Pedestrian Safety Advisory Council

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WASHINGTON
TRAFFIC SAFETY
COMMISSION

2018 | Annual Report & Recommendations

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EXECUTIVE SUMMARY

A basic premise of any transportation system is that people should be able to walk safely

Walking is the common connector between all forms of transportation. Walking, for instance, is the connection between people who park their vehicles and then walk to a light rail station to catch a train into downtown Seattle to work. The ability to walk safely is just as important in downtown Walla Walla, where walking to shops and businesses is vital to the local economy.

However, in 2017, a pedestrian* died in a traffic-related crash every three days in Washington State. Deaths involving people who were walking comprised about 20 percent of the state's total traffic fatalities in 2017 (109 out of 565 total fatalities). This was a significant increase over 2013, when pedestrian fatalities made up 11.4 percent of the total. The National Highway Traffic Safety Administration (NHTSA) tracks Washington State's five-year rolling average for fatalities and that measure indicates an increase of nearly 19 percent over a 10-year period from 69 in 2007 to 82 in 2017.

The 109 total pedestrian deaths in 2017 is the highest in more than 30 years in Washington. The same five-year period saw a 39 percent increase in serious pedestrian injuries. That is not consistent with the premise that people need to be able to walk safely for transportation systems to work well.

**In this report we will use the words "pedestrian" and "walker" and the phrase "people who walk" interchangeably to describe someone who is walking in proximity to – or with the possibility of – vehicle traffic. Included in this definition will be persons in wheelchairs or people using roller blades, skateboards, or foot scooter/e-scooter.*

The rate of pedestrian fatalities (frequency of fatalities per 100,000 people) has increased from less than one in 2013, to nearly 1.5 in 2017. These trends are inconsistent with a healthy transportation system. With our population increasing, we can expect the number of fatalities for people walking to increase unless we make changes.

Each statistic represents a person and, in the case of a fatality, that is a person who will no longer be able to do the things they enjoyed in life. Some of the victims were longtime members of their communities. Many had spouses and children. Among the dead are retired people, teachers, truck drivers, faith leaders, and youth sports coaches. Some were walking to public transit bus stops or to the grocery store. Many walkers who died lived in low-income neighborhoods, and walking was their primary form of transportation because they could not afford a vehicle.

The Pedestrian Safety Advisory Council (PSAC) has examined the commonalities among pedestrian fatalities. A majority of the walkers who were killed - and two-thirds of those suffering serious injuries - were struck by motorists while they were crossing the roadway. In 2017, 21.1 percent of the fatalities involving walkers were hit-and-run crashes, meaning the driver did not stop at the scene of the crash as required by law.

Impairment also plays a big role in pedestrian-motorist crashes. From 2007-2016, more than 44 percent of the walkers who died from pedestrian-motorist crashes tested positive for alcohol or drugs, or sometimes both (WTSC, 2018). In 2017, 7.9 percent of drivers who were tested were found to be impaired by alcohol or other drugs.

One difficulty with examining issues related to pedestrians is we have only partial counts of the actual number of people who are walking. It is important to have complete information about the level of exposure (how many people walk and how many walking trips they make) in order to analyze changes in the rates of crashes, fatalities, and serious injuries experienced by walkers.

Certain demographic groups have higher rates of fatalities and serious injuries for people who walk or bike than the population as a whole, for example, people living in census tracts with high poverty rates (WSDOT Gray Notebook #69, 2018). This is an important consideration since the PSAC's work this year suggests a historical failure to invest in infrastructure that increases safety for people who walk or bicycle in lower income communities and those with a high percentage of people of color. We lack a good inventory in Washington of the infrastructure we currently have in place to keep walkers safe. One nationally praised study showed significantly fewer pedestrian trails available to residents of 10 census tracts with high poverty rates as compared with neighboring tracts (Wilson, D, Kirtland, K, Ainsworth, B, and Addy, C, 2004).

In our state, if we found a disease killing someone every three days, we would invest resources to isolate the causes and establish effective treatments. Today, pedestrian fatalities and serious injuries rise to the level of a public health crisis and we now need to focus on changing how we approach road design and planning, and education and enforcement to reduce Washington's ominous statistics.

Recommendations

This report utilizes five internationally recognized principles of sustainable safety to categorize the PSAC's recommendations. There is also a category for recommendations that cross into multiple safety principles.

The principles of sustainable safety were developed in Europe and have been widely adopted by cities in the United States. Measurable traffic safety performance improvements have been measured in areas where the principles of sustainable safety have been fully implemented. Vision Zero starts with the conviction that everyone has the right to move safely in their communities. The Vision Zero approach recognizes that people will sometimes make mistakes, so transportation system designers and policymakers must improve the roadway environment, policies (such as speed management), and other related systems to lessen the severity of crashes. (Vision Zero Network, n.d.)

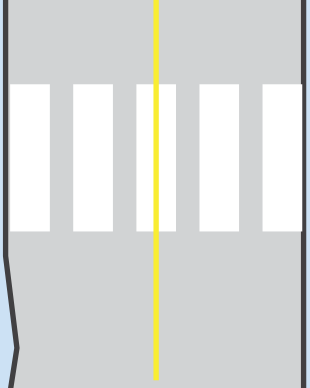
The PSAC recognizes all five principles plus the cross-cutting recommendations as essential to improving roadway safety. Deliberations in 2018 did not address every principle at the same level of detail and this work will continue in 2019. In its ongoing work the group will continue to develop recommendations for improving pedestrian safety based on continuing examination of information associated with each of the principles.

Six Categories for Recommendations

1. **Cross-Cutting Proposals**
   These recommendations influence the entirety of the transportation system as it relates to the safety of people walking.
2. **Speed Control and Separation**
   Ensure safe operating speeds for roadways and separate cars from people.
3. **Functional Harmony**
   Design roadways and vehicles to reduce conflicts between users.
4. **Predictability and Simplicity**
   Make it easier for all roadway users to use all roadways safely.
5. **Forgiveness and Restrictiveness**
   Predict where simple mistakes can happen and prevent them.
6. **State Awareness**
   Change behaviors that contribute to crashes.

Principles of Sustainable Safety

and Associated Recommendations from *Pedestrian Safety Advisory Council (PSAC)*



1 Cross-Cutting Proposals

These recommendations influence the entirety of the transportation system as it relates to the safety of people walking and do not fit in one of the five safety principle categories described previously.

1.1 Convene a statewide Active Transportation Safety Advisory Council (ATSAC).
1.2 Improve data systems and coordination.
1.3 Develop a consistent approach to developing pedestrian safety plans.

2 Safety Principle
Speed Control & Separation

2.1 Develop target speed policy for use at all jurisdictional levels.
2.2 Allow automated speed enforcement cameras on roads in school walk areas.
2.3 Designate revenues from automated enforcement for safety improvements.

3 Safety Principle
Functional Harmony

3.1 Increase training regarding integration of transportation and land use.
3.2 Incorporate health and safety considerations into updates of Growth Management Act (GMA).

4 Safety Principle
Predictability & Simplicity

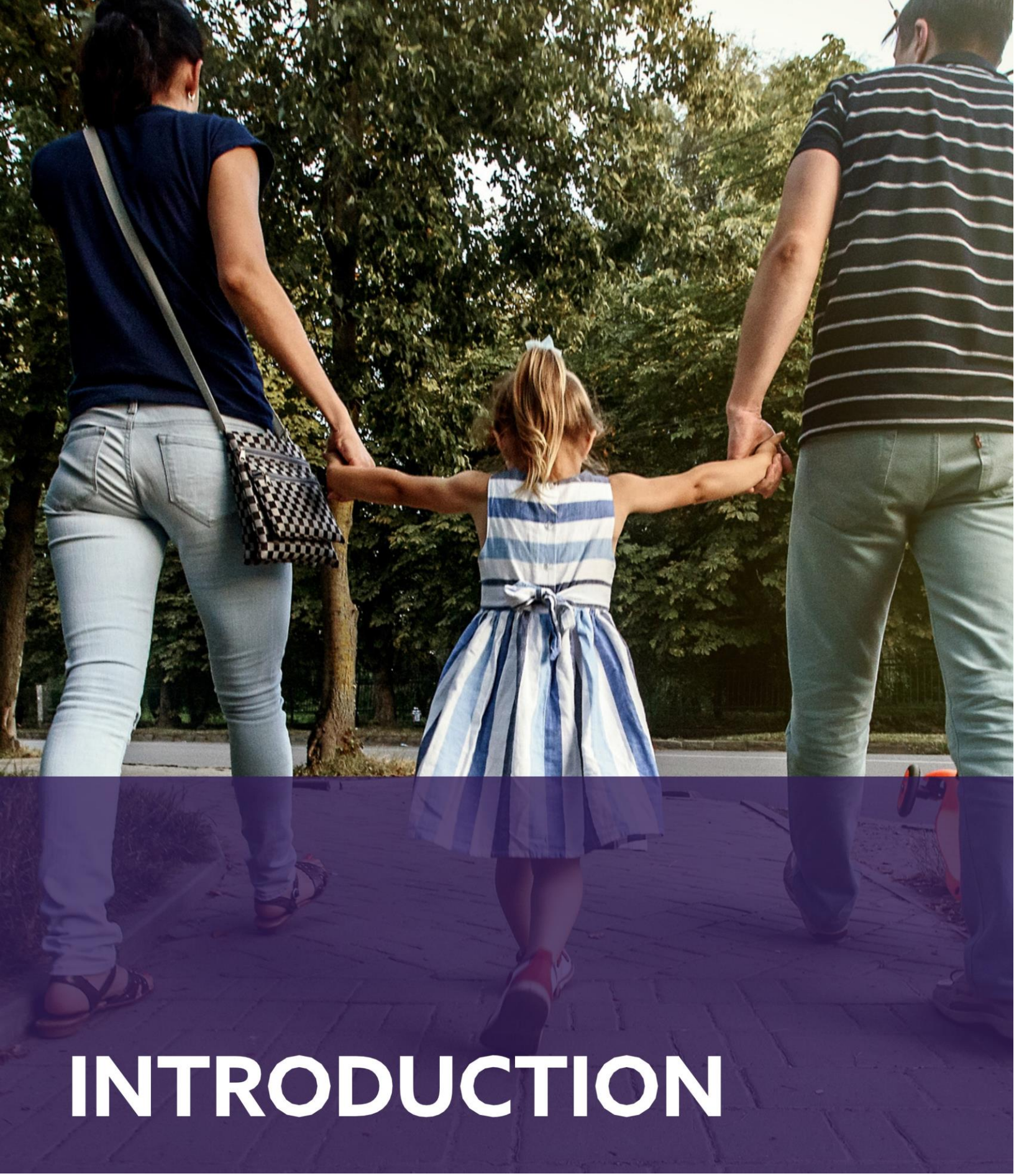
4.1 Increase investment in infrastructure in underserved areas.
4.2 Support pedestrian safety technology.

5 Safety Principle
Forgiveness and Restrictiveness

5.1 Strengthen and update vulnerable user law.

6 Safety Principle
State Awareness

6.1 Research development impact fees and other topics.
6.2 Update school walk areas statewide.
6.3 Include active transportation in driver education.
6.4 Implement statewide pedestrian safety campaigns.



INTRODUCTION

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INTRODUCTION

Changing the status quo - a new vision for pedestrian safety

A basic premise of any transportation system is that people should be able to walk safely. Walking is the common connector between all forms of transportation. Walking, for instance, is the connection between people who park their vehicles and then walk to a light rail station to catch a train into downtown Seattle to work. The ability to walk safely is just as important in downtown Walla Walla, where shopping and business access are vital to the local economy.

It is safe to say that most of Washington's 7.4 million people (OFM, 2018) use public roadways to do some walking every day to get from one place to another or to transition from one form of transportation to another.

However, in 2017, a pedestrian* died in a traffic-related crash every three days in Washington State. Deaths involving people who were walking comprised about 20 percent of the state's total traffic fatalities in 2017 (109 out of 565 total fatalities). This was a significant increase over 2013, when pedestrian fatalities made up 11.4 percent of the total. Washington State's five-year rolling average for fatalities indicates an increase of nearly 19 percent over a 10-year period from 69 in 2007 to 82 in 2017.

**In this report we will use the words "pedestrian" and "walker" and the phrase "people who walk" interchangeably to describe someone who is walking in proximity to – or with the possibility of – vehicle traffic. Included in this definition will be persons in wheelchairs or people using roller blades, skateboards, or foot scooter/e-scooter.*

The 109 total pedestrian deaths in 2017 is the highest number in more than 30 years. The same five-year period has seen a 39 percent increase in serious injuries suffered by people walking.

The rate of pedestrian fatalities per 100,000 people increased from less than one in 2013 to nearly 1.5 in 2017. These trends are inconsistent with a healthy transportation system. Our population is increasing. Unless we make changes, we can expect increased fatalities for people who walk.

Each circle on the map to the right shows the location where a pedestrian died in 2017. In addition, while those deaths seem concentrated in urban areas – where there is a concentration of both population and vehicles – there were also pedestrian deaths in rural areas.

Location of Pedestrian Fatalities, 2017

WSDOT Crash Data Portal, 2018

Some of the walkers who died were longtime members of their communities. Many had spouses and children. Among the dead were retired people, teachers, truck drivers, faith leaders, and youth sports coaches. People were killed walking to public transit bus stops or to the grocery store. Many people who died lived in low-income neighborhoods. Walking was their primary transportation because they did not have a vehicle.

The Pedestrian Safety Advisory Council (PSAC) has examined the commonalities among pedestrian fatalities. A majority of the walkers who were killed - and two-thirds of those suffering serious injuries - were crossing a roadway when they were struck by a motorist. In 2017, 21.1 percent of the fatalities involving walkers were hit-and-run crashes, meaning the driver did not stop at the scene of the crash as required by law.

A pedestrian dies

every 3 days

in Washington State after being struck by a driver.

Impairment also plays a big role in pedestrian-motorist crashes. From 2007-2016, more than 44 percent of the walkers who died from pedestrian-motorist crashes tested positive for alcohol or drugs, or sometimes both (WTSC, 2018). In 2017, 7.9 percent of drivers who were tested were found to be impaired by alcohol or other drugs. One difficulty associated with examining

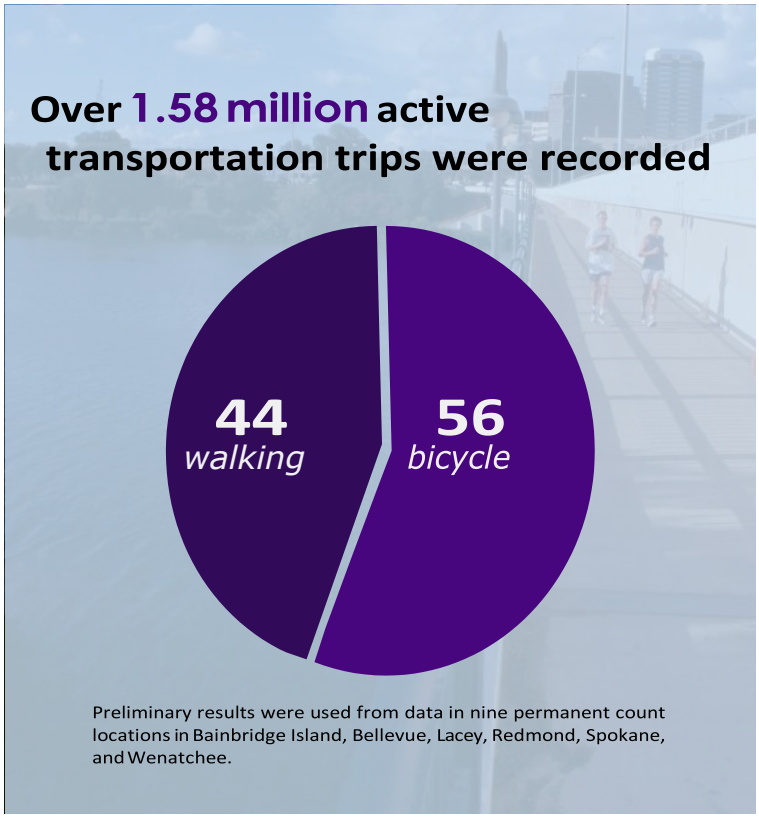
issues related to people who walk is that we only have partial counts of the actual number of people who are walking. It is important to have complete information about how many people walk and how many walking trips they make so we can better understand changes in crash exposure rates for active transportation users.

Keeping track of pedestrians

The Washington State Department of Transportation's (WSDOT) bicyclist and pedestrian documentation project is one source of data we currently have about the number of people walking in the state. However, the data is incomplete. There are currently 53 permanent counters located across the state as well as 402 manual sample count sites active in 56 Washington cities. Through partnerships with local agencies, WSDOT is working to expand the network by 20 more counters that are permanent by September 2019. The counters record the number of walkers and bicyclists that pass them.

Preliminary information from nine permanent count locations in Bainbridge Island, Bellevue, Lacey, Redmond, Spokane, and Wenatchee indicate a 12 percent increase in biking and walking in 2016 compared with the previous year. In 2016, these sites recorded an average of 2,445 bicycle and 1,887 walking trips per day, and over 1.58 million total trips - 56 percent bicycle and 44 percent walking (WSDOT Gray Notebook #65, March 2017).

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

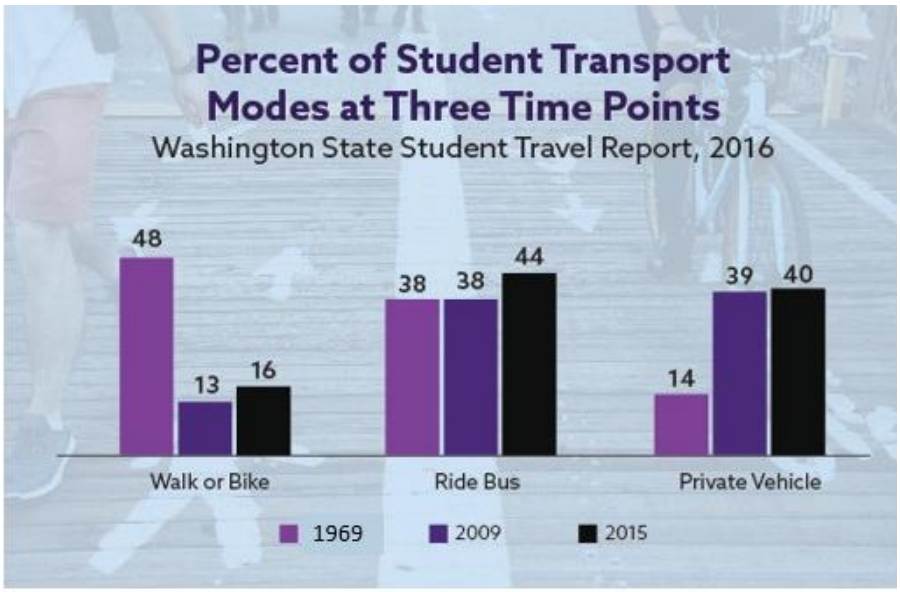


Student travel survey

The Washington State Student Travel survey is a study of how children, kindergarten through 8th grade, get to and from school and possible barriers to walking, biking, or riding the bus. WSDOT and Department of Health (DOH) - with support from the Office of Superintendent of Public Instruction (OSPI) - developed the survey. The Washington State Legislature provided funding for the survey in order to improve student transportation safety and efficiency. Results from the most recent survey conducted in 2016 are based on phone interviews with over 11,000 parents and guardians of students from more than 200 schools across Washington State (DOH and WSDOT, 2017).

There is some evidence of a slight rebound in walking and bicycling among elementary schools. The student transportation survey shows that as many as 48 percent of K-8 students walked or biked to school in 1969. However, that figure dipped to 13 percent in 2009 as more students than ever were being transported to school in private vehicles. The most recent survey results show the percentage of walkers and bikers had increased to 17 percent.

- Between 2014 and 2016, there was a significant increase in the percentage of children walking (16.4 percent) and biking (56 percent) to school.
- A greater percentage of students from lower-income schools (17.4 percent) than from higher-income schools (14.9 percent) reportedly walked from home to school.
- A greater percentage of students living in urban areas (18.2 percent), compared to rural areas (11.2 percent), walked from home to school.



Even without precise trip and location data for the entire state, we know that active transportation (walking and bicycling) is important to a large number of Washington residents. According to the 2017 National Household Travel Survey:

- Thirty-eight percent of Washingtonians walked or bicycled for transportation during the past year.

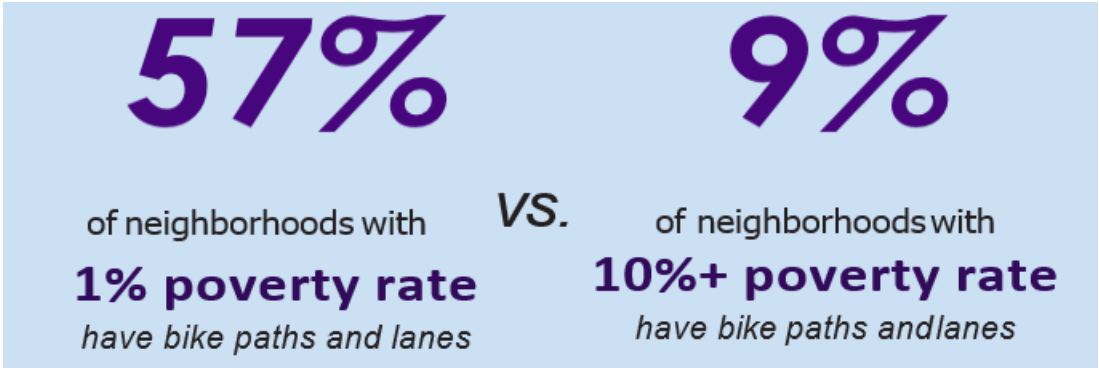
- Twelve percent of all trips - and 9 percent of commute trips - were made by walking or bicycling; 90 percent of these are walking trips.
- Applying a Federal Highway Administration (FHWA) methodology to the 2017 National Household Travel Survey, WSDOT found that Washingtonians walked or biked an estimated 1.47 billion trips and traveled 1.16 billion miles - a 37.9 percent increase from 2009.
- Walking and biking trips have increased by an average of 4.29 percent per year 2009-2017. During that same period, the state's population grew 1.15 percent per year on average. Taken together these two figures tell us that a larger percentage of Washingtonians are walking and biking. (WSDOT Gray Notebook #71, September 2018).

Safety in underserved communities

Within this context of general concerns about the safety of pedestrians in our transportation system, we have evidence that some populations in our state have significantly higher exposure to crashes, fatalities and serious injuries while walking.

Certain demographic groups of pedestrians and bicyclists have higher fatality rates per capita than the population as a whole, for example, people living in census tracts with high poverty rates (WSDOT Gray Notebook #69, 2018). This is an important consideration since the PSAC's work this year suggests a statewide history of a failure to invest in infrastructure that reduces crash exposure for people who walk or bicycle in lower income communities and communities with a high percentage of people of color.

One study showed significantly fewer pedestrian trails available to residents of 10 census tracts with high poverty rates as compared with neighboring tracts (Wilson, D, Kirtland, K, Ainsworth, B, and Addy, C, 2004). A second study that same year showed that 57 percent of neighborhoods with 1 percent poverty rate had bike paths and lanes while only 9 percent of neighborhoods with 10 percent or higher poverty rates had similar bicycle infrastructure. (Powell, L, Slater, S, Chaloupka, F, 2004.)



These studies highlight the need for a complete and comprehensive inventory of the infrastructure currently in place to promote safe travel by pedestrians and bicyclists. There have been some efforts directed at bringing resources to historically under-resourced areas in recent years as agencies recognized the opportunities in these areas.

For example, the Safe Routes to School and the Pedestrian/Bicycle Program administered by WSDOT incorporated equity criteria into the grant-making process. However, investment levels from dedicated grants are not sufficient to make up for patterns of decision-making for the whole transportation system stretching back over decades. And, as we go forward, it will be increasingly important for all levels of government to consider equity in all transportation investment decisions.

Creating opportunities for safer walking

This report presents the PSAC's recommendations for reducing pedestrian fatalities and serious injuries in Washington State. An overriding theme in the report and the recommendations is the need to reduce potential conflicts between pedestrians and drivers.

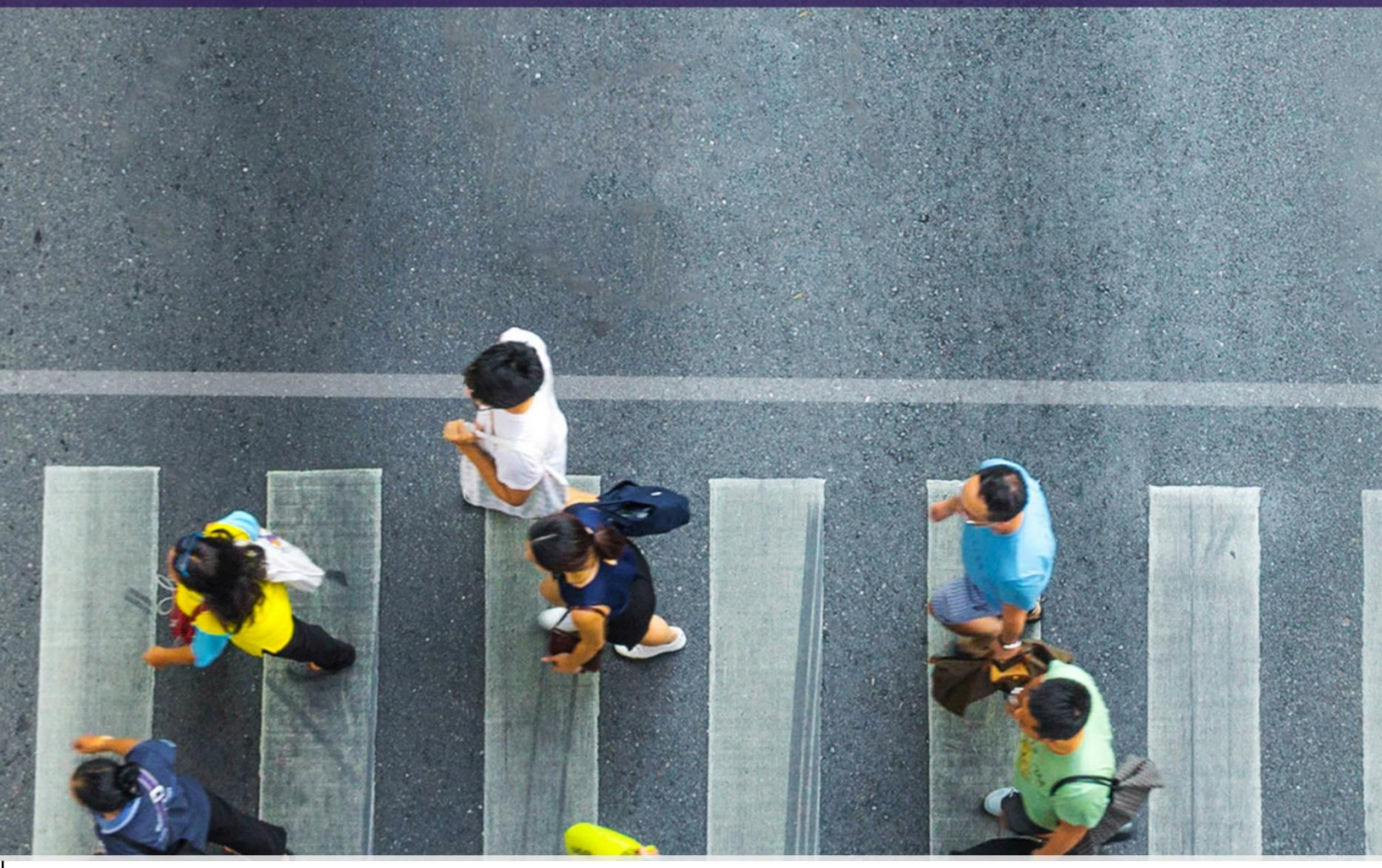
*There is a need to **reduce conflicts** between **pedestrians** and **drivers.***

Our approach focuses on using infrastructure improvements to elevate the importance of pedestrian safety in the transportation system with a special emphasis on managing vehicle operating speeds, depending on context. Additionally, we call for investment in improving pedestrian facilities in communities where there have been low levels of pedestrian infrastructure investment.

There are also opportunities for trying to change behaviors through education and enforcement. One area where education and enforcement may have influence is in educating drivers to expect to see people walking and to accommodate them safely on most roadways. It may also be possible to utilize some successful efforts pioneered on college campuses to provide education and community outreach about the increased vulnerability people who walk have when they are impaired. These actions are likely to have less direct effect on reducing fatalities and serious injuries among people who walk, but they are necessary, nonetheless.

In our state, if we found a disease killing someone every three days, we would invest resources to isolate the causes and establish effective treatments. Today, pedestrian fatalities and serious injuries rise to the level of a public health crisis and we now need to focus on changing how we approach road design and planning, education, and enforcement to reduce Washington's ominous statistics.

KEY CONCEPTS



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KEY CONCEPTS

Language shapes our understanding of transportation

The vocabulary used in discussions about traffic safety affects how people view necessary improvements to the transportation system. The PSAC believes use of the following language changes will communicate more clearly and accurately.

Use in state law, administrative code, documents, and media communications:	Instead of:
"crash" or "collision"	*"accident"* The recommended terms are consistent with usage recommended by the NHTSA, public health practitioners, Associated Press, and others. Crashes and collisions are not accidents, they are preventable, and their severity can be reduced.
"driver," "motorist," or "person driving"	Do not refer to the vehicle as taking actions on its own, e.g., "the car then turned right and proceeded down the road." Particularly with the emergence of connected and autonomous vehicles, media coverage and official reports should be clear and specific in labeling the actions of the driver rather than the vehicle.
"roadway users"	*"non-motorist"* Using the term "roadway user" purposefully avoids assuming that driving is the norm and all other modes of transportation are alternatives to driving.

"bicycling," "walking," or "active transportation"	*"non-motorized transportation" or "alternative transportation"* Using the term "non-motorized transportation" reinforces a priority within the transportation system for the use of motorized vehicles. The preference should be to directly label or describe each mode of travel being used on roadways. The term "active transportation" is used to include walking, bicycling, using a mobility assist device like a wheelchair or walker, or using a small-wheeled device such as a skateboard, foot scooter/e-scooter, or inline skates.
"people walking" or "people who walk"	*"pedestrians"* Using "people walking" is people-first language and establishes that it is a person doing an action. Pedestrian defines the person by the action. There are, however, all kinds of walking. In this report, we will use, interchangeably, "people walking," "people who walk," "walkers," and "pedestrians."
"people biking," "people using bicycles," or "people who bike"	*"bicyclist" or "cyclist"* Using "people biking" is people-first language and establishes that it is a person doing an action. "Bicyclist," like "pedestrian," defines the person by the action; "cyclist" carries this a step further to suggest certain stereotypes about who bicycles and why. Where a one-word term better suits the structure of the sentence or discussion, the word "bicyclist" is preferred. In this report we will use the terms "bicyclist" and "people who bike" interchangeably to mean people traveling by bicycle.

Directly address equity issues in infrastructure investment strategies

Studies show historic inequity in investments in lower income neighborhoods. Portions of some Washington cities were set aside for use by people of color or low-income households, and those same areas have historically suffered from a lack of investment in active transportation infrastructure. (The analysis by City of Tacoma, n.d., describes how the practice of "redlining" was used in that city.) In these mostly low-income areas there is lower vehicle ownership and increased reliance on public and active transportation, and greater vulnerability for people living in poverty. There is, commonly, a high percentage of people of color, the elderly, and people with disabilities living in these lower socioeconomic areas (Powell, L, Slater, S, and Chaloupka, F, 2004).

Policymakers can lead the necessary changes

The challenge – and the opportunity – is to use infrastructure, planning, design, operation and maintenance, enforcement, and education to improve roads for all users regardless of their age, knowledge, skills or abilities, or income.

Traffic safety programs must be proactive

Programs need to focus on preventing crashes by reducing crash potential before fatalities or serious injuries occur. Reacting to historic crash data is important, but much can be done to prevent crashes from happening in the first place.

Improvements in data are needed

Our efforts to effectively plan for and strategically invest in a sustainable safety environment are hampered by a chronic shortage of data. We do not have comprehensive and accurate counts of people who walk or use any other form of active transportation, so we cannot develop accurate pictures of exposure to potential fatality or serious injury crashes. We need to develop methods and processes to accurately estimate the number of people walking, how often they walk, and where they walk.

We also lack complete, comprehensive data on existing infrastructure that would support better planning, design, and operation decisions. This is important information because it allows us to determine whether a problem is getting better or worse over time and, in some cases, why the problem is occurring.

Continuing education needed to ensure best practices statewide

Professionals in transportation agencies and public works departments at every jurisdictional level need to be current about the nature and quality of infrastructure for all roadway users. The professional engineers' license requirements in Washington State currently do not require annual continuing education. There is unequal access to continuing education across the state to the latest research and best practices regarding active transportation infrastructure options. The PSAC discussed this issue in depth and concluded it did not have enough information to make a recommendation in this report regarding this issue. The group plans to discuss this further in 2019.

FINDINGS

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FINDING #1

Vehicle operating speed determines severity of injuries and driver response

The speed at which drivers travel must be a focus in creating a road environment where people are not killed or seriously injured. The likelihood of a crash involving people who walk is decreased markedly when drivers slow down. When they slow down, they have more time to pay attention to what is going on around them. Operating speeds need to be consistent with the local land use context, with speeds slowing as urban access and density increases. In other words, the more vehicles and the more people, the slower the appropriate operating speeds should be.

The chart to the right shows the relationship between operating speed and percentage of crashes resulting in a fatality at each posted speed limit when crashes occur. On Police Traffic Collision Reports (PTCR) the actual speed at impact is often not determined so the posted speed is often used as a proxy for the speed at which drivers were traveling. The potential for a pedestrian fatality increases rapidly for crashes involving vehicles going 30 mph or faster. Most crashes in which a driver hits a pedestrian occur in areas where the posted speeds are 35 mph or lower. This intuitively makes sense since a significantly higher number of people walk on street in cities and towns, including some state routes that serve as principal arterials.

Consider that a driver traveling at 25 mph will cover 36 feet in one second. That means that it would already be too late for the driver to stop if they were 20 feet from a crosswalk and belatedly realized there was a person in the crosswalk ahead crossing the road.

Getting drivers to slow down is not easy. Posting a lower speed limit sign alone can result in a small change of vehicle operating speeds but is only one step in achieving the desired operating speed (Hu, W and Cicchino, F, 2018). Enforcing speed limits by writing citations can create some changes in driver behavior. Real reductions in speed are seen when changes to the infrastructure make the operating speed "self-enforcing." Examples include adding roundabouts where drivers must slow down to negotiate a series of turns, implementing "road diet" measures such as narrowing lanes and reducing the number of lanes on roadways, and implementing constant and consistent enforcement like automated speed enforcement cameras.

FINDING #2

Where you live affects your ability to move about safely

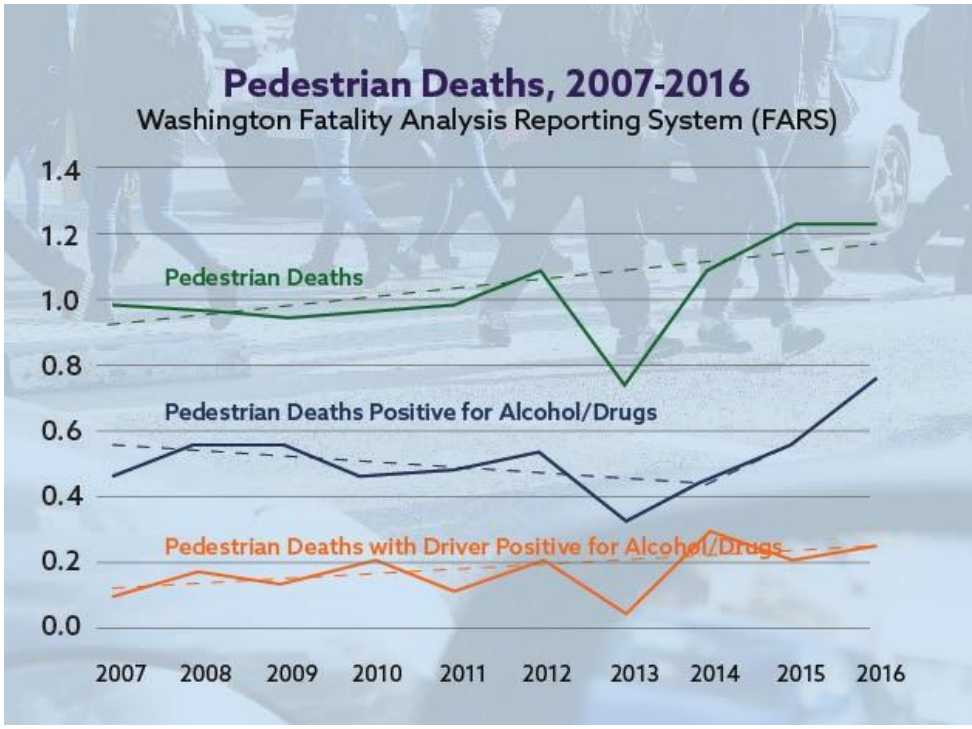
Lower-income neighborhoods often require more investment to bring them up to the level of infrastructure, connectivity, and appropriate crossing opportunities that are frequently found in higher-income communities within their cities. Serious and fatal crashes are more likely for people living in poverty, which includes an overrepresentation of people of color, the elderly, and people with disabilities. These neighborhoods are under-resourced and historically underfunded. Issues around infrastructure shortcomings and historic patterns of underinvestment are widespread systemic problems that the PSAC will be examining more closely in 2019.

Administrators at some schools in the state actively discourage students from walking or bicycling to school due to perceived safety concerns. This practice is in conflict with state goals to increase physical fitness among the state's student population and to decrease the prevalence of health conditions related to the lack of physical activity.

FINDING #3

Impairment increases vulnerability

Nearly half of the 697 pedestrians who were killed in Washington crashes from 2007 to 2016 tested positive for alcohol, drugs, or sometimes both (WTSC, Pedestrian Deaths and Impairment 2018). Sixteen percent (114) of pedestrian victims had blood alcohol levels higher than the state's legal limit of .08. Twenty-one percent (146) were drug-positive, most commonly for cannabis/ marijuana. In 2017, 7.9 percent of drivers who were tested were found to be impaired by alcohol or other drugs. There is no consistent impairment information for the striking drivers because current law does not require automatic testing for impairment. Only drivers who stay at the scene of the crash and are determined by law enforcement to be impaired are actually tested.



In PSAC reviews of pedestrian fatality cases involving impairment, it was clear that there was no one single reason why the crashes occurred. Contributing factors may include elements such as lack of adequate pedestrian-scale lighting, lack of infrastructure, and lack of adequate crossing opportunities. Most fatalities involving impaired walkers happened at night. According to investigation reports, many of the walkers lost their balance and stumbled into the roadway. It is important, then, to determine what – if anything – can be done to intervene to keep walkers from being struck by motorists regardless of the possible impairment of the pedestrian.

Part of the approach is likely to increase education for drivers about the need to watch out for pedestrian movements, particularly in areas where context suggests higher levels of foot traffic. There is also likely a need to educate all roadway users about factors affecting whether drivers can see pedestrian movements clearly. For instance, even though a person walking might be able to see a vehicle, the driver of that vehicle might not be able to identify and react to the pedestrian in time to prevent a crash.

Each community's situation will be different. It may be appropriate to try strategies that have been useful on college campuses to reduce risk for impaired walkers, including educating people about their increased vulnerability when they are impaired, getting bystanders to intervene to help impaired walkers, or arrange safe transportation home.

The PSAC reviewed a case in which a man living under a highway bridge encountered multiple systems and potential intervention points. Over the course of a day in which he drank heavily, he made contact with social services and friends but ended up alone on a dark and rainy night walking on the bridge. Numerous drivers saw the man on the bridge and were able to avoid hitting him. One driver did not see the man step into the travel lane; the driver hit and killed him.

There were several points during the day where the man's trajectory toward death could have been altered. One of those is to determine if changes in the infrastructure could have prevented the man's death. The context and characteristics related to the road are important in how we might be able to reduce the potential for these tragic incidents in the future.

Important infrastructure questions might be: Would additional crossing opportunities help? Could road treatments be added that reduce the speed or the potential for speeding and other risk taking driving behaviors? Could pedestrian-scale lighting be added to increase the chance of a pedestrian being seen? Can fencing, channelization or other systems be installed to reduce potential exposure to being in a crash or having that crash result in high-severity injuries or fatalities?

Policymakers and professional staff from transportation agencies and public works departments at all jurisdictional levels can implement changes to slow drivers, provide separation from vehicle traffic, and create frequent and protected means for crossing roadways. Such roadway designs will benefit all users, not just those who may be impaired.

FINDING #4

Roadway crossings most common pedestrian action in fatal and serious injury crashes

Fifty-seven percent of fatalities and 67 percent of serious injuries between 2012 and 2014 occurred while the pedestrian was crossing the roadway (Washington State Strategic Highway Safety Plan

67%

of *serious injuries* between 2012-2014 occurred when the ***pedestrian was crossing the road.***

2016: Target Zero). Other pedestrian fatalities occurred while the person was walking on the shoulder or in the roadway or while they were working or playing in the roadway. Based on roadway crossing case studies, the PSAC identified a need for traffic control facilities at the types of locations where fatal or serious injury crashes occur.

FINDING #5

Age and other physical factors increase vulnerability

Older adults, children, people with disabilities, and people taking medications like blood thinners are more likely to die or be seriously injured when drivers hit them. In many cases, they must rely on walking for transportation due to physical, economic, or legal reasons.

People's bodies are simply not designed to withstand the kind of impact that occurs when a driver hits them with a vehicle. Even at lower speeds, the person who is hit is thrown around and twisted violently as the vehicle surface strikes their body. Lower-riding vehicles like passenger cars tend to impact people in the lower legs if they are walking, and then the pedestrian snaps forward onto the hood of the vehicle.

According to King County Medical Examiner Richard Harruff, a crash with a vehicle like this may be survivable because the person's body is able to bend over the vehicle, thus displacing some of the force from the crash. However, crashes with people walking involving larger vehicles like SUVs more often result in the death of the person walking because their body has no place to displace the force of the impact. The same principle applies to someone who is in a wheelchair; their relative position to the vehicle bumper is much lower and provides no opportunity to displace the force of the impact.

FINDING #6

Automated speed enforcement cameras slow operating speeds

State law currently allows use of automated speed enforcement cameras within school zones. The PSAC recommends broadening that authority so that automated speed enforcement could be used on any street within a school's identified "walk area."

The school "walk area" is defined in state law as "…the area around a school with an adequate roadway configuration to provide students access to school with a walking distance of less than one mile. (RCW 28A.160.160.)

In December 2012, Seattle began using fixed cameras to enforce the 20 mph school zone speed limit at four elementary schools (Cohort 1). The program expanded in September 2014 to an additional five schools (Cohort 2) and in September 2015 to five more schools (Cohort 3), bringing the total to 14 schools with speed photo enforcement. The speed cameras only operate when the school zone flashing beacons are in operation. The flashing beacon schedule is set by the Seattle Department of Transportation based on when students will be arriving and leaving school grounds. In each Cohort, there was a period where warnings were issued for speeding violations. Seattle also had community outreach to inform people living near the schools about the automated enforcement program.

A study of Seattle's system showed that automated speed enforcement camera citations in school zones decreased both the rate of speed violations and driver operating speeds during school travel times compared with the warning phase. In the absence of speed enforcement citations, it was common for drivers to travel in excess of 30 mph, increasing the likelihood of pedestrian fatalities. In the warning phase, maximum violation speeds reached 50 mph, a speed at which most crashes would result in a child being killed if struck (Quistberg, D.A., Thompson, L., Curtin, J., Rivara, F., and Ebel, B., 2018).

	2016 Citations	2017 Citations	% Change
Cohort 1	18,053	16,238	-10%
Cohort 2	26,786	19,934	-25.6%
Cohort 3	36,270	26,800	-26.1%

City of Seattle Police, 2018

According to Dongho Chang, Chief Traffic Engineer for Seattle Department of Transportation, there have been no crashes involving motorists and children on bicycles or walking during the time the automated enforcement cameras have been operating. Additionally, operating speeds have been reduced around the Cohort schools by 4 percent, resulting in at least 10,000 fewer speeding drivers. The number of citations at the Cohort 1 schools has decreased markedly from 46,000 in the first year to just over 16,000 in 2017. Reductions in the number of citations have also occurred in Cohort 2 (citations down 25.6 percent) and Cohort 3 (citations down 26.1 percent). For the Cohort 1 schools, there has been a significant decrease in crashes in the five years that the cameras have been operating. However, there was a slight increase in crashes from the 2014-16 period to the 2015-17 period. There also was a slight increase in crashes for Cohort 2 during that period although Cohort 3 had a decrease in reported crashes (City of Seattle Police, 2018).

That means drivers are slowing down in the automated camera-patrolled areas and that means increased safety for children walking or riding bicycles. Reductions in citations have occurred in both Cohort 2 (down 25.6 percent) and Cohort 3 (down 26.1 percent).

FINDING #7

The vulnerable user law needs to be strengthened and updated

The state's vulnerable user law (RCW 46.61.526) does not appear to have been utilized since the law went into effect in 2012. The PSAC discussed this and agreed that the law sends an important message about the disproportionate potential for harm between drivers and vulnerable users. A driver can kill or seriously injure someone walking or bicycling even if the driver is traveling at a low operating speed.

FINDING #8

Infrastructure is key to reducing crashes

Traffic safety engineers have taught the PSAC that the increased usage of roundabouts provides safety benefits. They can cause drivers to slow down to 20 mph or less as they travel through the roundabout. However, roundabouts are just one infrastructure solution. Installation of traffic calming approaches like chicanes and narrowing of lanes can also result in reduced operating speeds. The type of infrastructure used depends on the local land context. Making sure there are appropriate-sized sidewalks is important. Roads shared by people driving, walking, and bicycling should be designed to feature frequent opportunities to cross the road and should have appropriate separation between modes of travel.

The problem is not whether there are infrastructure tools that can improve safety for pedestrians. The problem, instead, often comes down to having fiscal resources to pay for necessary infrastructure improvements, the knowledge and willingness of transportation agencies to apply principles of systematic safety, and community commitment to make the changes that will save lives. A large menu of possible infrastructure options can be employed to increase pedestrian safety, including traffic islands/medians, sidewalk bulb outs/curb extensions, roundabouts, narrowed lanes using chicanes and other structures, lighting (especially rapid-cycling warning signals), pedestrian interval lead times for traffic signals, appropriately designed mid-block crossings, pedestrian refuge islands/medians, dedicated turn lanes, landscaping/street gateways,

pavement markings, and raised and regular crosswalks, among others. Professional staff from transportation agencies and public works departments at all jurisdictional levels need to review how a particular stretch of road is being used and its context to then determine which of the menu of treatments will best advance pedestrian safety.

FINDING #9

Lack of accurate data about the number of people who walk and the facilities available to them continues to be a problem

Our efforts to effectively plan for – and strategically invest in – a sustainable safety environment are hampered by a chronic shortage of data. Similar to most states, we do not have accurate counts of pedestrians, bicyclists, or those that use any other form of active transportation, so we cannot develop accurate pictures of exposure to potential fatal or serious injury crashes.

This is important information because it allows us to determine where crashes might occur and whether decisions we have made to modify the system are effective. For example, assume that in two consecutive years there are the same number of fatalities involving pedestrians. However, in the second year, we know the actual number of pedestrians increased significantly in the state. With just those two numbers, we would be able to say that the exposure to a potential crash decreased in the second year. That is extremely important information for planning that we presently do not have.

We also need complete and accurate information about the infrastructure people use for walking. Walking trips vary from using only sidewalks to using sidewalks and shared-use paths, to using roadway shoulders that may serve as the only connection available. Without knowing what is available, we cannot see where people have complete, usable connections and where they do not.

RECOMMENDATIONS & DISCUSSION

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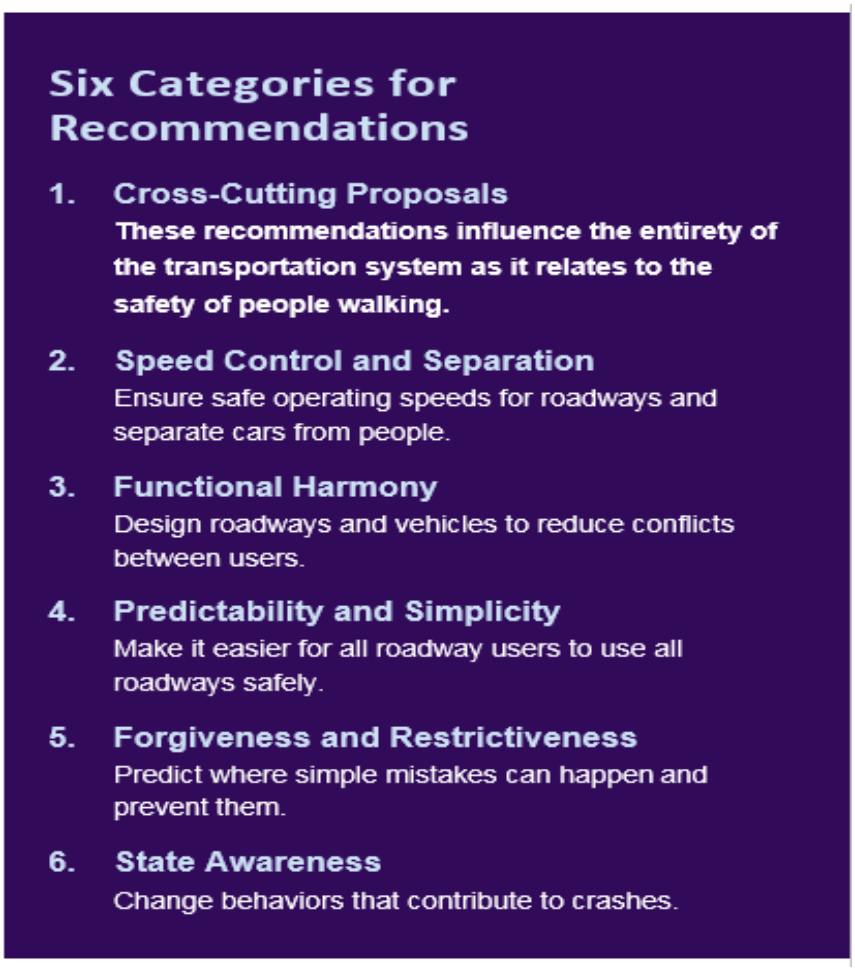
RECOMMENDATIONS & DISCUSSION

This report utilizes five internationally recognized principles of safety to categorize the PSAC's recommended treatments to reduce fatalities and serious injuries among pedestrians in Washington State. There is an additional category for recommendations that span across more than one of the safety principles.

The principles of safety approach was developed in Europe in the 1990s and has now been adopted by a number of cities in the United States. Where fully implemented, the principles of sustainable safety resulted in measurable traffic safety improvements. Vision Zero starts with the conviction that everyone has the right to move safely in their communities. The Vision Zero approach recognizes that people will make predictable mistakes so it is possible for policymakers and professional staff from transportation agencies and public works departments at all jurisdictional levels to improve the roadway environment to decrease the incidence and severity of crashes (Vision Zero Network, n.d.).



The PSAC recognizes that all five principles – plus the crosscutting recommendations – are essential for improvements to roadway safety and reductions in the exposure to crashes, fatalities and serious injuries and severity of crashes. Deliberations in 2018 did not address every principle at the same level of detail and this work will continue in 2019.

You will see the following symbols as you go through the recommendations:

= people who walk (pedestrians). When you see this symbol alone, it means that the PSAC made the recommendation and it applies only to pedestrians.

= people who ride bicycles (bicyclists). When you see this symbol alongside the pedestrian symbol it means that both the PSAC and Cooper Jones Bicyclist Safety Advisory Council (BSAC) made the recommendation and it applies to pedestrians and bicyclists.

Discussion of cross-cutting recommendations

Cross-Cutting Proposals 1 **These recommendations influence the entirety of the transportation system as it relates to the safety of walking.**

Recommendation 1.1 **Convene a statewide Active Transportation Safety Advisory Council (ATSAC).**

The Washington State Legislature should direct the WTSC to convene a statewide ATSAC.

This proposal would combine the current BSAC and PSAC groups into one advisory council that would continue to make recommendations for making Washington's roadways safer for people who walk and bike as well as monitoring implementation of recommendations made by each of the councils separately. In addition, the combined group could begin looking at emerging active transportation technologies such as e-bikes and foot-powered/e-scooters to make recommendations to improve safety.

Recommendation 1.2 **Improve data systems and coordination.**

The Washington State Legislature should direct WSDOT to assess the current state of data systems related to multimodal safety, governance, and what data and actions are necessary to maintain, improve, collect and analyze crashes across the modes. This assessment should specifically determine what actions are necessary related to pedestrians.

The state lacks data regarding pedestrians that would allow for determination of level of crash exposure, which is essential to understanding the priorities for needed changes. The following are key elements of an improved data system for the state:

- Develop a system that uses the data integration techniques employed in the National Violent Death Reporting Systems to ensure the ability to use data to describe the circumstances relating to a crash, not just the injuries resulting from the crash.

- The Washington State Legislature should direct WSDOT to evaluate and implement as applicable an enterprise Geographic Information System network for all public roads for state agency use.
- The Washington State Legislature should direct WSDOT to evaluate mobile LIDAR (Day, n.d., and Oregon Department of Transportation, n.d.) data collection and implement as a tool to develop a comprehensive inventory of pedestrian infrastructure in the state (number and type of signals and pedestrian facilities in place, sidewalks, roundabouts, curb extensions, ramps, etc.) across jurisdictional levels, including infrastructure along or associated with state highways and state rights of way and building on other inventories and processes such as ADA Transition Plans and asset management.

  The federal MAP-21 – and then FAST Act – created a requirement for states to develop a comprehensive asset management system. In the past few years, several states (e.g., Massachusetts, Minnesota, Ohio, Oregon, and Utah) have utilized mobile LIDAR technology to successfully inventory portions of their transportation infrastructure. Utah has been using the technology successfully since 2011. (Utah DOT, n.d.) Additionally, the U.S. Department of Transportation has used the technology to develop inventory information about railroad crossings and airports. WSDOT should coordinate inventory data sharing across agencies. This data would be made widely available to all agencies to use in their planning processes.
- The state of Washington must continue efforts to provide community advocacy groups and others with crash and motor vehicle-related injury summaries through the WSDOT Public Crash Data Portal and the DOH Washington Tracking Network.
- The Washington State Legislature should direct WSDOT to identify ways to expand its Bicycle and Pedestrian Count Program to 80 automated counters (from the current 53), stabilize the annual observational study sites, extend the methodology to include other data sources as needed to supplement the counters, and analyze the data to develop reliable estimates of the number and travel patterns of people who walk in the state.

- The Washington State Legislature should provide sufficient funding to DOH to develop, implement, and evaluate a five-year pedestrian fatality review panel pilot project. The panels would be modeled after the highly successful child death review panels operating in a few counties in Washington State. Operating the panels would increase the speed with which the circumstances surrounding pedestrian fatalities could be comprehensively reviewed and analyzed. Having a panel on each side of the state would allow local and regional experts to examine each fatality in depth and to prove recommendations to avoid future similar incidents to local, county, and regional officials. These detailed analyses would also inform the deliberations of the ATSAC, if that recommendation is approved.
- The Washington State Legislature should allocate sufficient funding to conduct a comprehensive statewide household survey regarding active transportation – especially walking and bicycling – every two years. The results of the survey will be used to plan for additional active transportation infrastructure, education, and enforcement efforts as well as to monitor changes in perceptions of safety from public school students and their parents/guardians.
- The Washington State Legislature should allocate sufficient funding to implement the Washington State Student Travel Survey every two years. The results of the survey will be used to plan for additional active transportation infrastructure, education, and enforcement efforts as well as to monitor changes in perceptions of safety from public school students and their parents/guardians.

Recommendation

1.3 Develop a consistent approach to developing pedestrian safety plans.

This would have several corollary activities:

- WSDOT should work with partners to convene a time-limited workgroup to develop a plan for broadening consideration of safety and sidewalk plans when considering funding applications. The discussion should involve representation from Transportation Improvement Board, Regional Transportation Planning Organizations, and Metropolitan Planning Organizations, tribes, and local and county governments. To inform this group's work, funding will be needed to implement a comprehensive inventory of active transportation infrastructure in jurisdictions across the state. Creating and maintaining this inventory is an important step is an important step in developing priorities for addressing infrastructure shortcomings. It can incorporate existing ADA transition plans and asset management inventories.
- WSDOT should use a multi-agency, multi-jurisdictional process to develop, adapt or adopt a template for effective local pedestrian walkway plans that includes criteria for prioritizing future investments to proactively reduce/ eliminate pedestrian fatalities and serious injuries and increase access to pedestrian facilities like trails or sidewalks and create continuous pedestrian routes.
- WSDOT should continue training for professionals in transportation agencies and public works departments at every jurisdictional level using the template and other tools for prioritizing future safety investments.
- WSDOT should tie requests for funds to larger plans that are coordinated between multiple agencies (e.g., Regional Transportation Planning Organizations Metropolitan Planning Organizations, transit, WSDOT Regions, local jurisdictions, and tribes). Funding criteria should reward a systematic, multi-agency approach. As this concept is developed, smaller jurisdictions may identify the need for additional planning and design funds to enable them to participate in this type of coordinated effort.
- Professionals in transportation agencies and public works departments at every jurisdictional level should emphasize projects that allow increased use of existing infrastructure, provide active transportation investments in historically underserved communities, improve access by all ages and abilities, and create connections such as trails that can be used to safely move around communities on foot.

Discussion of speed control and separation recommendations

Safety Principle 2

Speed control and separation: Ensure safe operating speeds for roadways and separation of cars from people.

The need for separation between drivers and pedestrians is greater in some places than others. Less separation is needed where speeds are low. More separation is needed where speeds are high. Pedestrians should be able to use any roadway with an expectation of safety except those where they are specifically prohibited, like limited access interstate highways. Where the roadway carries a mix of usages, speeds should be low, and access should be high. Increased speed is more acceptable when the roadway is mainly used by drivers and/or there is greater separation from pedestrians.

Recommendation 2.1

Develop target speed policy for use at all jurisdictional levels.

WSDOT should work with local and tribal jurisdictions and other state agencies to develop a target speed policy and guidelines that emphasize lower operating speeds on state routes, city streets, county and tribal roads compatible with the needs of all use characteristics. Local jurisdictions, state agencies, and tribal governments should consider key factors when setting speeds including high densities of older adults, transit users, youth, people who walk or ride bicycles, and land use as contextual factors.

Once the target speed policy is developed, WSDOT should offer ongoing and continuing education at all jurisdictional levels that includes information about the target speed policy, approaches to creating “self-enforcing roads,” and methods of setting speeds to emphasize injury prevention and minimization.

Additionally, the target speed policy should support development of infrastructure improvements that will reduce the crash exposure for people who walk, e.g., roundabouts, traffic calming, ADA-compliant and appropriately sized sidewalks, etc.

Recommendation 2.2 Allow automated speed enforcement cameras on roads in school walk areas.

The Washington State Legislature should amend RCW 46.63.170 to allow placement of automated speed enforcement cameras on any roadway identified in a school's walk area (RCW 28A.160.160) because speed enforcement makes for a safer environment for people who walk.

What is a school walk area?

The 2009 Washington State Legislature passed ESHB 2261 that requires school districts to establish walk areas for all school buildings. The plan must cover a one-mile radius from the school and currently requires elementary schools to identify suggested walk route(s) to school within the walk area. The map must be distributed to all elementary school students and their parents/guardians.

This is an extension of an existing authority offered through state law in order to reduce speeds throughout a school's walk area. This policy change will have the most effect if infrastructure changes are made on the roads once the speeds have been reduced so that the lower speeds will become "self-enforcing."

Seattle's experience has been that both average operating speed and crashes are reduced through the introduction of automated speed enforcement. Other cities have had the same experience. An additional advantage to automated speed enforcement is that a law enforcement officer in a patrol car must catch up to a speeder in order to issue a citation. That can create unnecessary potential crash exposure for individuals who are walking or biking in the area where the traffic stop is occurring.

Recommendation 2.3 Designate revenues from automated enforcement for safety improvements.

The Washington State Legislature should amend RCW 46.63.170 to stipulate that revenues generated from operation of automated enforcement cameras can only be used to support designated purposes.

The PSAC recommends limiting the use of fine revenues from automated speed enforcement to the following seven purposes:

- Develop and operate school safety patrols.
- Support costs associated with processing automated enforcement citations.
- Support law enforcement's efforts in school zones and in elementary school walk areas (including allocation of FTEs to school zone enforcement, where appropriate).
- Maintain or replace automated speed enforcement equipment.
- Support development of infrastructure improvements that will reduce the likelihood of fatalities or injuries for people who walk or ride bicycles, e.g., accessible and appropriately sized sidewalks, and traffic-calming designs appropriate to context that support active transportation safety and mobility.
- Provide public education and outreach to children to increase their ability to walk or bicycle to school safely.
- Educate the public to expect pedestrians and bicyclists and adopt safety practices to reduce crash exposure.

Discussion of functional harmony recommendations

Safety Principle 3

Functional harmony: Design roadways and vehicles to reduce conflicts between users.

Functional harmony is achieved when road characteristics are consistent with the needs of the expected road user groups and adjacent land use context. For example, roads shared by people driving, walking, and bicycling to businesses and residences should feature frequent opportunities for crossing the road and road characteristics that signal drivers to maintain lower speeds and expect crossings by pedestrians and bicyclists.

Recommendation 3.1

Increase training regarding integration of transportation and land use.

The Washington State Legislature should direct the Department of Commerce to increase the emphasis on the coordination of transportation and land use policies. This will enable Commerce to include more information about multimodal planning concerns in guidance documents and Growth Management Act (GMA) training.

There are a number of related strategies that should be implemented to support an increased knowledge of the need for multimodal planning, including:

- This effort could be strengthened if the Washington State Legislature amended RCW 47.04.280 to add improving health as a transportation system policy goal.
- WSDOT should encourage its regional transportation partners to offer more incentives to integrate multimodal options, and equity into comprehensive planning. Examples might include awarding increased points in funding applications for these purposes when using federal pass-through funding.
- Encourage wider adoption of Multimodal Level of Service (LOS) planning metrics that focus on multimodal travel, not just moving drivers through an area, where appropriate based on local land use context. All agencies that fund transportation projects and programs should be encouraged to utilize these measures including WSDOT, Transportation Improvement Board (TIB), and local/regional jurisdictions.

For a specific community example of Multimodal LOS planning, please refer to Bellingham's Comprehensive Plan, 2016 Multimodal Transportation chapter, Intergovernmental Regional Coordination, Page 30.

- Guidance should be developed for minimum requirements for incorporating bicycling, walking, and safe street elements into GMA plans. The guidance should be delivered through Department of Commerce GMA trainings.
- WSDOT should continue its current work on context classification that guides road design decisions by considering existing and future contextual characteristics such as land uses, building configuration, and street connectivity to ensure that roadways are designed for the right target operating speeds, road users, and trip types.

Recommendation 3.2

Incorporate health and safety considerations into updates of Growth Management Act (GMA).

The WTSC should provide recommendations to update the GMA for inclusion in the "Road Map to Washington's Future" efforts. The "Road Map" project is coordinated by the William D. Ruckelshaus Center. The WTSC should ask that the following items be considered for inclusion in any updates of the GMA:

- Add improving health and safety to the list of mandatory elements in comprehensive plans for GMA.
- Rethink acreage requirements for school siting by encouraging co-location with parks and community centers.
- Recommend development of projects such as schools, public facilities, housing, and bus bases within growth boundaries instead of opting for cheap land outside the population centers that result in more vehicle use.
- Require an inventory of "mismatches" between historical road classifications and current uses each time a local jurisdiction updates the transportation portion of its GMA strategic plan. Those inventories can then become part of the strategic planning for funding transportation projects in the specific jurisdictions. WSDOT shall be responsible for this work on state routes that are not treated as city streets under RCW 47.24.020.

Discussion of predictability and simplicity recommendations

Safety Principle 4

Predictability and simplicity: Make it easier for all roadway users to use all roadways safely.

People make fewer mistakes when they know what to expect and when decisions are simple. For example, median islands allow a person who is walking to cross a road in stages and check for traffic one direction at a time. Sidewalks, traffic calming measures, safe and plentiful street crossings, and intersections that feature protected left turn phases are all examples of street design that make it easier for pedestrians to move safely.

Recommendation 4.1

Increase investment in infrastructure in underserved areas.

State agencies should identify historically underserved areas and then incorporate funding strategies to increase infrastructure investments in those areas. There are some key considerations for this recommendation, including:

- Identify a lead agency to conduct a transportation facility analysis of census tracts where there are higher than state average percentages of low-income households, people of color, and other criteria that could serve as indicators of high-need communities such as health disparities, and lack of access to a personal vehicle. The analysis should be made available widely to multiple organizations to encourage and prioritize increased infrastructure investments.
- Data collection should include information about both roadway and societal factors and impacts.

Recommendation 4.2

Support pedestrian safety technology.

The Washington State Legislature should direct WSDOT to develop a prioritized plan for completing pedestrian safety-oriented infrastructure projects on state rights-of-way over a 10-year period. The plan needs to allow for implementation of maintenance efforts on existing walk-friendly infrastructure. Walker-friendly infrastructure includes but is not limited to ADA-compliant and appropriately sized sidewalks, trails and trail

connections, dedicated left turn lanes and signals, roundabouts, traffic-calming approaches, accessible pedestrian signals, and pedestrian leading indicator programming at signalized crosswalks. (Note: pedestrian leading indicator is a setting on some traffic signals that allows pedestrians to start across the street 3-5 seconds before drivers are allowed to move.) The plan an implementation should provide direction about how to address existing barriers to safe use of roadways and other infrastructure by persons of all ages and abilities and should identify and prioritize segments or routes that have connection or continuity gaps.

There are several tasks associated with this recommendation, including:

- Update existing guidance documents (e.g., WSDOT Design Manual, Local Agency Guidelines (LAG Manual) and incorporate concepts from national sources such as the NACTO Urban Street Design Guide to direct professional staff within transportation agencies and public works departments at all jurisdictional levels to apply best practice pedestrian safety approaches, including pedestrian-scale illumination.
- WSDOT should work with a committee of stakeholders to update its LAG manual to encourage use of leading pedestrian/bicyclist intervals of thee second for traffic signals, use of a pedestrian-only movement time on protected left turns, and other pedestrian priority signal timing whenever this will improve pedestrian crossing safety.
- Manuals that include criteria guidelines for transit stop siting should be reviewed and updated, as needed, to specifically include locating transit stops as close as possible to existing crosswalks and appropriate street crossing opportunities in addition to other factors related to safety performance measures.

Discussion of forgiveness and restrictiveness recommendations

Safety Principle **5** **Forgiveness and restrictiveness: Predict where simple mistakes can happen and prevent them.**

Forgiveness means that if someone makes a simple mistake it will not result in serious injury. *Restrictiveness* means preventing people from making decisions that increase the likelihood of serious injury (e.g., discouraging passing where crash potential is high). Mobility for everyone is improved and all roadway users benefit when changes are made to streets to reduce crash exposure by constructively influencing human decisions. For example, in some cases, it is appropriate to utilize roadside parking as a buffer between vehicle traffic and people who walk.

An example of this principle is the area around Pike Place Market in Seattle. There is almost constant vehicle and pedestrian presence on the roadways. This is possible because the drivers' vehicles are moving very slowly, and drivers' ability to turn onto the street in front of the market is tightly controlled.

Recommendation **5.1** **Strengthen and update vulnerable user law.**

The Washington State Legislature should strengthen and update RCW 46.61.526, the vulnerable user law.

The PSAC recommends that the following items be considered in updating the vulnerable user law:

- The ATSAC (if approved by the Legislature) should identify and address concerns about implementation of the law, including equity of implementation/enforcement. Discussions about the law should include prosecutors, law enforcement, victims of pedestrian or bicyclist crashes and their family members and affected communities that experience differential enforcement.
- Fund a training component to educate prosecutors, law enforcement, the judiciary, drivers and the public on the law and benefits of enforcement.
- The Washington State Legislature should provide sufficient resources for the Washington Institute for Public Policy to study the feasibility of setting fines based on potential for injury and for alternatives for fines in areas with high unemployment/poverty.

Discussion of state awareness recommendations

Safety Principle 6

State awareness: Change behaviors that contribute to crashes.

State awareness refers to controlling or influencing behaviors such as impaired driving, texting, and poor decision making from inexperienced drivers. This involves policy change, enforcement, and education directed at eliminating or reducing problems identified through data and increasing awareness of users of all modes of transportation.

Recommendation 6.1

Research development impact fees and other topics.

The WTSC should initiate a request to Municipal Research and Services Center (MRSC) to clarify uses for development impact fees and other topics.

There is a need for clarification and guidance regarding the following items:

- Use of development impact fees for active transportation.
- Performance measures for moving people through an area rather than just concentrating on moving vehicles. The research should provide a menu of choices for multimodal level of service and other metrics. For example, Bellingham is using “person trips” instead of vehicle trips in both its “Multimodal Transportation Concurrency” and “Multimodal Transportation Impact Fees.”
- Agency/jurisdiction questions about liability regarding active transportation treatments, signs, markings and route identification, including consideration of questions from school administrators about school walk areas, school walk routes, and students walking and bicycling to school.

Recommendation 6.2 Update school walk areas statewide.

The Washington State Legislature should direct the Office of Superintendent of Public Instruction to support all school districts to develop or update designated school walk areas (RCW 28A.160.160) for each of their schools. This effort should have no sunset and should continue until all school districts have complete, up-to-date walk routes and a mechanism to keep them current.

There is new guidance for schools on how to develop safe walk areas and safe walk routes. This recommendation would allow schools to either update their existing walk area or develop a walk area if they currently do not have one. Students who bicycle to school also use the walk routes. Elements of this recommendation include:

- RCW 28A.160.160 should be amended to require identification of suggested school walk routes for each school in each school district. The school walk routes should be developed inside the school walk areas already required for each school. Currently, school walk routes are only required for elementary schools, but many junior high/middle school and high school students would walk or ride bicycles to school if they thought it was safe.
- Amend RCW 28A.160.160 to change the name from school walk area to school walk and bicycle area.

Recommendation 6.3 Include active transportation in driver education.

The Washington State Legislature should direct to Washington State Department of Licensing (DOL) to create a module for driver education that supports increasing knowledge regarding forms of transportation other than driving a vehicle. Considerations for this recommendation include:

- There is concern that many novice drivers are not receiving adequate training through the state's driver education system and that once they receive their driver's license, they are never required to receive any additional training in the current system.

- The PSAC recommends development by DOL of a video training module that focuses on active transportation - especially bicycling and walking - that would be shown to drivers either when they get their license for the first time at 18 years of age or when they renew their license for the first time.
- The video-based module would teach drivers to look for people riding bicycles or walking and to actively scan the entire roadway every 15-20 seconds as they drive to ensure they are seeing all possible hazards, among other best driving practices.
- The module could also be shown to novice drivers going through driver education.

Recommendation 6.4 Implement statewide pedestrian safety campaigns.

The Washington State Legislature should direct the WTSC to develop and implement statewide education/awareness campaigns about walking safely and driving safety around pedestrians that emphasize caution when entering a crosswalk after a flashing beacon has been activated, factors affecting the visibility of walkers, and the willingness of others to help a pedestrian who is too impaired to walk safely. Awareness campaigns focused on road user impairment and distraction should continue.

General campaigns could utilize social media to deliver messages to specifically identified populations of people to address behaviors and decisions that contribute the greatest potential for crash exposure. In the case of impairment, it is likely there will need to be some direct one-on-one education with the owners of bars/taverns and other locations selling alcohol near roadways where fatalities and serious injuries occurred and where impairment was a contributing factor.

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APPENDICES

2018 PSAC Annual Report

Appendix A

PSAC sponsors and members

PSAC Chair
Darrin Grondel, Director, Washington Traffic Safety Commission

Executive Sponsors
Captain Monica Alexander, Government and Media Relations, Washington State Patrol
Dolly Fernandes, Section Manager, Washington State Department of Health
Darrin Grondel, Director, Washington Traffic Safety Commission
John Nisbet, P.E., State Traffic Engineer, Washington State Department of Transportation

Project Manager
Scott Waller, Program Manager, Washington Traffic Safety Commission

Data Analyst
Staci Hoff, Ph.D., Research Director, Washington Traffic Safety Commission

Facilitator
Heidi Keller

PSAC Members
Marc Anderson, ARM, CRIS, King County Metro

Dongho Chang, P.E., PTOE, City of Seattle

Charlotte Claybrooke, Washington State Department of Transportation HQ: Active Transportation Division

Aimee D'Avignon, MPH, Washington State Department of Health

David Delgado, King County Medical Examiner Office

Josh Diekmann, P.E., PTOE, Tacoma Public Works Department

Mike Dornfeld, Washington State Department of Transportation HQ: Traffic Operations Division

Officer Eric Edwards, Richland Police Department

Will Hitchcock, Ph.D., Washington State Department of Health

Sergeant Bill Judd, Renton Police Department Patrol Services Division

Julia Reitan, FeetFirst

Lieutenant Kurt Schwan, Federal Way Police Department Traffic Division

Janet Shull, AICP, CUD, Senior Planner, City of Seattle

Officer Paul Taylor, Spokane Police Department Traffic Unit

Ida Van Schalkwyk, Ph.D., Washington State Department of Transportation HQ: Development Division

Karen Wigen, Region 16 Target Zero Manager

Appendix B

PSAC purpose and scope

SSB 5957 established the PSAC 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 WTSC convened the PSAC in March 2016. Members include experts from multiple disciplines including law enforcement, traffic engineering, traffic safety, transportation planning, public transit, injury prevention, cities, counties, tribes, and the King County coroner. The PSAC met monthly to review data on pedestrian safety and begin to compile evidence on actions that Washington can take to prevent pedestrian fatalities and serious injuries.

The PSAC's purpose is to decrease pedestrian fatalities and serious injuries. To accomplish this, the PSAC is directed to:

- Review and analyze crash data.
- Identify points at which the transportation system can be improved.
- Identify patterns in pedestrian fatalities and serious injuries.
- Recommend changes in statutes, ordinances, rules, and policies to improve pedestrian safety.

The PSAC's recommendations are addressed to the WTSC, other state agencies, the Governor's Office, and the Transportation Committees of the Washington State Legislature.

The PSAC's work plan is organized around eight focus areas. Each focus area is supported by actions for improving pedestrian safety.

1. Explore laws, rules, and ordinances that support pedestrian safety.
2. Promote positive pedestrian culture.
3. Prioritize infrastructure investments to reduce pedestrian fatalities and serious injuries.
4. Improve pedestrian data.
5. Invest in the development and implementation of local pedestrian walkway plans that support pedestrian safety.
6. Implement proven enforcement strategies.
7. Include diverse stakeholders.
8. Encourage emerging technology that supports pedestrian safety.

Appendix C

Meeting dates and locations

Date	Location	Main Agenda Items
January 25, 2018	Olympia	• Case reviews – pedestrians crossing the road • 2018 calendar setting
February 21, 2018	Olympia	• Improving pedestrian data
May 2, 2018	Olympia	• Functional roadway classifications • Police Traffic Collision Report
June 11, 2018	Olympia	• Joint meeting with Cooper Jones Bicyclist Safety Advisory Council • Vulnerable user law • Growth management act and land use planning
June 27, 2018	Olympia	• Laws and rules that support pedestrian safety • Begin refining 2018 recommendations
July 25, 2018	Olympia	• Target Zero Plan update • Recommendations regarding controlling vehicle speed
August 22, 2018	Olympia	• Refine 2018 recommendations • Discussion about using principles of systematic safety to organize recommendations
September 26, 2018	Olympia	• Review first draft of 2018 PSAC Annual Report with recommendations
October 24, 2018	Olympia	• Review second draft of 2018 PSAC Annual Report with recommendations
December 12, 2018	Olympia	• Driver's Education for Novice Drivers and Active Transportation • Data Sources and Challenges – Commute Tripe Reduction and Washington State Department of Transportation

Appendix D

Description of recommendation-development process and listing of all recommendations considered prior to selection of those that would be included in report

1. Each meeting of the group featured presentations on one or two primary topics. Following the presentations, the group discussed the presentations and then suggested draft recommendations.

2. At the July 25, 2018, meeting the group began to refine the recommendations, at that time choosing which draft recommendations they thought were important to address in the 2018 Annual Report.

   At the August 22, 2018, meeting the group reviewed the list they created in July and identified which of the recommendations were the highest priority.

   At the September 26, 2018, meeting the group worked on grouping the recommendations according to the principles of systematic safety.

3. The group reviewed the entire first draft of the 2018 Annual Report at the September 26, 2018, meeting and identified recommendations that were not ready to submit in the 2018 Annual Report.

4. The group had two additional opportunities to review the draft 2018 Annual Report with a second draft sent to them for review on October 24, 2018, and a final draft sent to them on October 26, 2018.

5. Joint review of the final draft on October 29, 2018, by workgroup comprised of staff from WTSC and WSDOT.

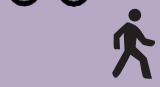
6. Submit for review by Governor's Policy Staff on November 27, 2018.

7. Address comments and questions from Governor's Policy Staff by December 21, 2018.

8. Submit final 2018 Pedestrian Safety Advisory Council Annual Report to Governor and Legislature on December 31, 2018.

Appendix E

Combined BSAC and PSAC recommendations matrix

Cross-Cutting Recommendations	1	**These recommendations influence the entirety of the transportation system.**
		Convene a statewide Active Transportation Safety Advisory Council (ATSAC).
		Improve data systems and coordination.
		Develop a consistent approach to developing pedestrian safety plans.
Safety Principle	2	**Speed control and separation: Ensure safe operating speeds for roadways and separate cars from people.**
		Develop target speed policy for use at all jurisdictional levels.
		Allow automated speed enforcement in school walk areas.
		Designate revenues from automated enforcement for safety improvements.
Safety Principle	3	**Functional harmony: Design roadways and vehicles to reduce conflicts between users.**
		Increase training regarding integration of transportation and land use.
		Incorporate health and safety considerations into updates of Growth Management Act (GMA).
		Consider all roadway users in autonomous vehicle planning.
		Require autonomous vehicles to follow rules of the road.

Safety Principle 4 — **Predictability and simplicity: Make it easier for all roadway users to use all roadways safely.**

Increase investment in infrastructure in underserved areas.

Develop statewide bicycle network over 10 years.

Support pedestrian safety technology.

Safety Principle 5 — **Forgiveness and restrictiveness: Predict where simple mistakes can happen and prevent them.**

Strengthen and update vulnerable user law.

Authorize bicycle traffic signals on bicycle paths and lanes.

Safety Principle 6 — **State awareness: Change problem behaviors.**

Research development impact fees and other topics.

Update school walk areas statewide.

Include active transportation in driver education.

Revise lane restrictions for passing.

Implement statewide pedestrian safety campaigns.

In gathering and compiling information in this report, participating organizations and agencies do not waive the limitations on this information's discoverability or admissibility under 23 U.S.C SS 409.