Administration. **5** Count includes all fatalities involving rail (passenger rail and freight rail) in Washington State. **6** There was a large increase in trespassing incidents on tracks in Washington state. As a result, more than 80% (22 of 27) of fatalities in 2015 were due to trespassing. **7** General aviation includes all civil aviation operations other than scheduled air services. Data for general aviation fatalities has been updated since GNB 63. **8** The fatality data for the current period was confirmed and finalized for calendar year 2017.

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HIGHWAY SYSTEM SAFETY PROGRAMS ANNUAL REPORT

Statewide traffic fatalities decrease slightly, serious injuries increase in 2016

There were 537 traffic fatalities on all Washington state public roads in 2016. This is a 2.5% decrease from the 551 fatalities recorded in 2015. The number of traffic fatalities has dropped 6% in the 10 years since 2007, when there were 571. While annual traffic fatalities declined each year between 2007 and 2013, recent years have seen increases. The 2016 fatalities count is 23% higher than its 10-year low of 436 in 2013.

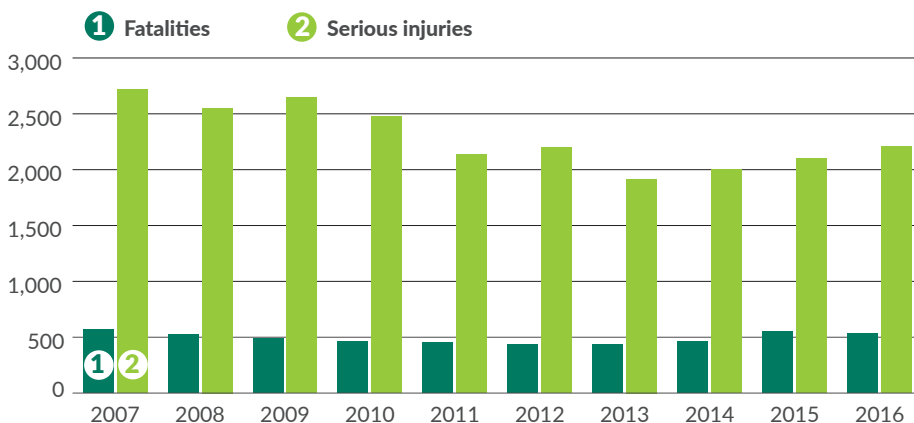
The rate of traffic fatalities per 100 million vehicle miles traveled (VMT) was 0.88 in 2016, a decrease of 4.3% from 0.92 in 2015. The lower rate is due to fewer fatalities and increased vehicle travel in the year. The fatality rate in 2007 was 1.00, and it reached its lowest level in 2013 at 0.76. Statewide VMT has grown 6.8% overall in the 10 years since 2007.

The number of annual serious traffic injuries recently climbed 5.2% to reach 2,209 serious injuries in 2016, up from 2,100 in 2015. The number of annual serious injuries on Washington's roadways has followed a similar pattern of decline and rise since 2007. In the last 10 years, the figure has seen a 18.7% decrease since the count of 2,718 serious injuries in 2007, but remains 15.2% higher than its low of 1,917 in 2013.

The rate of serious traffic injuries was 3.63 injuries per 100 million VMT in 2016, a 3.1% increase from the rate of 3.52 in 2015. The rate's 10-year high was 4.77 in 2007, and it reached its 10-year low at 3.35 in 2013. Throughout the article, performance metrics include all individuals (for example, pedestrians and bicyclists) that died or were seriously injured as a result of a motor vehicle crash in Washington.

Traffic fatalities and serious injuries in Washington continue recent trend

10 years, 2007 through 2016; statewide traffic fatalities and serious injuries on public roadways



Data source: Washington Traffic Safety Commission - Fatality Analysis Reporting System (FARS); WSDOT - Crash Database, Highway Performance Monitoring System.

Notes: Fatality data is from the preliminary 2016 Q4 release of the WA-FARS Analytical File, and the final 2015 WA-FARS file. The serious injury count is as of April 2017. Metrics include non-motorists.

Notable results

- Annual statewide traffic fatalities decreased 2.5% and serious injuries increased 5.2% from 2015 to 2016
- WSDOT and partners have finalized initial statewide targets for MAP-21 safety performance reporting
- Three compact roundabout intersections show 59:1 benefit to cost ratio in safety performance
- WSDOT was awarded \$2 million in federal grants to conduct two safety research projects



Agency Emphasis Area WORKFORCE DEVELOPMENT

Agency staff from across the state completed Practical Solutions Highway Safety Manual training. This training teaches the integration of safety into project planning, and aids in developing a data-driven culture when it comes to making safety decisions. It's one avenue WSDOT has taken to train and maintain a highly competent work force.

WSDOT's safety goals based on Target Zero

WSDOT works with its partners and the public to develop and update the state's Strategic Highway Safety Plan (SHSP), named Target Zero, every three years. During this time, data analysis and evaluation identify Washington's safety goals, priorities, and emphasis areas. Each is reviewed collaboratively so 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, and its aspirational goal of zero fatalities and serious injuries by 2030 provides a clear and common vision for improving Washington; visit targetzero.com.

WSDOT tracks safety performance via Target Zero emphasis areas to reduce crashes statewide

WSDOT uses Target Zero to help identify investment strategies for the agency's safety program, and to measure achievement of its safety performance goals. In order to track the primary factors that contribute to traffic accidents, Target Zero gives a priority ranking to 21 total emphasis areas in five categories:

- Crash types (a crash caused by a vehicle veering out of its lane, for example)
- Road users (such as young drivers)
- High-risk behavior (including distracted and impaired driving)
- Decision and performance improvement (for example roadway signage to inform drivers)
- Other monitored emphases

A higher priority ranking for an emphasis area indicates that it is a factor in a larger number of traffic fatalities and serious injuries. Priority level one includes factors that were involved in at least 30% of such incidents. WSDOT's role focuses most strongly on particular crash types and road users.

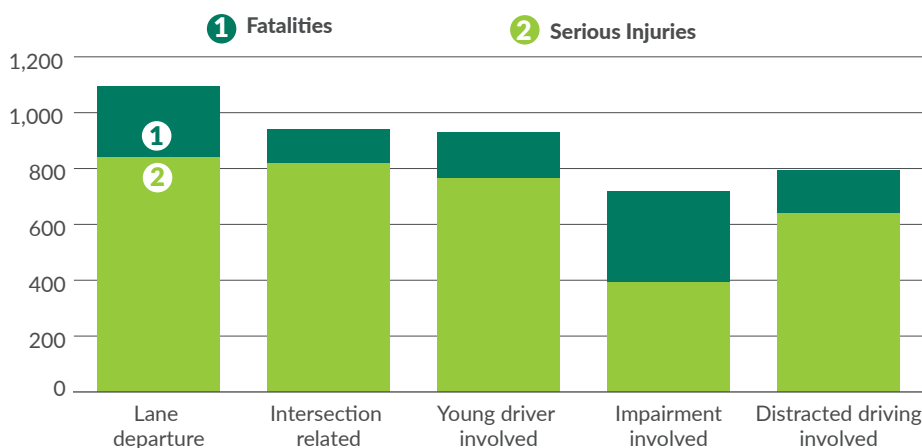
Crash types

Lane departures: The lane departures emphasis area is the leading factor in the crash type category over the last five years. In 2016, there were 254 traffic fatalities and 840 serious traffic injuries involving a lane departure. Over the last five years, lane departures were associated with an average 52% of fatalities and 39% of serious injuries per year.

WSDOT uses widespread, low-cost strategies to reduce lane departures.

Target Zero identifies crash types and road users as emphasis areas for traffic fatalities and serious injuries

2016; Number of fatalities and serious injuries involving select characteristics (Target Zero emphasis areas)



Data source: Washington Traffic Safety Commission - Fatality Analysis Reporting System (FARS); WSDOT - Crash Database, Highway Performance Monitoring System.

Notes: A single fatality or serious injury may be counted in more than one category; for example, an impaired driver veering out of their lane. fatality data is from the preliminary 2016 Q4 release of the WA-FARS Analytical File, and the final 2015 WA-FARS file. The serious injury count is as of April 2017. Metrics include non-motorists.

Countermeasures include: Enhanced warning signs; centerline and shoulder rumble strips to alert drivers when their vehicles are leaving the lane; high-friction surface treatments on curves and ramps; median barriers; and pavement edge safety treatments to reduce drivers over-correcting when their vehicle hits the edge of the pavement.

Intersection related: In 2016, intersections were a factor in 122 fatalities and 818 serious injuries. They have played a role in 21% of traffic fatalities and 35% of serious traffic injuries on average over the last five years.

WSDOT uses several strategies to reduce crashes at intersections, including: Installing or converting intersections to roundabouts; optimizing traffic signal timing; and providing dynamic intersection warnings; and installing refuge islands and shortening crossing distances at intersections to reduce risk for pedestrians.

Road users

Young driver involved: This is the only priority level one emphasis area in the road users category. Young drivers were involved in—but didn't necessarily cause—165 fatalities and 763 serious injuries in 2016. They have been involved in 32% of fatalities and 34% of serious injuries in the last five years.

WSDOT strategies to reduce these fatalities and serious injuries include: implementing a corridor safety model at locations where data indicates a high rate of younger-driver-related crashes; and designs such as signage and striping to make young drivers' decisions easier.

High-risk behavior

Impairment: Impaired persons, not necessarily drivers, continue to be the most prominent factor in traffic fatalities. Impaired persons were involved in 326 fatalities in 2016, 61% of the total. The average has been at least 50% in each of the last five years. Serious injuries involving impaired persons tallied 391 (18%) in 2016, but this figure is likely underreported because toxicology screens are not completed for serious injury crashes with the same frequency as for fatal crashes.

Distracted driving: Washington saw 156 fatalities and 639 serious injuries related to distracted driving in 2016. On average over the last five years, it has been associated with 29% of fatalities. The share of all serious traffic injuries associated with distracted driving has risen markedly in recent years. Between 2013 and 2016 the average share was 30%—prior to 2013 it was 12%.

While WSDOT does not typically address driving behavior, engineering strategies to address impairment- and distraction-related crashes include installing centerline and shoulder rumble strips, and incorporating safety performance data when setting speed limits. Additionally, WSDOT continues to support enforcement efforts to reduce impaired and distracted driving, such as the new distracted driving law which took effect in Washington in July 2017—the Driving While Under the Influence of Electronics Act.

Ongoing research and partnerships with Washington Traffic Safety Commission and other agencies

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.

addressing the behavioral components of safety are also part of WSDOT's work to reduce high-risk driving behavior (see the research study described on p. 9). The agency's Safety Data Business Plan project is an example of WSDOT's work in the decision and performance improvement category (see a description of the plan on p. 9).

MAP-21 details online

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



Agency Emphasis Area INCLUSION

The MAP-21 target setting process has been a collaborative approach with community partners. WSDOT helped compile and submit comments on the federal draft rules from the state's MPOs in early 2014, and worked to align stakeholders' sentiment toward the target setting approach. The agency has hosted 35 informational and technical assistance webinars for Washington's MPOs and other safety partners.



Agency Emphasis Area PRACTICAL SOLUTIONS

Data-driven safety analysis is a key piece of the Practical Solutions approach that WSDOT is implementing. FHWA recently featured the agency's methods in a video for its Every Day Counts initiative; visit bit.ly/EDCDataDrivenSafety.

WSDOT establishes 2018 targets for MAP-21 safety

In April 2016, the Federal Highway Administration (FHWA) published the final rule requiring states and Metropolitan Planning Organizations (MPOs) to set and report safety performance targets across five performance measures. Using an approach that aspires to reach zero for all five measures by 2030, WSDOT and the Washington Traffic Safety Commission finalized the official statewide targets in June 2017. The five measures track traffic fatalities and serious injuries on all public roads in Washington, and each is reported as a five-year average.

The table below shows the value of each measure for calendar year 2016. This value will be used as the baseline for comparing progress toward targets. Washington state saw 537 traffic fatalities in 2016, bringing the five-year average to 484.8 fatalities per year. WSDOT has set a target for this average to reach 415.5 annual fatalities in 2018. Similarly, there were 2,209 serious traffic injuries statewide in 2016, bringing the five-year average

to 2,086. Washington's statewide target for this average is 1,788 serious traffic injuries in 2018.

In addition to these five measures, Washington must show improvement upon the 2016 baseline 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.

Final targets for each of the measures and areas were set using the approach of Target Zero, the state's Strategic Highway Safety Plan. The statewide targets were presented to MPOs in June 2017, and MPOs are now in the process of applying the Target Zero approach to their own safety targets. WSDOT is working with the MPOs to provide tools, guidance and technical assistance for that target setting process. MPOs must finalize their targets by February 2018.

WSDOT and partners will then repeat the process to set safety

MAP-21 safety targets for 2018 are now official

Five-year rolling averages; Number of persons; Number of persons per 100 million vehicle miles traveled (rates); Washington public roads

<u>Performance Measure</u>	<u>2016 value</u>	<u>2018 Official Targets</u>
Fatalities	484.8	415.5
Serious injuries	2,086.0	1,788.0
Non-motorists: fatalities + serious injuries	503.4	431.5
Serious injury rate	3.568	3.058
Fatality rate	0.828	0.709

Data sources: Washington State Traffic Safety Commission - Fatality Analysis Reporting System; WSDOT - Transportation Data, GIS & Modeling Office.

Notes: Fatality data is from the preliminary 2016 Q4 release of the WA-FARS Analytical File, and the final 2015 WA-FARS file. The serious injury count is revised as of April 2017. All metrics include non-motorists.

performance targets for calendar 2019 in early 2018. In December 2019, FHWA will review states' progress toward the 2018 calendar year targets below.

Roundabouts show 59:1 benefit to cost ratio

In WSDOT's recent review of safety performance at more than 350 roundabouts in the state, the proportions of fatal and serious injury crashes were much less than those associated with a typical "four leg" intersection with traffic signals.

FHWA recently highlighted WSDOT's use of roundabouts as part of its Every Day Counts initiative, a federal program aimed at disseminating innovative transportation management techniques. While the focus was on the improvement in mobility performance at Slater Road and Interstate 5 in Whatcom County, the three compact roundabouts

analyzed showed a safety performance benefit to cost ratio of 59:1.

WSDOT started building roundabouts on its transportation system in the early 2000s. Roundabouts offer operational, environmental and safety performance benefits compared to other types of traffic control. Roundabouts induce temporary reductions in driving speed, shorten crossing distances for pedestrians, and facilitate traffic flow in a way that helps reduce the severity of the crashes.

Safety research at WSDOT goes big data

WSDOT competed for and received nearly \$2 million in federal grants to conduct two naturalistic driving safety research projects. WSDOT was the only agency to receive a grant for more than one project, and has hired contractors to conduct the studies.



A truck navigates a compact roundabout. The truck apron (yellow, center) allows larger vehicles to drive over it because the turning radius in a compact roundabout is smaller than in traditional-sized roundabouts.

WSDOT sets example

A second FHWA video presents a case study of WSDOT's data-driven choice to install compact roundabouts at Slater Rd. and Interstate 5; visit bit.ly/EDCRoundaboutsFeature.

Adaptive lighting system to be installed on I-5

WSDOT is in the final stages of completing a \$4 million project to convert roadway lighting systems to light-emitting-diodes (LEDs) across northwestern Washington, and installing an adaptive lighting system on a 7-mile stretch of Interstate 5 in Olympia. The I-5 work is a continuation of a successful LED pilot project at US 101 interchanges in Olympia, which reduced power consumption by 74%.

This project is part of WSDOT's sustainability plan and environmental stewardship. WSDOT evaluated the safety performance of continuous roadway lighting on limited access highways (Interstate 5, for instance) and used the findings to target safety investment dollars, identifying and removing some lighting that was not adding a measurable safety benefit. The change allowed WSDOT to maintain safety performance, reduce unwanted light at nighttime, and help the environment.

Both projects are ongoing and they are entering the countermeasure development phase of the research, which will identify strategies for reducing crashes.

The studies examine "naturalistic" data to learn how drivers react instinctively to road conditions. The first considers reactions to lighting conditions at freeway on and off ramps. The second study evaluates drivers' speed choice based on the shape of the road and other situational context.

Both will make use of a new naturalistic driving dataset. FHWA has compiled data on more than 3,500 volunteer passenger-vehicles, data and videos from over 35 million vehicles miles traveled, and data on 4,200 crashes and near crashes. This was combined with over 200,000 center-line miles of roadway environment data to build a dataset that affords researchers new capabilities for investigating safety solutions. The dataset contains over 5 petabytes of data (5 million gigabytes).

WSDOT crafts plan for data in federal pilot project

WSDOT worked with safety data stakeholders to develop WSDOT's Safety Data Business Plan in summer 2017. The work was part of a pilot project with FHWA to develop a guide and business plan for state DOTs and their safety data.

Safety data is critical to the successful reduction of fatal and serious injuries. It is also part of WSDOT's commitment to decision and performance improvement, a Target Zero emphasis area.

Data drives WSDOT's picks for safety projects

WSDOT works to maximize the return on its safety investments, so it tracks the reduction in fatal and serious-injury crashes on the transportation system over time. Target Zero relies on historic crash data to develop a set of emphasis areas, and strategies to address them. WSDOT's Target Zero Implementation Plan outlines its approach to addressing the emphasis areas, including descriptions of which countermeasures might best reduce the potential for a given crash type, or factors that contribute to it.

WSDOT is required by law to select the safety projects it will fund based on a system that ranks proposed projects in order of priority according to the projects' safety benefit-cost ratio. This maximizes the potential for selected projects to reduce fatal and serious-injury crashes over time.

WSDOT screens potential locations against its selection criteria to outline a prioritized list for further analyses and evaluation. The agency diagnoses the factors contributing to crashes, analyzing whether a potential engineering countermeasure would provide a reduction in high-severity-injury crashes. Systematic approaches that focus on a particularly cost-effective crash countermeasures are often used (such as rumble strips to reduce "run off road" crashes). Investments at spot locations and over short road segments are also used in addition.

Locations which demonstrate the greatest potential for safety improvement will be prioritized, but not all locations on the list will be developed as a safety project. Locations ruled out based on predetermined criteria are not eligible for funding through the WSDOT State Highway Safety Program priority process.

Strategic Highway Safety Plans such as Target Zero are now required by federal law, and Washington's success working across agencies is believed to have helped spearhead the national approach to strategic safety planning. WSDOT's prioritized highway safety project lists are typically developed approximately every two years. Future editions of the *Gray Notebook* will highlight the safety categories and performance elements of these projects.

The development of the plan helped improve understanding of how decisions by different agency divisions impact safety data and WSDOT's ability to perform analysis. The plan itself outlines specific strategies, actions, and

goals for WSDOT to support the enhancement, management, maintenance, and governance of effective data systems.

Contributors include John Milton, Ida van Schalkwyk, and Matt Clark

Notable results

- *The share of Washington traffic fatalities involving people walking and biking grew 2% from 2015 to 2016*
- *Washington saw a 19% increase in K-8 children walking and biking to school in 2016 compared to 2014*
- *There were 93 more serious injuries to bicyclists and pedestrians statewide in 2016 compared to 2015*
- *WSDOT expanded Bicyclist and Pedestrian Count Program to develop estimates of statewide biking and walking trips*

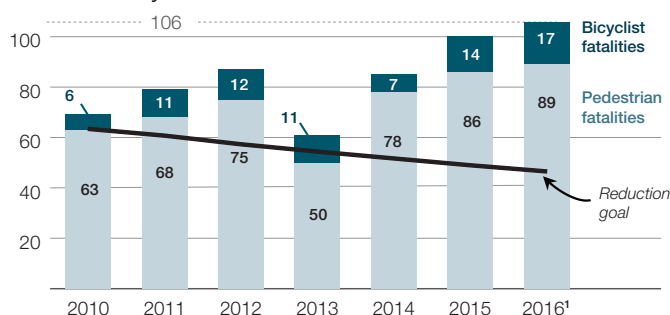
Children walking, biking to school up 19% in 2016

The number of children in grades K-8 walking and biking to school grew 19% in 2016 compared to 2014. More than 11,000 adults with children participated in the 2016 Student Travel Survey, which informs WSDOT about students' travel patterns (see box at right).

Children living in urban areas are more likely to walk to school (18.2%) than those in rural areas (11.2%). A greater percentage of Washington state children rode the school bus in 2016 (41.8%) compared to the 2014 national average (29.8%), the latest available, and a smaller percentage traveled to school via private vehicle (38.4% versus 51.5% nationwide). At schools where the percentage of children receiving free and reduced-price meals is less than the state average, fewer Washington children walk to school (14.9%) compared to other schools (17%). About 43% of children who live within one mile of school walk or bike there.

Total annual pedestrian and bicyclist fatalities climb to 106 in Washington

2010 through 2016¹; Washington state; reduction goal is 5% annually



Data source: Washington State Traffic Safety Commission - Fatality Analysis Reporting System
 Notes: ¹ 2016 data is preliminary; 2015 data is finalized as of January 2017.

Tracking student travel trends

WSDOT partnered with the Washington Department of Health and the Office of the Superintendent of Public Instruction to administer the Washington State Student Travel Survey. The survey collects information on how students travel to and from school. More information about the survey will be available in July 2017.

Fatalities, serious injuries increase for pedestrians, bicyclists

People walking and biking accounted for 20% of statewide traffic fatalities in 2016, up from 18% in 2015. Total annual deaths of people biking and walking on Washington state roads totaled 106 in 2016, up from 100 in the previous calendar year (six more fatalities). There has been an overall upward trend in the number of pedestrian and bicyclist fatalities, with an average of 88 fatalities per year since 2012.

The number of serious injuries involving pedestrians and bicyclists increased 19% from 393 in 2015 to 486 in 2016 (93 more injuries). Serious injury numbers and rates have varied over the years, with a slight upward trend between 2012 and 2016. Washington averaged 415 serious injuries involving bicyclists and pedestrians annually during that five-year period.

Fatalities of people walking, biking rises 2% as share of all Washington traffic fatalities in 2016

2012 through 2016; number of fatalities and percentage of total traffic fatalities on all public roads

	2012	2013	2014	2015	2016 ²
Total ¹ statewide traffic fatalities = 100%	438	436	462	551	537
Pedestrian and bicyclist fatalities	87 (20%)	61 (14%)	85 (18%)	100 (18%)	106 (20%)

Data source: Washington State Traffic Safety Commission - Fatality Analysis Reporting System.
 Notes: ¹ Total statewide fatalities includes all modes of travel.
² 2016 data is preliminary; 2015 data is finalized as of January 2017.

WSDOT expands Bicycle and Pedestrian Count Program

Population growth and changes in the prevalence of biking and walking are two possible causes of these trends. More data on the number of bicyclist and pedestrian trips made in Washington is needed to fully understand the underlying reasons for the increase.

Bicycle and Pedestrian Count Program now in 56 cities

WSDOT once again expanded the reach of its Bicycle and Pedestrian Count Program in 2016, adding 14 new permanent count locations in Clallam and King counties, and the cities of Issaquah, Kent, Richland, Seatac, Seattle, Tukwila, Vancouver and Woodinville.

The program now includes 25 permanent and 386 sample count sites active in 56 Washington cities. As with WSDOT's motor vehicle count data, the agency has expanded its data collection efforts in counting people walking and biking by using an approach that includes data collected both manually during short samples of time, and data from permanent automated counters.

WSDOT's Bicycle and Pedestrian Count Program expands to 25 permanent sites

Locations of permanent automated trip counters



Data source: WSDOT Active Transportation Division - Bicycle and Pedestrian Count Portal.

An interactive version of this map is available online

Since 2008, WSDOT has partnered with Cascade Bicycle Club and Feet First to organize volunteers to count people walking or biking in Washington. WSDOT hosts an open data website which provides the manual and permanent pedestrian and bicyclist volume data to the public. WSDOT uses this information to make decisions on safety and mobility improvements, and is available for download at bit.ly/BikePedCountMap.



League of American Bicyclists' Bicycle Friendly State survey due June 27

State Departments of Transportation will complete the "Bicycle Friendly State" survey this summer and later learn whether Washington can continue its streak of being ranked at the top in 2017. The League of American Bicyclists named Washington state No. 1 in its ranking for the eighth year in a row in 2015. The survey's evaluation criteria were redeveloped in 2016, and no survey was conducted.

Preliminary results using data from nine permanent count locations in Bainbridge Island, Bellevue, Lacey, Redmond, Spokane and Wenatchee indicate a 12% increase in biking and walking compared to 2015. There were 2,445 and 1,887 daily bicycle and pedestrian trips, respectively, at those sites on average in 2016. Over 1.58 million non-motorized trips were recorded there during 2016, with a split of 56% bicycle trips and 44% walking trips.

WSDOT, in partnership with local agencies across the state, will be installing additional permanent counters with the intent to have over 80 total permanent count locations established by the end of the 2017-2019 biennium (ending September 30, 2019). As the program expands, these counters allow WSDOT to monitor bicycle and pedestrian traffic on active transportation corridors throughout the state.

Knowing how many people are bicycling and walking informs planning efforts, provides insights into the use and value of facilities, and helps compare safety outcomes between modes. This data will allow WSDOT to determine estimates of bicycle miles traveled and pedestrian miles traveled to better understand changes in risk exposure rates for non-motorized transportation.

Risk to bicyclists and pedestrians of fatal crash varies by demographic

Age and other demographic factors play a role in the exposure to risk for those walking and biking. Children who walk and bike are under-represented in traffic fatalities, compared to those in other age groups. From 2012 to 2016, children aged 14 and younger represented 18% of the total state population, and were involved in 5% of pedestrian and bicyclist fatalities in Washington state.

Persons over the age of 65 are disproportionately represented in traffic fatalities of people walking and

WSDOT focusing on multimodal traffic safety

biking. From 2012 to 2016, persons aged 65 and older represented 14% of the total population and were involved in 24% of fatal non-motorist traffic incidents.

Income also correlates with the risk of a fatal crash. Locations which have poverty rates above Washington's average saw 53% of fatal injury crashes involving pedestrians and bicyclists although these areas comprise only 38% of the state's population. Fifty-six percent of such serious injury crashes also occurred in these areas.



Strategic Plan Goal 2: MODAL INTEGRATION

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

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

WSDOT focuses on active transportation

Active transportation, any human-powered mode of transport, is essential to a transportation system that works for everyone. WSDOT reorganized its pedestrian and bicycle program into the new Active Transportation Division in March 2017. By creating the Active Transportation Division, WSDOT brings biking and walking to the table alongside other modes in agency structure and processes to achieve its vision of an integrated, multimodal transportation system for all travelers in the state.

Risk-reduction research will help guide safety improvements

WSDOT is undertaking research to develop a method to proactively reduce the potential for pedestrian crashes at different locations throughout the state roadway system. This effort will analyze pedestrian-vehicle crash data in an attempt to identify locations where a combination of factors might lead to increased exposure or higher future crash potential. The research will consider roadway, land use, traffic mix, traffic volume, socioeconomic and other data. Because crashes involving pedestrians are less common, relatively, this model would be used to compare and

prioritize locations and identify potential countermeasures, including at sites which may not yet have a crash history.

WSDOT collaborates on state's traffic safety plan, *Target Zero*

In 2016, WSDOT helped update the Washington state highway safety plan, *Target Zero* (www.targetzero.com). The goal is to decrease traffic fatalities and serious injuries of all types to zero by 2030. The plan sets priorities, lists potential strategies and monitors safety outcomes. The pedestrian and bicycle chapters emphasize the need to focus on vehicle speed, road crossings, and visibility. Recommended strategies include:

- Considering the context of the roadway and adjacent land use when designing speed limits;
- Installing features to lower traffic operating speeds, such as trees or lane configuration changes;
- Installing refuge islands, curb extensions and/or flashing beacons where pedestrian crossing enhancements are needed.

The plan points to the need to prioritize these efforts at locations where many people are walking and biking—where the risk exposure is expected to be highest. Such



a data-driven approach to traffic safety is exemplary of WSDOT's Practical Solutions Agency Emphasis Area, which focuses on using data to guide decisions.

Fatality data helps prioritize locations for safety improvements statewide

Insights from data reinforce the need to focus investment toward the strategies outlined in *Target Zero*. Over a five-year period from 2012 to 2016, 86% of fatal traffic incidents involving people walking and biking occurred at sites with a posted speed limit of at least 30 mph.

A lack of traffic control devices, such as stop signs or painted crosswalks, is another characteristic of many crash sites. During the same five years, these locations saw 83% of the fatal traffic incidents involving people walking and biking.

Such crashes occurred in urban areas 77% of the time, likely because biking and walking prevalence is higher there relative to rural areas. Fifty-four percent of incidents occurred while the person was crossing the street, and one-third occurred at designated intersections.

Legislature establishes Cooper Jones advisory council



WSDOT leverages funding sources to promote pedestrian and bicyclist safety

Active transportation facilities are part of the state highway system and eligible for most of the same funding sources as motor vehicle facilities. Eligible federal funding programs include the Highway Safety Improvement Program (HSIP) and the Surface Transportation Block Grant, among many others. A comprehensive list of federal funding available for bicycle and pedestrian programs is available at bit.ly/BikePedFunding.

In federal fiscal year 2016 (October 2015 through September 2016) approximately 18% of WSDOT's federal obligation set aside for local agencies was for projects primarily focused on safety and mobility for persons who bike and walk. During the same time period, \$13 million in state funds were invested in walking and biking improvements.

One notable example is the Beach Square Safe Routes to School project in Seattle, completed in February 2017. Funded from the HSIP, this \$248,000 project is located in a low-income neighborhood with a history of crashes involving pedestrians and bicyclists.

WSDOT spent \$6.2 million for Americans with Disabilities Act retrofits on 66 projects statewide in 2016. There are \$70 million in ADA retrofit investments planned over the next six years.

Two new councils will advise on bicyclist and pedestrian safety

The Washington state Legislature passed Senate Bill 5402 in April 2017, requiring the establishment of the Cooper Jones Bicycle Safety Advisory Council. Jones was a 13-year-old Spokane resident, who died due to a negligent driver in 1997 while participating in a race with his cycling club. The council will review and analyze data related to bicyclist fatalities and serious injuries, identify points at which the transportation system can be improved and identify patterns in bicyclist fatalities and serious injuries. The council reports to the Legislature's transportation committees on the strategies that have been deployed to improve bicyclist safety, and will recommend whether it should be continued by December 1, 2018.

Results Washington Leading Indicator

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

Status: Needs improvement (red)

Strategies:

- 1. Practical Solutions** - Implement multimodal planning and design that considers transportation and land use interactions and engages local partners and community members.
- 2. Education** - Work with all partners and citizens to raise awareness about pedestrian and bicyclist behavior.
- 3. Introduce the 5th E, Evaluation, to Target Zero** - Evaluation focuses on understanding the conditions and factors leading to crashes to better select appropriate countermeasures.

Immediate mitigation for at risk or off plan status:

1. WSDOT is working to expand the Safe Routes to School program
2. WSDOT created a Modal Safety Executive Committee to focus on highway safety from a multimodal perspective.

Number of pedestrian and bicyclist fatalities in 2016

Pedestrian fatalities	89
Bicyclist fatalities	17
Combined total	106

Note: 2016 data is considered preliminary.

The Washington state Legislature established the Pedestrian Safety Advisory Council in 2016 to "review and analyze data points at which the transportation system can be improved, and to identify patterns in pedestrian fatalities and serious injuries." The council, hosted by the Washington Traffic Safety Commission, includes representatives from WSDOT, law enforcement, public transit, injury prevention, cities, counties, tribes, and the King County coroner. It has reviewed data and compiled recommendations to prevent pedestrian deaths and serious injuries. Some of the focus areas council partners will be working to accomplish include:

- Expanding speed and red light enforcement by photo within and beyond school zones;
- Identifying key pedestrian crossing locations and install safety devices;
- Designing roads to reduce operating speed based on land use context;
- Collecting better exposure data (numbers of people walking and biking);
- Investing in the development and implementation of local plans that support pedestrian safety, and
- Having stakeholders who represent a cross-section of Washington's diverse population on the council and in its processes.

Contributors include Mike Bernard, Barb Chamberlain, Charlotte Claybrooke, John Milton, Ed Spilker, Matt Clark, Dan Davis and Dustin Motte

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WSDOT FERRIES ANNUAL REPORT SUMMARY DASHBOARD

Safety Performance
Component Below

Policy goal/Performance measure	FY2016	FY2017	Goal	Goal met	Comments
Capital Program and Maintenance Effectiveness					
1 Percent of terminal projects completed on time ¹	100%	75%	90%		Three of four terminal projects were completed on time in FY2017; decreased from FY2016
2 Percent of terminal projects completed on budget ^{1,3}	100%	100%	90%		Four of four terminal projects were completed on budget in FY2017; no change from FY2016
3 Percent of vessel projects completed on time A) Existing vessels ² B) New vessels	100% N/A	81% 0%	75% 100%	 	A) Thirteen of 16 vessel contracts completed on time in FY2017; decreased from FY2016 B) M/V <i>Chimacum</i> delivered two weeks late
4 Percent of vessel contracts completed on budget ³ A) Existing vessels ² B) New vessels	60% 100%	88% 100%	75% 100%	 	A) Fourteen of 16 vessel contracts were on budget; increased from FY2016 B) M/V <i>Chimacum</i> delivered on budget
14 Preliminary engineering costs A) As a percent of terminal capital project costs B) As a percent of existing vessel capital project costs	8% 12%	11.2% 9%	<10.5% <17%	 	A) Preliminary engineering costs for terminal capital projects exceeded the goal in FY2017 B) Preliminary engineering costs for vessel capital projects met the goal in FY2017
15 Average vessel out of service time	9.5 weeks	9.3 weeks	<7.6 weeks		Missed vessel out of service time due to vessel mechanical issues; decreased from FY2016
Safety Performance					
5 Passenger injuries per million passenger miles	0.42	0.70	<1.0		Passenger injury rate was within the goal of less than one in one million; increased from FY2016
6 OSHA ⁴ recordable crew injuries per 10,000 revenue service hours	5.6	3.4	<7.6		Met the goal for reduced OSHA recordable crew injuries; increased from FY2016
Service Effectiveness					
7 Passenger satisfaction with Ferries' staff customer service ⁵	95%	95%	90%		Exceeded passenger satisfaction for customer service goal; no change from FY2016
8 Passenger satisfaction with cleanliness and comfort of Ferries terminals, facilities and vessels ⁵	89%	90%	90%		Met passenger satisfaction for cleanliness and comfort goal; increased from FY2016
9 Passenger satisfaction with service requests made via telephone or Ferries website ⁵	91%	91%	90%		Exceeded goal for passenger satisfaction with service requests; no change from FY2016
16 On-time performance level (percent of trips departing within 10 minutes of the scheduled departure time)	93.9%	93.4%	95%		Missed the on-time performance level goal; decreased from FY2016
17 Service reliability level (percent of scheduled trips completed)	99.5%	99.4%	99%		Exceeded service reliability level goal; slightly decreased from FY2016
Cost Containment Measures					
10 Annual operating cost estimate per passenger mile compared to budgeted cost	-0.5%	-1.7%	Within 5% of budget		Met goal for annual operating cost per passenger mile; better than FY2016
11 Annual operating cost estimate per revenue service mile compared to budgeted cost	1.0%	-0.3%	Within 5% of budget		Met goal for annual operating cost per revenue service mile; better than FY2016
12 Overtime hours as a percentage of straight time hours compared to budgeted overtime hours	+0.8%	+0.8%	Within 1% of budget		Met goal for annual overtime as a percentage of straight time; no change from FY2016
13 Gallons of fuel consumed per revenue service mile compared to budgeted fuel consumption	-2.3%	3.4%	Within 5% of budget		Met goal for fuel consumption per revenue service mile; worse than FY2016

Data source: WSDOT Ferries.

Notes: Goals above are out of sequence to better show what categories they are under. All reporting periods are based on fiscal years. Prior reporting period is FY2016 (July 2015 through June 2016) and current reporting period is FY2017 (July 2016 through June 2017). "<" means the goal is less than percent or number indicated. **1** Include preservation and improvement projects. **2** Includes preservation and improvement projects with the exception of new vessels. **3** Budget goal is based on last approved legislative budget. **4** OSHA = Occupational Safety and Health Administration. **5** Percentages include neutral responses from customers.

Notable results

- *Amtrak Cascades ridership increased by 9.8% to 817,000 passengers in 2016; ticket revenues increased 6% to \$30.2 million*
- *Sixteen federally funded rail projects were complete and four were in construction as of March 31, 2017*

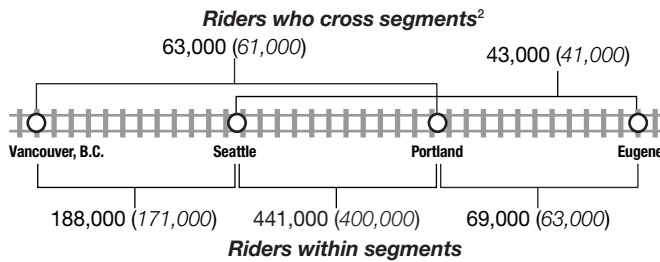
Amtrak Cascades ridership increases 9.8% in 2016

In 2016, 817,000 individual passengers traveled on Amtrak Cascades, an increase of 9.8% from 744,000 in 2015. An enhanced 2016 marketing campaign contributed to the increase, as did the weak Canadian dollar, which created an incentive for more travelers to head north. Amtrak Cascades staff also reported an increase in cruise ship passengers boarding trains in Vancouver, B.C. and Seattle.

There was a particularly large increase in ridership during July, August and September, which saw a combined increase of more than 15% (33,000 passengers) over the same three-month period in 2015.

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

Total ridership for 2016 = 817,000 (Total Ridership for 2015 = 744,000)¹



Data source: WSDOT Rail, Freight and Ports Division.

Notes: **1** Ridership numbers for 2015 are in parentheses throughout the graphic. Total ridership also includes about 12,000 riders in 2016 and about 8,000 riders in 2015 who were either unidentified by Amtrak or deferred their trip to another date, as well as over 1,000 passengers each year who used Sound Transit's RailPlus program to travel between Everett and Seattle. Ridership numbers are rounded and may not equal the total. **2** Riders who cross segments are riders who use a through-train (when a rider boards the train in one segment, then gets off the train in another segment, i.e., boards in Bellingham and gets off in Olympia). The three segments of the Amtrak Cascades corridor are defined as Eugene to Portland, Portland to Seattle, and Seattle to Vancouver, B.C.

On-time performance reported annually

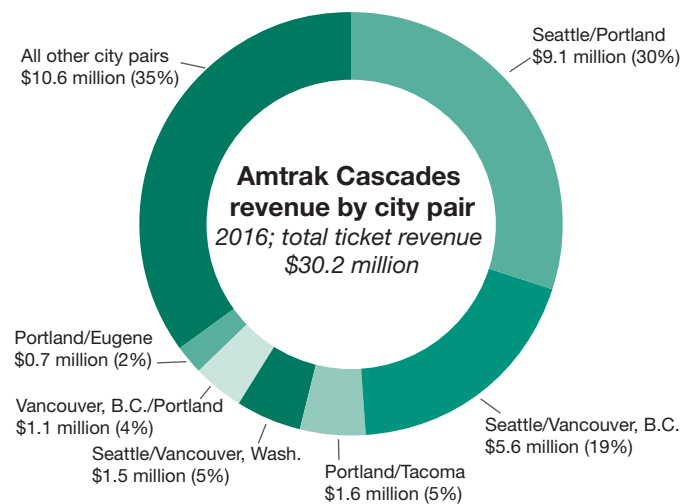
For the most recent information on Amtrak Cascades on-time performance, see [Gray Notebook 63 p. 22](#)

The segment of the Amtrak Cascades corridor between Seattle and Portland accounted for 54% of riders in 2016. More than 441,000 passengers took trips that both began and ended somewhere between the two cities. Seattle and Portland were also home to the two busiest stations on the Amtrak Cascades corridor in 2016, with 479,000 passengers getting on or off a train at Seattle's King Street Station, and 416,000 on-offs at Union Station in Portland.

This segment is expected to become even more popular beginning in fall 2017, when WSDOT adds two additional daily round trips between Seattle and Portland. The addition of a morning and evening train in each direction on this segment is expected to appeal to business travelers working between the two cities, as well as to leisure travelers.

Ticket revenues increase in 2016

Amtrak Cascades ticket revenue totaled \$30.2 million in 2016, an increase of 6% from \$28.5 million in 2015. The Seattle-to-Portland travel segment accounted for 30% of ticket revenues in 2016, totaling \$9.1 million. The Seattle-to-Vancouver, B.C. segment accounted for an additional 19% of revenue, at \$5.6 million.



Data source: WSDOT Rail, Freight and Ports Division.

WSDOT Safety Performance Component Below

WSDOT completes 16th of 20 high-speed rail projects

...that travel the longest distance— between ... S.C. and Portland—generated 33% of the ... revenue (\$10 million). For more details, see the ... Annual Performance Report for Amtrak Cascades at www.wsdot.wa.gov/Rail/PerformanceReports.

WSDOT completes two additional high-speed rail capital projects

Two of WSDOT's 20 federally funded high-speed rail projects were declared operationally complete during the first quarter of 2017, bringing the total number of completed projects to 16. The four remaining projects are scheduled to be completed this year. More than 96% (\$760 million) of federal funding for these projects is from the American Recovery and Reinvestment Act of 2009. To view an interactive map of all 20 projects, visit bit.ly/GNBrailmap.

King Street Station Track Upgrades

New tracks, signals, and an additional platform and canopy are complete at Seattle's King Street Station. The work, which wrapped up in March 2017, took place mainly at night and on weekends so that the station could continue to serve Amtrak, Amtrak Cascades and Sound Transit passengers. This project completes upgrades that began with the King Street Station Seismic Retrofit project (completed in 2013).

Kelso Martin's Bluff – Kelso to Longview Junction

This project, which went into service in March 2017, is the second of a trio of projects in the Kelso-Longview-Kalama region to be completed. The project added a new rail bridge across the Coweeman River and a third main line near the junction that serves the Port of Longview, enabling passenger trains to bypass freight trains entering and departing the rail yard.



One of WSDOT's new Amtrak Cascades locomotives; the new locomotives will be put into service in summer 2017.

WSDOT purchases new locomotives for Amtrak Cascades corridor

One of WSDOT's 20 federally funded high-speed rail projects is the purchase of eight new Siemens Charger locomotives for the Amtrak Cascades; the new locomotives will be put into service in summer 2017.

The locomotives, which are being tested in Colorado, are more fuel efficient than those currently in use on the Amtrak Cascades corridor and have upgraded safety features, higher acceleration rates and faster top speeds. They also meet new U.S. Environmental Protection Agency standards that require large reductions in emissions of air pollutants such as diesel particulate matter and nitrogen oxides.

Once all the new locomotives are in service, they will move all of the passenger trains on the corridor, including the two new round trips between Seattle and Portland.

Contributors include Jason Biggs, Chris Dunster, Teresa Graham, Barbara LaBoe, Janet Matkin, David Smelser, Shravan Aeneeni and Helen Goldstein

WSDOT prioritizes rail safety

During the first quarter of 2017, WSDOT launched a major outreach and education program to inform the public about the dangers of walking on or near railroad tracks. WSDOT employees collaborated with non-profit rail safety organization Operation Lifesaver to make more than 60 train safety presentations to students, businesses, and community groups. WSDOT also unveiled its [Stay Back From The Tracks](http://www.wsdot.wa.gov/StayBackFromTheTracks) website, which is dedicated to train safety and includes a video featuring Seattle Seahawks wide receiver Doug Baldwin. Promotions showing Baldwin delivering a message about rail safety appeared in venues ranging from movie theaters to military publications. They were targeted to reach those most likely to take dangerous risks around railroad tracks.

While WSDOT does not own the tracks or crossings on which Amtrak Cascades trains operate, the agency prioritizes safety on all modes of transportation. In 2016, there were 13 train-related fatalities in Washington state, which was lower than the 27 fatalities that occurred in 2015. However, because more than 80% of train-related incidents involve trespassers who are not at designated crossings, WSDOT believes it can help further reduce injuries and fatalities by educating citizens about the danger of walking on or near railroad tracks and about the importance of always expecting a train.

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ASSET MANAGEMENT: AVIATION ANNUAL REPORT

State contributes \$1.2 million to receive \$76.9 million in federal funds for Airport Aid

WSDOT awarded \$1.2 million for airport investments through its Airport Aid Grant Program for fiscal year (FY) 2018 (July 2017 through June 2018). Public-use airports in the state leveraged \$923,300 of these funds to secure \$76.9 million in federal grant funding. These grant awards will benefit 29 projects at 25 airports in FY2018. WSDOT's leveraged dollars make up 74.4% of the \$1.2 million in total state funds for the Airport Aid Grant Program (see table below). The remaining \$317,500 (25.6%) will go to airports not eligible for federal funding.

A total of \$88.5 million will be available for airport investment projects during FY2018. This figure includes \$10.3 million in local and other funding, in addition to state and federal funding. The majority of these funds (\$82.8 million or 94%) are slated for pavement projects, including \$41 million for runway realignment at the Pullman-Moscow Regional Airport. This project includes property acquisition, power line relocation and construction of airfield improvements. The work will further separate the runway and the taxiway to meet federal standards and reduce the potential for accidents.

Projects that improve safety at airports account for 3% of the total dollars (\$2.7 million), with the remaining 3% (\$3.0 million) allocated for security and other 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 2018; Dollars in millions

Project type	Total	Local	State	Federal
Pavement	\$82.8	\$10.0	\$0.9	\$71.7
Safety	\$2.7	\$0.1	\$0.1	\$2.5
Security	\$1.0	\$0.1	\$0.1	\$0.9
Other ¹	\$2.0	\$0.1	\$0.1	\$1.8
Total	\$88.5	\$10.3	\$1.2	\$76.9

Data Source: WSDOT Aviation Division

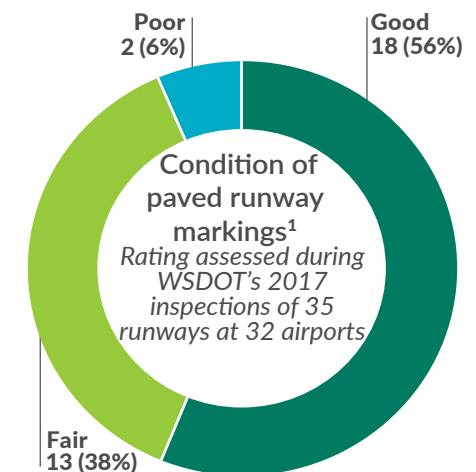
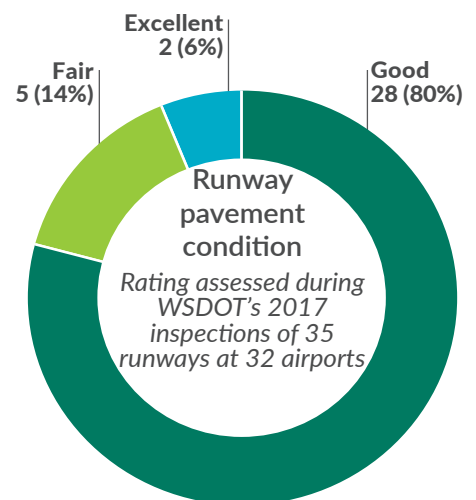
Notes: Some numbers do not add up due to rounding. 1 "Other" projects include planning, maintenance and equipment acquisition.

WSDOT finishes 100% of Airport Master Record inspections

WSDOT completed 100% of its airport inspections of the 42 airports scheduled in 2017. During these visual inspections, WSDOT determined that 86% of runway pavement at 32 airports (10 airports have turf, gravel or water runways) was in excellent or good condition (see chart at right). WSDOT inspectors, following Federal Aviation Administration (FAA) guidance on Master Records, also assessed runway markings. Inspectors found that of the 35 runways at the 32 airports—some airports have more than one runway—approximately 94% had markings that were in good or fair condition.

Notable results

- WSDOT's Airport Aid Grant Program leveraged \$923,300 in state funding to make \$76.9 million in federal funds available for airport investments in fiscal year 2018
- The Pullman-Moscow Regional Airport is slated for a \$41 million runway realignment project
- Airport inspections found that 86% of runway pavement at 32 airports was in excellent or good condition



Data Source: WSDOT Aviation.

Notes: Some airports have more than one runway. The condition of runway markings was assessed at 32 of the 42 inspected airports because runways at the other 10 locations were turf, gravel, or water surfaces. 1 Two runways had no markings.

WSDOT is developing a best management practices toolkit

In accordance with a proposed solution from the Airport Investment Study, WSDOT is developing a best management practices guidebook/toolkit for public-use airports. The guidebook will be a resource to use in employing successful airport management methods as well as meeting statutory requirements. These practices are based on airport management knowledge obtained from experts across the nation. The guidebook is expected to be available by December 2019.



Agency Emphasis Area PRACTICAL SOLUTIONS

WSDOT's development of a best management practices toolkit for public use airports in Washington state supports Practical Solutions by consolidating knowledge and best practices obtained from airport management experts across the nation.

Pavement work scheduled for Methow Valley Airport

WSDOT will undertake a \$5.9 million project at Methow Valley State Airport beginning in May 2018. The project at the state-managed airport will rehabilitate 21-year-old pavement on the primary runway, and will install new sub-drains, grade the runway safety area and rehabilitate surrounding taxiways and other pavement. Work at the airport will also expand and reconfigure the aircraft parking apron to meet FAA design standards.

The pavement at Methow Valley State Airport has reached the end of its useful life. The design and environmental work for the project began in January 2017 and went to bid in August 2017. The work is scheduled to begin in May 2018 and take approximately 100 calendar

days. The project will be completed in phases to minimize impacts on airport operations.

The Methow Valley State Airport is one of 16 airports that WSDOT operates. It is the only state-run airport eligible for federal funds because it is included in the Federal Aviation Administration's National Plan of Integrated Airport Systems (NPIAS). The NPIAS is the FAA's federal system of airports.

The airport is also home to a U.S. Department of Agriculture Forest Service Smokejumper Base. The base employs approximately 30 staff who use the airport to conduct forest fire fighting operations. The airport is also used for business and recreational travel.

WSDOT's Airport Investment Study identifies solutions for needed airport funding

The Airport Investment Solutions Handbook was released in 2015 as the second and final phase of WSDOT's Airport Investment Study. The study identified \$3.6 billion in needed investment, and a \$1.6 billion gap between needs and available funding over the next 20 years.

The handbook proposed solutions to cover the state's share—\$8.4 million annually—of the current airport investment funding gap. Among possible solutions resulting from the study were the need for a state-sponsored revolving aviation infrastructure loan fund and a best management practices guidebook/toolkit for state airports.

In 2017, the legislature considered an aviation revitalization revolving loan program reflected in House Bill 1656 and Senate Bill 5328. While neither bill passed, they are scheduled for further discussion in the 2018 session, as is \$5 million in possible start-up funding in the state capital budget.

The revolving loan would provide seed money for airports to complete projects that will generate long-term revenue streams. These revenue streams could allow airports to provide the 5% matching funds that are required of a WSDOT or FAA airport infrastructure grant.

Aircraft registration with WSDOT climbs to a record high

WSDOT registered a record 6,586 aircraft and provided 3,056 total exemptions to qualifying aircraft during the 2017 aircraft registration and renewal cycle (see sidebar on p. 20 for more information about exemptions). As a result, WSDOT surpassed its annual registration goal of 95%.

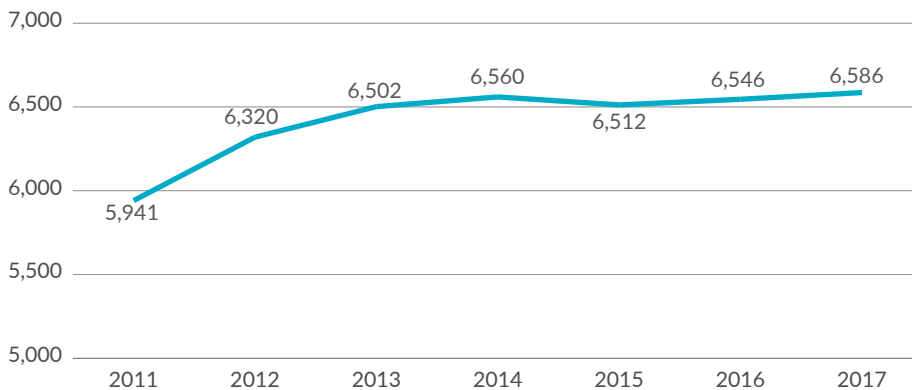
Washington state law requires that airworthy general aircraft be registered with WSDOT Aviation.

Annual aircraft registration fees are due January 1 each year and directly support airport preservation, maintenance and improvement programs.

In 2017, late registration fees were paid for 146 aircraft in Washington state. Gov. Jay Inslee signed a bill in 2016 which assesses a one-tier late registration penalty of \$100 per aircraft instead of the previous escalating penalty schedule.

Number of aircraft registered in Washington soars to record high in 2017

2011 through 2017; Number of aircraft registered with WSDOT per year



Data source: WSDOT Aviation Division.

FAA and WSDOT Partner for a statewide Disadvantaged Business Enterprise Program disparity study

The Federal Aviation Administration (FAA), WSDOT's Office of Equal Opportunity (OEO) and WSDOT's Aviation Division are collaborating on a statewide Disadvantaged Business Enterprise (DBE) Program Disparity Study. The study is projected to begin in January 2018 and be completed in June 2019. The structure of the study will eliminate redundant spending while benefitting airports and the state.

WSDOT OEO has successfully completed DBE studies in 2005, 2012 and 2017. Given this experience, the FAA requested that OEO manage this project on its behalf in conjunction with a consultant.

This DBE Program Disparity Study will evaluate contracting data for 64 of the 136 public-use airports in Washington state that are under WSDOT authority and determine

Most aircraft registered with WSDOT are single engine

Calendar year 2017; Number of aircraft registered by type

Aircraft type	Quantity
Single engine	4,681
Home built	1,085
Helicopter	228
Piston, multi-engine, small	213
Turbojet, multi-engine	135
Sail/glider	122
Turboprop, multi-engine	41
Lighter than air	36
Piston, multi-engine, large	23
Aircraft 8,001-9,000 lbs.	10
Aircraft 4,001-6,000 lbs.	7
Aircraft less than 4,001 lbs.	4
Aircraft 9,001-12,500 lbs.	1
Total	6,586

Data source: WSDOT Aviation Division.



Agency Emphasis Area INCLUSION

WSDOT is supporting Inclusion by partnering with the FAA to conduct a Disadvantaged Business Enterprise program disparity study. This study will examine utilization of minority- and women-owned businesses by the Airport Improvement Program in Washington state in relation to the availability of those businesses.

Aircraft registration exemption

In 2017, WSDOT provided 3,056 exemptions to aircraft that qualified. This means owners of those aircraft were not required to pay registration fees to WSDOT according to state law. Aircraft that qualify for exemption from WSDOT registration are still required to register with the FAA.

There are several criteria to qualify for aircraft registration exemption, all of which require approval by WSDOT. For more information about exemption qualification and how to apply, see <http://bit.ly/AircraftExemptions>.

Statewide general aviation passenger safety improves

WSDOT does not track passenger safety, but it assists the National Transportation Safety Board (NTSB) after aviation accidents, providing information to help NTSB investigations.

General aviation¹ fatalities in Washington state declining

2015 through 2017; General aviation passenger boardings and fatalities only

	2015	2016	2017
Total fatalities	14	7	3

Data sources: Federal Aviation Administration; National Traffic Safety Board, Aviation Accident Database.

Note: Data current through October 2017. ¹ General aviation includes all non-commercial passenger aviation.

the availability versus utilization of minority- and women-owned firms on airport projects. The study will provide these airports with sufficient information to implement their DBE program consistently with current regulatory standards.

The collaboration between the FAA, OEO and WSDOT Aviation provides several benefits to our airport stakeholders, including:

- Eliminating redundant spending and efforts by conducting the required DBE Disparity Study for 64 airports concurrently, instead of 64 separate studies and consultants;
- Ensuring that each airport's DBE Program Disparity Study will meet federal requirements;
- Ensuring that airports receive the benefit of WSDOT's experience from recently conducting a Federal Highway Administration-funded DBE Program Disparity Study;
- Providing each airport with the legal foundation to evaluate data and properly implement the DBE Program as required by federal law under the Code of Federal Regulations; and
- Developing specific areas for improvement and best practices for airports located in Washington state.

Aviation System Plan charts a new course for Airports

In July 2017, Transportation Secretary Roger Millar approved the Washington Aviation System Plan (WASP) final report, opening the way for WSDOT to begin implementing new programs designed to improve the state's system of public-use airports.

The WASP is a statewide study conducted approximately every five years. It examines and analyzes Washington's system of airports to identify changes that are needed to meet airport and aviation transportation needs.

Among the key findings of the study were modest growth in statewide commercial air service, air cargo, and general aviation. The study also explored several emerging issues such as alternative fuels, aircraft innovation and unmanned aircraft systems.

The study's results included a new airport classification system, new performance goals, objectives and measures, new performance metrics for airports, and strategic alternatives for enhancing aviation activities at the statewide, regional and individual airport levels.

WSDOT will work with airports, local governments and stakeholders to implement the new tools developed through the study. For more information about the WASP, visit:

<http://bit.ly/WSDOTWASP>.

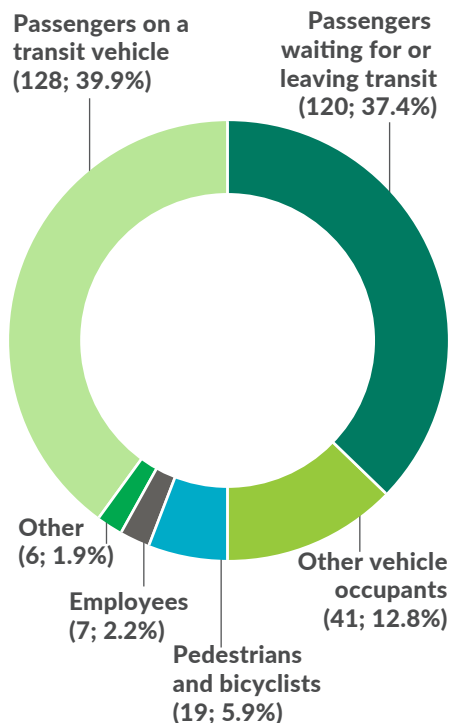
Contributors include Rob Hodgman, Eric Johnson, John MacArthur, Tracy Paul, Paul Wolf, Patrick Wright, Joe Irwin and Dustin Motte

Notable results

- Washington had eight transit-related fatalities in 2016, an increase from three in 2015
- Injuries reported on Washington's transit systems increased 9% between 2015 and 2016, going from 295 to 321
- There were 327 transit incidents in 2016, a 19% increase from the 274 incidents reported in 2015

Transit agencies report 321 injuries

2016; Injuries reported to the National Transit Database



Data sources: WSDOT Public Transportation Division and the National Transit Database

Notes: For information on requirements for reporting to the National Transit Database, see [Gray Notebook 63, p. 12](#).

Statewide transit-related fatalities increase, injury reporting improves

There were eight transit-related fatalities in 2016 across all modes (bus, light rail, trolley bus and vanpool). This is an increase of five fatalities since 2015 (see graph below). The fatality rate in 2016 was 0.06 per million vehicle revenue miles (VRM; the number of miles traveled by transit vehicles while in service), an increase of 0.04 since 2015. Over the same period, VRM increased by 3%, going from 124.0 million in 2015 to 127.6 million in 2016.

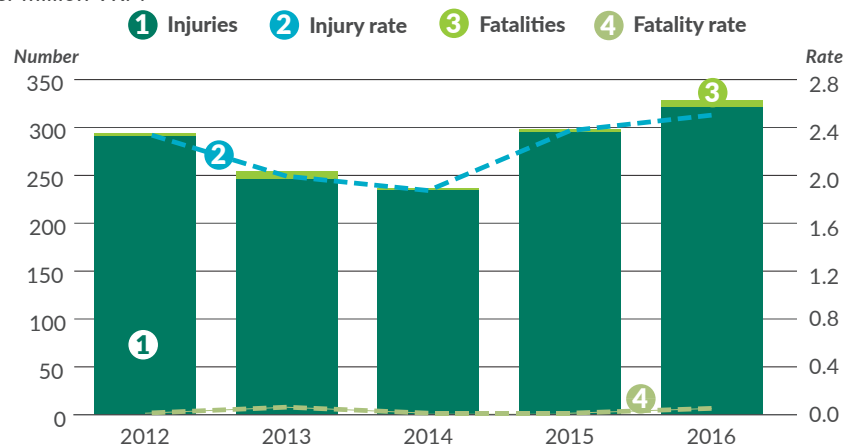
There were 321 transit-related injuries in 2016, an increase of 9% from 295 in 2015. Of the 321 injuries in 2016, 248 (77%) involved passengers either on, waiting for or exiting a transit vehicle. The injury rate in 2016 was 2.52 per million VRM, a 6% increase from 2.38 in 2015.

The increase in statewide injury reporting is largely attributable to improved injury reporting at Sound Transit, which reported 47 injuries in 2016 (an increase of 39 from the eight it reported in 2015). An emphasis on hazard management associated with new service and stations, as well as an increase in safety staff, led to improved reporting and communication regarding transit-related injuries and incidents across Sound Transit's light rail service.

There were 327 incidents involving transit in 2016, a 19% increase from 274 events reported in 2015. For reporting purposes, incidents are classified as collision, derailment, fire, security, or not otherwise classified (NOC). NOCs, which can include slips, trips and falls, electric shocks, vehicles leaving the

Transit-related injuries in Washington increase by 26; fatalities increase by five

2012 through 2016; Number of injuries and fatalities; Rate of injuries and fatalities per million VRM¹



Data sources: WSDOT Public Transportation Division and the National Transit Database.

Notes: Fatalities are stacked on top of the bar representing injuries. For information on requirements for reporting to the National Transit Database, see [Gray Notebook 63, p. 12](#). ¹ Vehicle Revenue Miles (VRM) is the number of miles traveled by a transit vehicle while in revenue service; this measurement excludes miles traveled to or from an assigned route. In [Gray Notebook 63](#), the injury and fatality rates were reported per unlinked passenger trip rather than per VRM; this was changed in order to better align with WSDOT's other public transportation reporting.

roadway and train derailments in a rail yard, accounted for 66% (217) of incidents in 2016. The remaining incidents in 2016 were 87 collisions (27%), 16 fires (7%) and seven security events (2%).

WSDOT administers three transit safety programs statewide

WSDOT administers three statewide transit safety and compliance oversight programs that promote safe public transportation services at Washington's 32 transit agencies.

State Safety Oversight program

WSDOT's State Safety Oversight program (SSO) is responsible for ensuring that rail transit agencies (which do not include Amtrak) implement system-wide safety programs.

In 2016, the Federal Transit Administration (FTA) issued new safety regulations for rail public transportation systems, which expanded the scope of SSO to include the design and construction phases of projects, in addition to SSO's existing oversight of operations. They also require SSO to be more involved in the investigation of accidents and hazards at rail transit systems. SSO is required to be in full compliance with these new regulations by April 15, 2019, and is on track to meet that deadline.

During 2017, SSO took steps to comply with the new regulations, including:

- Holding quarterly rail safety meetings with Sound Transit;
- Developing and circulating new rules to implement program changes, which include financial penalties for noncompliance; and
- Revising the Washington State Rail Safety Oversight Program Standard and circulating a draft to transit agencies and FTA.

Transit Asset Management

In 2016, FTA released new rules that mandate transit agencies' processes for Transit Asset Management (TAM). Throughout 2017, WSDOT collaborated with transit agencies and metropolitan planning organizations to develop tools and methods for complying with the new rules, including:

- State of good repair methodology;
- Asset life cycle cost management tools;
- Asset inventory and analysis tools;
- TAM performance measures;
- Strategic approach to TAM and safety technology investment; and
- Preventative maintenance to reduce asset life cycle cost.

WSDOT is working with its partners to develop a document called "A Guide to Developing Your TAM Plan," which is on track to be released in spring 2018.

WSDOT owns 1,042 public transit vehicles

These vehicles are operated by partner organizations, and have a replacement value of \$110 million.

WSDOT completed 32 Capital/Vehicle Maintenance Reviews in 2017. These reviews involve visually inspecting transit agencies' vehicles for functionality and reviewing maintenance records for consistency with TAM plans.

Drug and Alcohol Policy program

Federal law requires WSDOT to enforce regulations for drug and alcohol misuse in the public transportation industry. WSDOT administers the drug and alcohol policy program, working with transit agencies that receive federal grants to improve drug and alcohol program policies and implementation procedures by providing technical assistance through training, networking and policy development.

In 2017, WSDOT completed 17 drug and alcohol oversight compliance reviews. These reviews help ensure that transit agencies receiving federal grants have drug and alcohol program policies, testing procedures and recordkeeping systems that meet federal requirements.

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Notable results

- From 2013 to 2017, WSDOT's agency-wide recordable incident rate improved 17.5%
- In 2017, 52% of WSDOT employees participated in SmartHealth activities

WSDOT's recordable incident and days away, restricted or transferred rates increase slightly

WSDOT's agency-wide recordable incident rate (RIR) increased from 4.6 in 2016 to 4.7 in 2017, indicating an increase in the number of Occupational Health and Safety Administration (OSHA) recordable injuries per 100 workers at agency worksites. The statewide "days away, restricted or transferred," or DART rate, also increased from 2.2 in 2016 to 2.3 in 2017. The DART rate is a subset of the RIR where the injuries sustained result in days away from work, restricted work activities or a transfer of job duties. Despite the increases in 2017, RIR and DART rates have decreased significantly (improved) in the last five years. The agency-wide RIR improved 17.5% between 2013 and 2017, and the DART rate improved 23.3% in the same time period.

WSDOT's agency-wide recordable incident and DART rates¹ show five year improvement despite increases in 2016 and 2017

2013 through 2017; Average number of recordable incidents and DART rate for every 100 full-time employees per year

Incident rate	2013	2014	2015	2016	2017	5-year % change ²
WSDOT ³	5.5	5.7	4.2	4.3	4.3	-21.8%
Ferries ³	6.1	4.5	4.8	5.4	5.9	-3.3%
Agency-wide ³	5.7	5.4	4.3	4.6	4.7	-17.5%
DART rate						
WSDOT ³	2.6	2.5	1.6	1.6	1.7	-34.6%
Ferries ³	4.2	3.1	2.4	3.6	3.7	-11.9%
Agency-wide ³	3.0	2.7	1.8	2.2	2.3	-23.3%

Data source: WSDOT Office of Human Resources and Safety.

Notes: **1** The recordable incident rate is calculated as the number of recordable incidents multiplied by 200,000 hours and divided by the total hours worked. The "days away" or DART rate is the count of recordable incidents involving days away, restricted duty, or job transfer, multiplied by 200,000 hours, and divided by the total hours worked. **2** Rates: (-%) = improve; (+%) = worsen. **3** Ferries is separate due to its marine work environment; agency-wide includes Ferries and the rest of WSDOT.

More WSDOT employees participate in wellness activities and assessments, besting state average

WSDOT's Wellness Program developed statewide challenges and hosted SmartHealth-related activities in which 52% of SmartHealth eligible (those who subscribe to the Public Employees Benefits Board which provides health insurance) WSDOT employees registered to participate in 2017, up five percentage points from 2016, when 47% registered. This exceeds the state average of 44% of employees registered to participate. SmartHealth is a voluntary, confidential health and wellness portal for state employees that focuses on positive lifestyle behavioral changes. These changes may reduce health-related costs and increase longevity. SmartHealth provides an opportunity for employees to improve their health and well-being while earning financial incentives.

Well-being assessment highlights employee strengths and opportunities

SmartHealth uses a Well-being Assessment (WBA) that highlights strengths and opportunities for employees to improve their health, well-being and productivity.

Seventy-one percent of SmartHealth eligible WSDOT employees completed WBAs in 2017; even though completions dropped from 76% in 2016, they are still well above the 54% average for all other state agencies. For participating in SmartHealth-related activities, 32% of eligible WSDOT employees earned sufficient points to receive a \$125 credit toward their health insurance deductible in 2017, compared to 23% in 2016. In addition to the annual deductible incentive, WA Wellness has added incentives to encourage Public Employees Benefits Board (PEBB) members to complete their well-being assessment in 2018. WSDOT and WA Wellness are working together to increase SmartHealth participation.

Assessment shows less WSDOT employees were smoking in 2017

The WBA has been a tool to measure 34 different dimensions of health of state employees since 2015. In its three years of measuring, all dimensions but one, "healthy weight," have seen significant (mostly double-digit) improvements. One, "smoke-free living," improved from a score of 1 (high risk) in 2015, to a score of 2.55 (moderate risk) in 2017; in a range of 1 to 5, 5 is the best possible score. "Healthy weight" declined slightly from 2.40 in 2015 to 2.39 in 2017.

WBA "Health" measures focus on physical components. WSDOT employees' best scores were in "smoke-free living" and "drinking moderately," scoring 4.86 and 4.53, respectively. WSDOT employees' lowest scores were in "sleep" and "healthy weight," scoring 3.36 and 2.79, respectively.

Scores lower than 3.5 show varying levels of risk, but collecting health data allows WSDOT to tailor wellness programs to lessen the risk. For example, WSDOT offers a Diabetes Prevention Program which includes worksite screenings and a 16-week series of classes offering on-site education to employees who are pre-diabetic, encouraging healthy habits to prevent the onset of Type 2 Diabetes. The agency also offers mobile mammography, body composition analysis and visits from sleep specialists to address sleep apnea.

Life meaning, positive relationships matter to WSDOT employees

The WBA "Well-being" measures focus on components of wellness. For WSDOT employees, "life meaning" and "positive relationships" had the highest scores, with 4.4 and 4.36, respectively. "Positive Living" and "Energy level" had the lowest scores, at 3.76 and 3.15, respectively. WSDOT has been proactive in helping employees develop higher energy levels through such programs as a "Take 9 at 9" stretching program that is offered at WSDOT locations statewide.

The WBA "Productivity" measures examine work-related outcomes. WSDOT employees highest scores were in "self-leadership" and "job

satisfaction," with 4.31 and 4.11, respectively. WSDOT employees' lowest scores were in "belief in company" and "fit with culture" at 3.68 and 3.59, respectively. Both are above the risk level. WSDOT strives to improve work-related outcomes.

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Demographics show WSDOT employees are older, mostly male

Age range in years and by percentage; Gender by percentage of population

Age range	WSDOT	Others ¹
18 to 35	15%	24%
36 to 50	33%	36%
51 to 64	46%	35%
> 65	5%	5%
Male	75%	43%
Female	25%	57%

Data source: SmartHealth Well-being Assessment 2017.

Note: 1 All other state agencies.

The WBA assessment compared some of WSDOT's demographics to those of other state agencies. In 2017, the gender of WSDOT employees was 75% male and 25% female, compared to 43% male and 57% female for all other state agencies. WSDOT employees tend to be older than those of other state agencies, with the highest percentage of its employees (46%) falling into the 51-64 age range. By comparison, the highest percentage of employees at all other agencies (36%) are in the 36-50 age range.