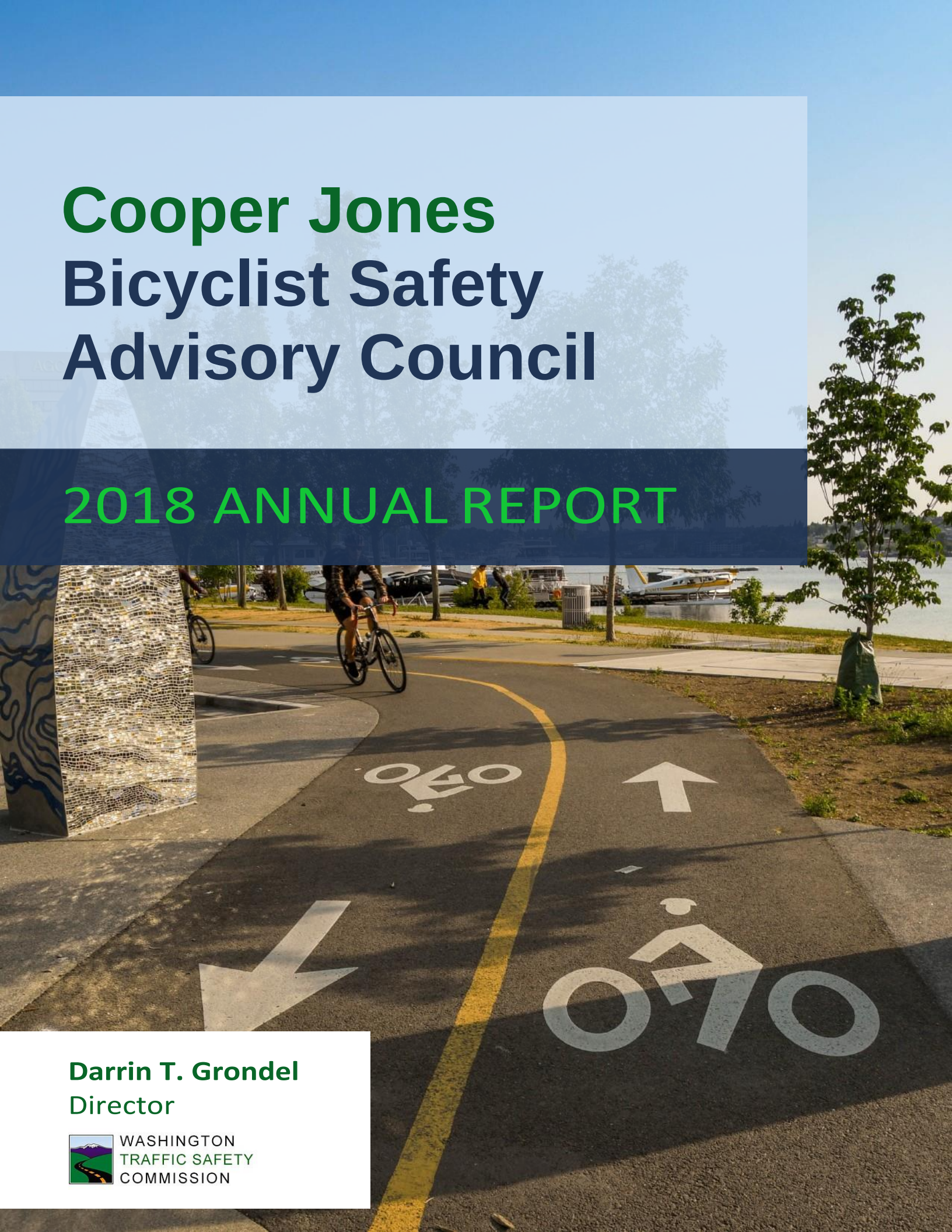
Cooper Jones Bicyclist Safety Advisory Council

2018 ANNUAL REPORT



Darrin T. Grondel
Director

WASHINGTON
TRAFFIC SAFETY
COMMISSION

Publication and Contact Information

A PDF version of this report is available for download on the Washington Traffic Safety Commission website at: http://wtsc.wa.gov

For questions/information about the Cooper Jones Bicyclist Safety Advisory Council, please contact:

Scott Waller, Program Manager
Washington Traffic Safety Commission
PO Box 40944
Olympia, WA 98504-0944

Phone: (360) 725-9885

Email: swaller@wtsc.wa.gov

For policy-related questions/information, please contact:

Shelly Baldwin, Legislative and Media Director

Washington Traffic Safety Commission

PO Box 40944
Olympia, WA 98504-0944

Phone: (360) 725-9889

Email: sbaldwin@wtsc.wa.gov

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EXECUTIVE SUMMARY

BSAC 2018 ANNUAL REPORT

EXECUTIVE SUMMARY

Fifty-one people died while riding bicycles on Washington State roads during the past four years, averaging more than one fatality each month.

Fatalities increased by 55 percent from the 2014-2015 period to the 2016-2017 period. That is an average of more than one bicycle-related fatality each month. The number of deaths and serious injuries involving bicycle riders increased 8.7 percent from 229 to 249, faster than both state population growth (3.2 percent increase) and motor vehicle miles traveled (5.1 percent increase) during the same period. Over the past five years, bicycle-related fatalities occurred in two-thirds of Washington counties.

Washington State	2014-2015	2016-2017	% Change
Bicyclist fatalities	20	31	55% increase
Bicyclist serious injuries	209	218	4.3% increase

Washington Traffic Safety Commission Quarterly Target Zero Data, October 2018

This report from the Cooper Jones Bicyclist Safety Advisory Council (BSAC) details the factors that have led to bicyclist fatalities and serious injuries on Washington State roadways and provides recommendations for specific actions to make our roads safer for people who ride bicycles.

The Washington State Legislature created the BSAC in 2017 to bring together people and perspectives from transportation engineering, public health, education, law enforcement, emergency services, local and tribal governments, and bicycle advocacy for a multi-disciplinary, multi-agency approach to the public health issue of bicyclist fatalities and serious injuries.

Bicycling is a key strategy in the state's ongoing efforts to reduce traffic congestion and carbon production, as well as addressing the epidemic of obesity. As a recent headline noted, "Safe streets are the best tool we have to combat climate change." (Curbed, October 10, 2018.) If just 5 percent of commuters in Washington State used a bike instead of a vehicle there would be a significant reduction in traffic congestion and an even larger reduction in carbon emissions.

One difficulty associated with examining issues related to bicycling is that we have only partial counts of the number of bicycle riders. This report contains recommendations to continue the development of data systems that will provide valuable bicycle use and infrastructure information.

Knowing this information will inform planning efforts, provide insights into the use and value of facilities, and help compare safety outcomes between modes. This data will also allow professional staff in transportation agencies and public works departments to estimate bicycle and pedestrian miles traveled, which will allow us to better understand changes in exposure rates for active transportation users.

This report includes several recommendations for implementation of best practice traffic safety approaches, including infrastructure improvements that slow driver operating speeds and provide separation between people who ride bicycles, walk, or drive. The recommendations also include different emphasis points for changing behavior, especially emphasizing the responsibility of drivers to expect to see people who ride bicycles and to react to their presence appropriately.

The BSAC recommendations are organized according to five internationally recognized principles of safety. In addition, there is one category of cross-cutting recommendations that effect more than one of the safety principles.

Six Categories for Recommendations

1. **Cross-Cutting Proposals**
   These recommendations influence the entirety of the transportation system as it relates to the crash exposure of people on bicycles.
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 the Cooper Jones Bicyclist Safety Advisory Council (BSAC)

1 Cross-Cutting Recommendations

These recommendations influence the entirety of the transportation system as it relates to the crash exposure of people on bicycles 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.

2 Safety Principle
Speed Control & Separation

2.1 Develop target speed policy for use at all jurisdictional levels.
2.2 Allow automated speed enforcement 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).
3.3 Consider all roadway users in autonomous vehicle planning.
3.4 Require autonomous vehicles to follow rules of the road.

4 Safety Principle
Predictability & Simplicity

4.1 Increase investment in infrastructure in underserved areas.
4.2 Develop statewide bicycle network over 10 years.

5 Safety Principle
Forgiveness & Restrictiveness

5.1 Strengthen and update vulnerable user law.
5.2 Authorize bicycle traffic signals.

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 Revise lane restrictions for passing.

INTRODUCTION

BSAC 2018 ANNUAL REPORT

INTRODUCTION

Making Washington roadways safer for people who bike

Fifty-one people died while riding bicycles on Washington State roads during the past four years, averaging more than one fatality each month.

Fatalities increased by 55 percent from the 2014-2015 period to the 2016-2017 period. That is an average of more than one bicycle-related fatality each month. The number of deaths and serious injuries involving bicycle riders increased 8.7 percent from 229 to 249, faster than both state population growth (3.2 percent increase) and vehicle miles traveled (5.1 percent increase) during the same period. Over the past five years, bicycle-related fatalities occurred in two-thirds of Washington counties.

Washington State	2014-2015	2016-2017	% Change
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Washington Traffic Safety Commission Quarterly Target Zero Data, October 2018

These are not just random numbers. These people lived in Washington's communities. They ran businesses. They provided medical care. They taught in schools. They served in the military. They raised children. They were husbands, wives, sons, and daughters. They were commuters coming home from work. They were neighbors, friends, and colleagues.

This report from the BSAC details the factors that have led to bicyclist fatalities and serious injuries on Washington State roadways and provides recommendations for rallying a response to make Washington roadways safer for people who ride bicycles.

SB 5402, passed by the Washington State Legislature in 2017, created the BSAC to "…review best practices for the reduction and eventual elimination of bicycle-related injuries and fatalities in contribution to Washington State's adoption of Target Zero." The law calls on the BSAC to review and analyze data related to bicyclist fatalities and serious injuries to identify patterns in fatalities and serious injuries involving people who ride bicycles and the points at which the transportation system can be improved.

Efforts to improve bicycling safety in the state are important to not only avoid the loss of human life but also because improving safety will encourage more people to bicycle with associated benefits in mobility, air quality, public health, and the economy. These positive effects are good for everyone, not just for those who ride.

People riding bicycles make their way through traffic protected only by a white paint line. Notice, in this case, how the drivers nearest the riders have steered to the edge of the lane to reduce the potential for conflict with the riders. This is appropriate lane positioning in the roadway space. Unfortunately, it does not always occur.

Bicycling is a key strategy of the state's efforts to reduce traffic congestion and carbon production while managing a growing population. As a recent headline noted, "Safe streets are the best tool we have to combat climate change." (Curbed, October 10, 2018.) If 5 percent of commuters in Washington State used a bike instead of a vehicle there would be significant reductions in traffic congestion and carbon emissions.

Bicycling is a proven method for improving health and longevity, thus reducing health care costs (Celis-Morales, 2017). As the rates of children bicycling or walking to school have plummeted over the past few decades, rates of childhood obesity have soared (CDC, n.d.; Tudor-Locke, C, Ainsworth, B, and Popkin, B, 2001).

BICYCLING

is a key strategy – along with ***walking and public transit*** – of the state's ongoing efforts to ***reduce traffic congestion and carbon production.***

Bicycling currently contributes more than $3 billion to the state's economy (Earth Economics, 2015). A recent study found people who bicycle are better drivers and make half as many insurance claims as drivers who don't bicycle (Forbes, October 8, 2018).

A perception that bicycle riding is unsafe stands in the way of many people riding, so the more we can do to increase the perception of safety and comfort, the more bicycle riders we are likely to have (GHSA, 2017). The more bicycle riders people see, the safer they think bicycling is and the more they think about riding themselves (Anderson, M, 2013). Infrastructure is a critical element in improving perceived

safety and the appeal of bicycling. For instance, 57 percent of Puget Sound residents say they would ride a bicycle if there were safe and convenient routes available (Puget Sound Regional Council, 2015). Ironically, drivers tend to not recognize or perceive bicycle riders because they are not common enough. “Attention conspicuity” (distinction of an object based on the observer’s interest and experience) increases as drivers see more people riding (Tin, ST, Woodward, A, and Ameratunga, S, 2015) with a resultant “safety in numbers” effect (Jacobsen, 2003).

Recommendations for bicycle safety

This report makes several recommendations modeled after successful efforts in the United States and around the world. They include infrastructure improvements that slow motorists in specific street contexts and provide separation between people who ride bicycles, walk, or drive. They also include different emphasis points for changing behavior, especially emphasizing the responsibility of drivers to expect to see people who ride bicycles and to react to their presence appropriately.

A bicyclist prepares to put his bicycle on a Seattle bus for the next leg of his commute. Increasing the combined use of bicycling and public transit is a key to reducing traffic congestion and carbon emissions.

One difficulty associated with examining issues related to bicycling is that we have only partial counts of the number of bicycle riders. It is important to know how many people bicycle and how many trips are made using bicycles so we can analyze changes in the crashes, fatalities, and serious injuries. This report contains recommendations to continue the development of data systems that will provide good bicycle use and infrastructure information. This information will inform planning efforts, provide insights into the use and value of facilities, and help compare safety performance outcomes between modes. This data will allow professional staff in transportation agencies and public works departments to estimate bicycle and pedestrian miles traveled and will allow us to better understand changes in exposure

for active transportation users.

For vehicles, there is a commonly accepted measurement of vehicle miles traveled and a methodology already built to develop that number. Additionally, there has been extensive research over time about the behaviors of drivers.

Until we have more comprehensive bicycle count data, we must rely on other kinds of data to make inferences about the number of people who ride bicycles.

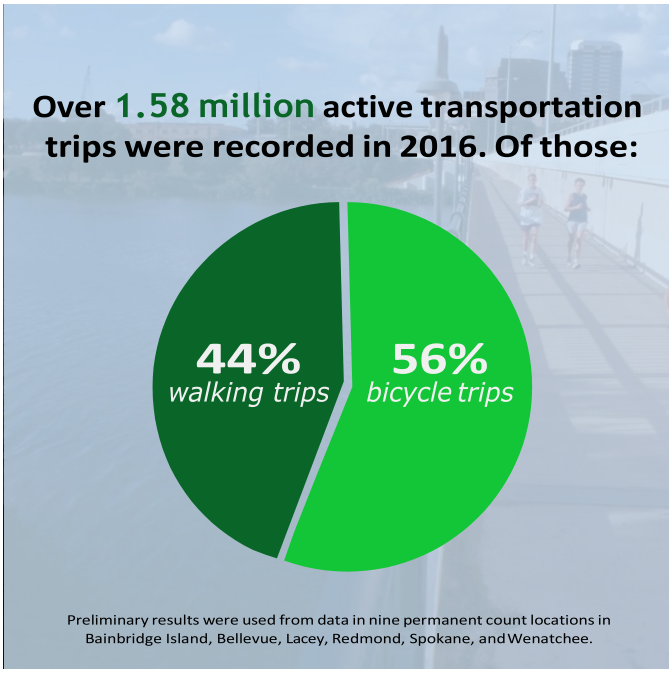
Counting bicyclists on Washington's roads

In an effort to better understand bicyclist trip data, the Washington State Department of Transportation (WSDOT) operates a system that has 53 permanent counters to count bicyclists and pedestrians.

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

The counters are located across the state, supplemented by 402 sample manual count sites active in 56 Washington cities. With partnerships from local agencies, WSDOT is working to expand the network with over 20 more permanent counters by September 2019. Preliminary results using data from nine permanent count locations in Bainbridge Island, Bellevue, Lacey, Redmond, Spokane, and Wenatchee indicated a 12 percent increase in biking and walking compared to 2015. There were 2,445 daily bicyclist trips, and 1,887 daily pedestrian trips, respectively, at those sites on average in 2016.

Over 1.58 million active transportation trips were recorded at these locations during 2016, with a split of 56 percent bicycle trips and 44 percent walking trips (WSDOT Gray Notebook #65, March 2017).



Seattle has several permanent counters that count only bicyclists but the city says that many of the counters are inaccurate (Seattle Times, August 20, 2018). Even after acknowledging the limitations of those counters, there was a 4.8 percent increase in bicycle traffic from the May 2016-April 2017 count period to the May 2017-April 2018 count period. At the Fremont Bridge counter location an average of 405 people riding bicycles were counted each hour during the workweek. On the weekend, that number fell to 71 bicycle riders per hour (Seattle Times, August 20, 2018).

Some organizations like Puget Sound Regional Council (PSRC) implement periodic surveys to determine how often different modes of transportation are used. PSRC focuses on King, Pierce, and Snohomish counties only. The most recent PSRC survey, in 2017, showed that most bicycle riders came from households with less than $100,000 annual income and that most bike trips were five miles long or shorter (PSRC, 2017).

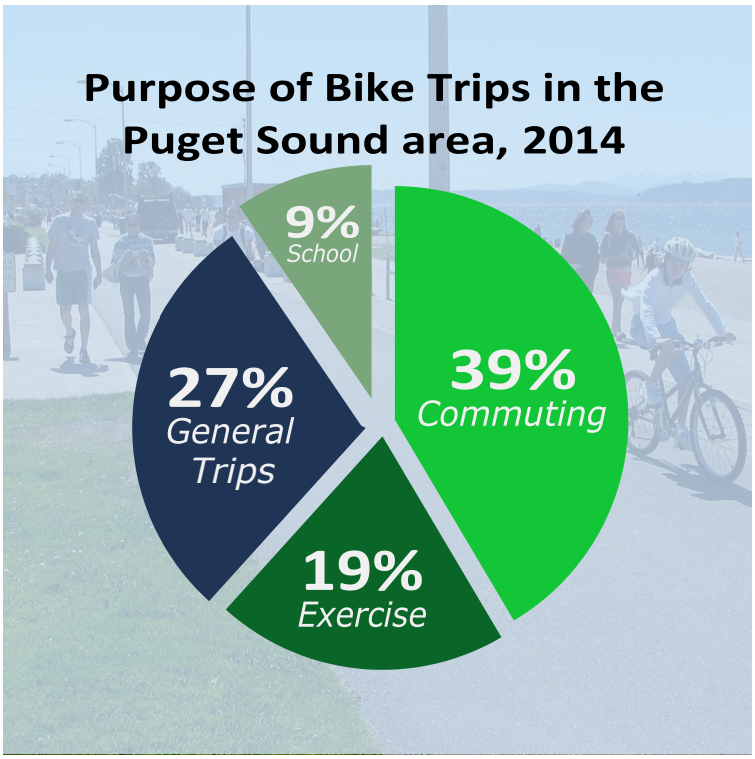
The previous implementation of the survey in 2014 found that the percentage of trips made by people riding bicycles had increased by 44 percent in the five-year period since 1999. According to the survey results, there were more than 178,000 daily trips on bicycles with an average distance of about four miles, resulting in up to 711,000 miles biked each day. The typical rider was male (representing 65 percent of all trips) and likely to be 25-34 years old (Fesler, S, July 13, 2015).

Purpose of bike trips

The PSRC found that the primary purposes for bicycling were:

- Commuting (39%)
- Exercise (19%)
- General trips (27%) (errands, entertainment, and visiting family and friends)
- Going to school (9%)

Even without precise bicycle trip and location data, we know that active transportation plays an essential role in mobility for a large number of Washington residents. According to information from the 2017 National Household Travel Survey, 38 percent of Washingtonians walked or bicycled for transportation during the past year.



Twelve percent of all trips are made by bicycling or walking. Notably, more than 85 percent of all transit trips in the state begin or end with a walking or bicycling trip. An earlier study by People for Bikes found that nationally nearly one in three people rode a bicycle at some point in the past year (People for Bikes, 2017). Another source of survey information is the state's survey of outdoor recreation uses. This method also has shortcomings, as it does not ask about bicycling other than for recreational purposes. Still, from the survey, we can determine that bicycling is Washington State's second most popular outdoor recreation activity behind only sightseeing and nature activities. More than 28 percent of respondents to the 2017 State Comprehensive Outdoor Recreation Planning (SCORP) indicated they had used a bicycle in the past year (Hedden 2017). Applied to the state's current estimated population of 7.4 million (OFM, 2018), the People for Bikes and SCORP figures translate to somewhere between 2.1 million and 2.44 million Washingtonians riding bicycles last year alone.

Safety in underserved communities

Within this context of general concerns about the safety of our transportation system for bicycling, there is evidence that some populations in our state have significantly higher exposure to the potential of being hit by a driver while bicycling.

According to a 2017 analysis of Washington State Census data, two racial/ethnic groups - Black or African Americans and Asian Americans - use bicycling and public transportation at nearly twice the rate of other racial/ethnic groups (U.S. Census, 2018).

Analysis of fatalities and serious injuries for people who bike or walk finds rates to be higher among certain demographic groups – for example, people living in census tracts with a poverty rate above the state average (WSDOT Gray Notebook #69, 2018).

This is an important consideration since the BSAC's work this year mirrors reports of a national history of not investing in bicycle and pedestrian infrastructure in lower income communities and communities with a high percentage of people of color.

Bicycle safety must address emerging technology

New technologies and systems are emerging, particularly bike share programs and electric-assist bicycles (e-bikes) that may increase use of active transportation.

Bike sharing systems provide users with the ability to check out a bicycle using an app, ride it, and drop it off at their destination. Bike share programs are available in a handful of Washington cities and on several college campuses. More cities are exploring the possibility of offering the service.

Bike share bikes on a Spokane street.

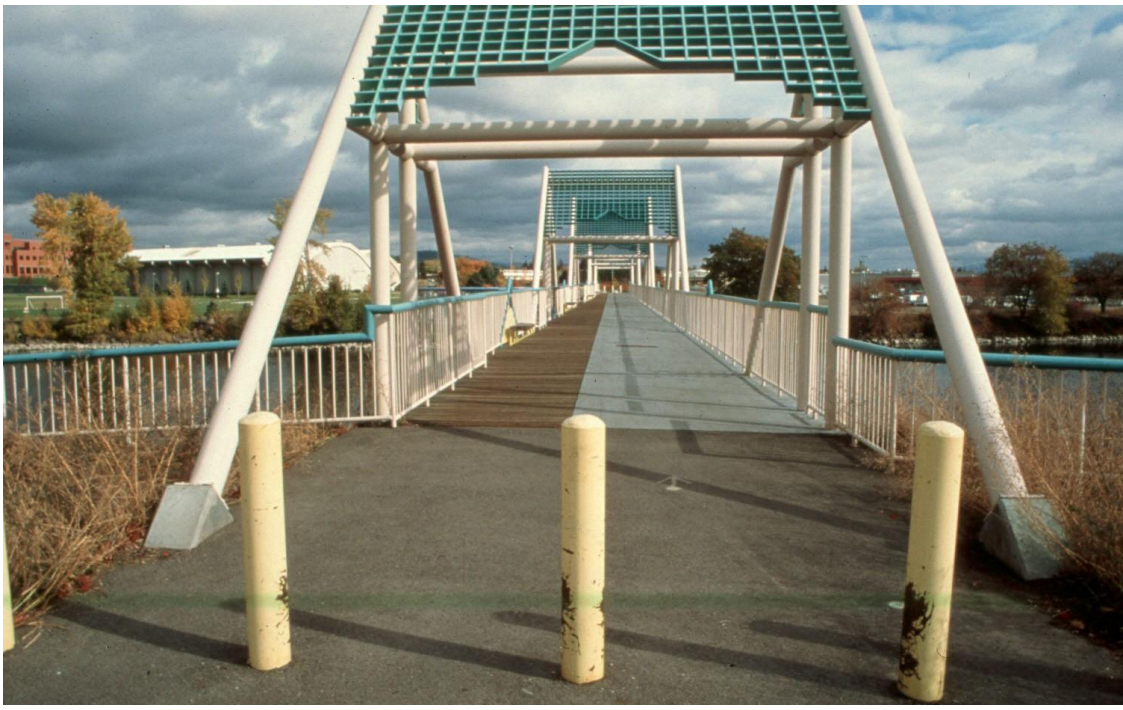
According to national statistics, e-bikes are the fastest-growing segment of the bike industry.

E-bikes serve as a way to "flatten hills" across our hilly and mountainous state, and enable people to ride farther more easily. This addresses an equity concern by providing assistance to people whose physical condition or disability affects or constrains their ability to ride (Aldred, R, 2017; MacArthur, J, Dill, P, and Person, M, 2013).

The 2018 Washington State Legislature passed a law regulating e-bikes by updating the classification system to give Washington State new tools to effectively enforce the laws and manage e-bikes.

Many areas in the state are working to improve roadway conditions so people who ride bicycles have fewer conflicts with drivers, including:

- Seattle installed separated bike lanes on Second Avenue in a growing network of bike lanes in the downtown core.
- In Bellingham, multi-lane roads are being narrowed to create buffered bicycle lanes. Connectivity of the citywide bicycle network has become a priority.
- In Spokane, several projects underway will improve the ability of people who ride bicycles to move about the city and make connections with a network of trails for people who bike or walk.
- In the city of Ellensburg, a section of East 7th Avenue was modified to create a safe alternative to the busy four-lane University Avenue for people who ride bicycles and walk.



Spokane's Centennial Trail crosses the Spokane River several times using pedestrian and bicyclist bridges like this one.

Safety concerns for people who want to bike

Increasing the perception of a safe system for bicycling is one of the keys to increasing bicycle ridership. We know we can increase bicycling by tapping into latent demand (the potential bicycling that does not occur because people do not feel safe riding). A recent study found that over half of the general population is interested in

bicycling but many "potential riders" are significantly more concerned about safety than people classified as "confident riders" (Dill, J, and McNeil, S, 2016).

Unfortunately, many bicycle trips are made in environments with high levels of crash exposure such as urban roadways with multiple intersections, roadways with increasing traffic due to population growth, and rural roadways that have higher posted speeds, no designated facilities for people riding bicycles and, sometimes, poor sight lines.

The work to make our roadways safer for people who ride bicycles is not complete with the development of this report. Recognizing that fact, the Washington Traffic Safety Commission (WTSC), on behalf of the BSAC and the Pedestrian Safety Advisory Council (PSAC), has submitted agency request legislation to the Washington State Legislature to create a combined Active Transportation Safety Advisory Council (ATSAC) to continue the work of making Washington State's roadways safer for all roadway users.

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 BSAC recommends the following language changes to 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 National Highway Transportation Safety Administration (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"* The term "active transportation" is used to include walking, bicycling, using a mobility-assist device (e.g., wheelchair or walker), or using small-wheeled devices like skateboards, foot scooters/e-scooters, or inline skates. Using the term "non-motorized transportation" reinforces a priority for the use of motorized vehicles. The preference should be to directly label or describe each mode of travel being used on roadways.
"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.
"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

Equity issues are not always directly addressed by current infrastructure investment strategies. Studies show an historic inequity in investments in lower income neighborhoods. Portions of some Washington cities were historically 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 public safety infrastructure (City of Tacoma, n.d.). In these mostly low-income areas, there is reduced private vehicle ownership, an increased reliance on public and active transportation, and greater vulnerability for people living in poverty. Those people living with lower socioeconomic status include an overrepresentation of people of color, the elderly, and people with disabilities (Powell, L, Slater, S, and Chaloupka, F, 2004). People who cannot access the transportation system safely are denied the opportunity to meet basic needs such as travel to jobs, food, and health care, and to improve their conditions through work, education, and community service.

57% of neighborhoods with a 1% poverty level have bike paths or bike lanes

9% of neighborhoods with a 10% poverty level have bike paths or bike lanes

Administrators at some schools in the state actively discourage students from walking or bicycling to school due to 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 lack of physical activity. Additionally, students walking or bicycling to school reduces congestion caused by parents/ guardians dropping off/picking up students from school. As much as 15-20 percent of morning traffic comes from parents/ guardians transporting students to school.

Policymakers can lead efforts for necessary changes

Everyone has a role to play in making the roads safer for people who bike. Policymakers can lead the effort through policy change. Transportation agencies and public works departments can incorporate current best practices for infrastructure design and installation. People riding bicycles can do what they can to make themselves more visible to drivers. Drivers can expect to see people riding bicycles and walking and act accordingly. The challenge (and the opportunity) is to use

infrastructure design, operation and maintenance, enforcement, and education to improve roads for all roadway users regardless of age, knowledge, skill, abilities, or income level.

Traffic safety programs must be proactive

Programs need to focus on the reduction and prevention of bicyclist fatalities and serious injuries. Reacting to historic crash data is important, but much can be done to prevent crashes from happening in the first place.

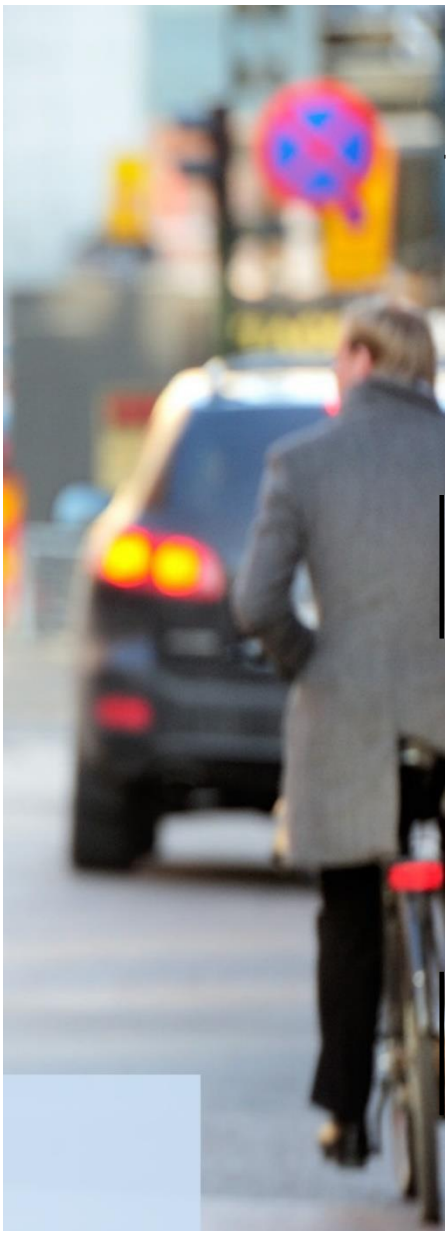
Improvements in data are needed

Washington State has incomplete data regarding the number of people who bicycle. Our efforts to effectively plan for – and strategically invest in – a sustainable safety environment are hampered by a chronic shortage of data. We currently do not have accurate counts of people who bicycle or use any other form of active transportation so we cannot develop accurate calculations of exposure to potential fatality or serious injury crashes. This is important information because it allows us to determine whether a problem is getting better or worse over time.

For example, let us assume in two consecutive years there are the same number of fatalities involving people using bicycles, but in the second year, we have information that shows us that the actual usage of bicycles went up significantly in the state. With just those two numbers, we would be able to say that the crash exposure decreased in the second year. That is extremely important information for planning that we presently do not have.

Continuing education needed to ensure best practices statewide

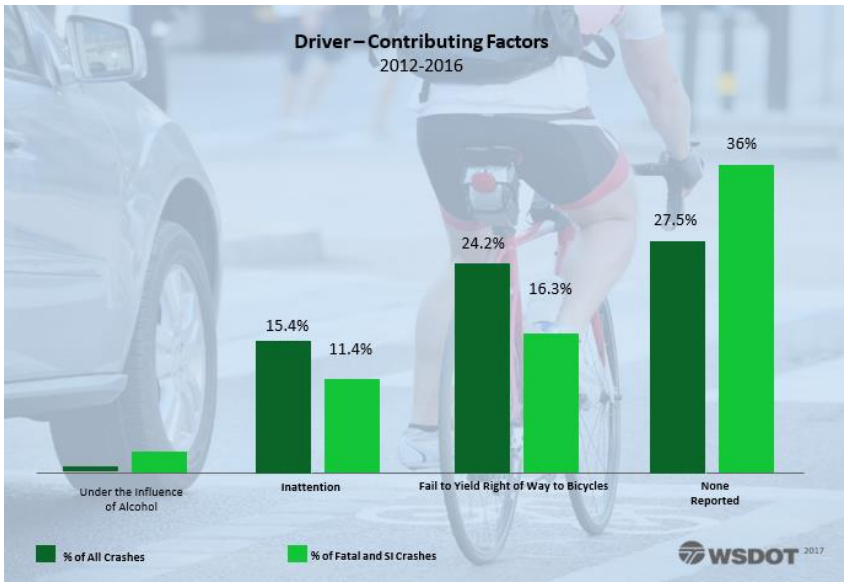
Professionals in transportation agencies and public works departments at every jurisdictional level need to be current about the nature and quality of infrastructure for all roadway users. The professional engineers' license requirements in Washington State currently do not require annual continuing education. There is concern that there is unequal access to continuing education across the state in the latest research and best practices regarding 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.

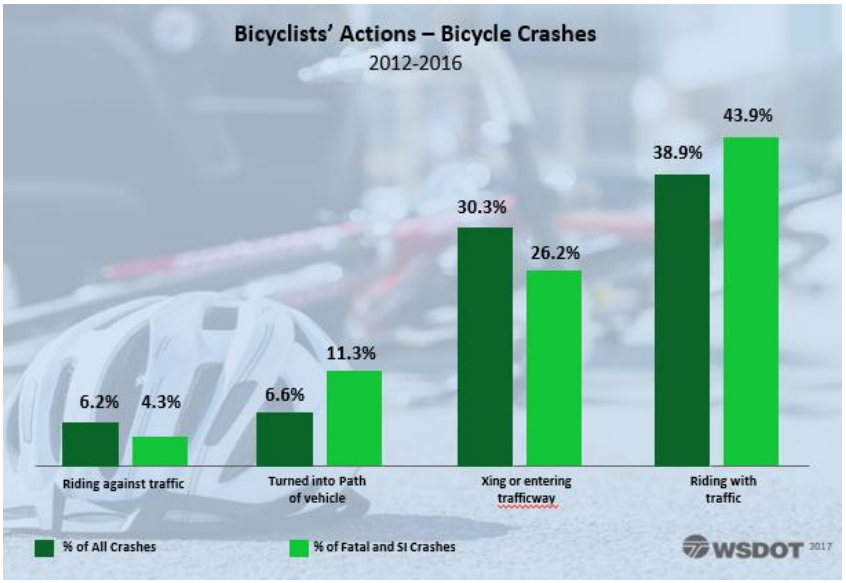


FINDINGS

FINDING #1

Actions and contributing factors in crashes





While there is some data available about how crashes between people cycling and driving occur, we do not collect equivalent data about the actions of drivers and people riding bicycles who are involved in these crashes or about other factors such as infrastructure design. Law enforcement routinely collects some information about the circumstances of a crash. However, this is not the same as conducting an investigation of a crash to determine whether those circumstances contributed to the crash. In addition, not all crashes receive a full investigation.

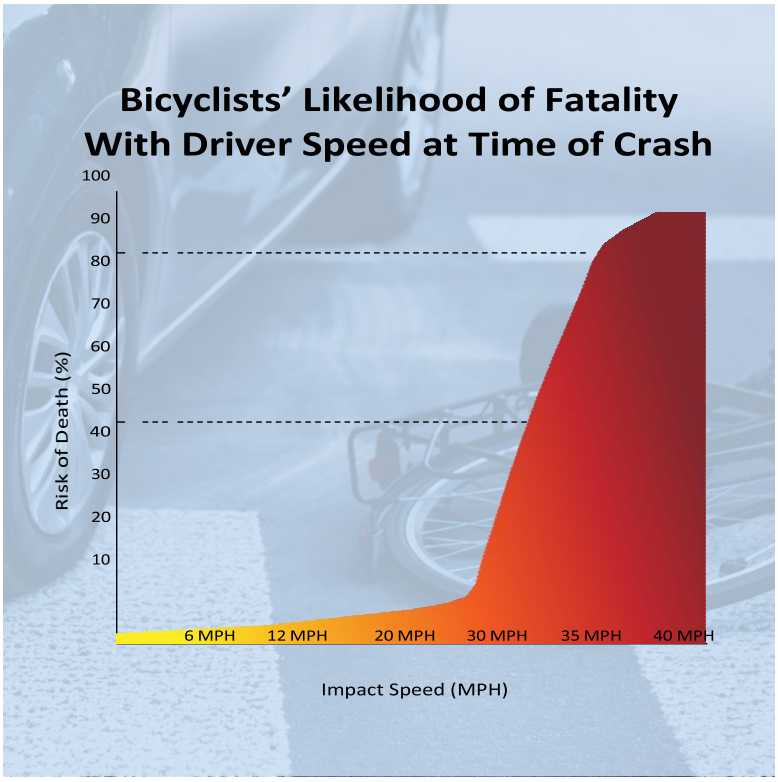
For instance, the "Driver-Contributing Factors" chart shows that the most commonly checked box for "contributing factors" by investigating law enforcement is "None Reported" for drivers. That occurs in more than 36 percent of the fatality crashes, nearly 10 percentage points more often than with all vehicle crashes. However, checking the "None" box could just mean that the investigating officer was not trained in how to investigate motorist-bicyclist crashes and did not know how to look for contributing factors. "None" does not mean that there were no contributing causes for the crash. The BSAC noted in its deliberations the importance of adequate training for law enforcement who investigate motorist-bicyclist crashes to improve data collection.

The “Bicyclists’ Actions – Bicycle Crashes” chart shows that data regarding actions for people riding bicycles is much more detailed. Data shows that an overwhelming percentage of crashes occur when the driver overtakes the bicycle rider from behind or when a person riding a bicycle is either crossing or entering a roadway.

FINDING #2

Vehicle operating speed determines severity of injuries and driver response

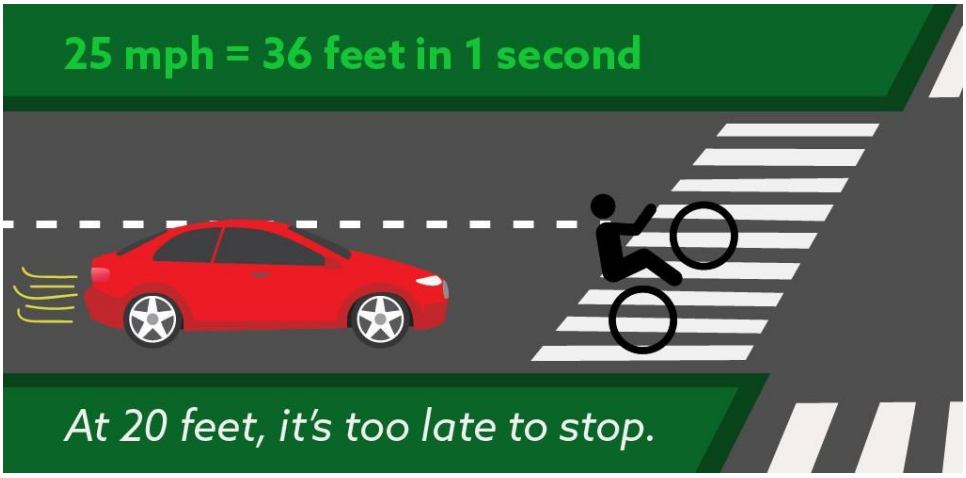
The operating speed at which drivers travel must be a focus in creating a road environment where people bicycling are not killed or seriously injured. The likelihood of a crash involving people who ride bicycles is decreased markedly when drivers are forced by the roadway design to slow down to enable drivers to pay closer attention to what is going on around them, or by providing appropriate separation between people riding bicycles and traffic lanes, or both, depending on context.



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.

The faster the driver is traveling at the time of a crash the more likely there is to be a fatality. The fatality potential increases rapidly for crashes involving drivers traveling at 35 miles per hour (mph) or faster. Fortunately, most motorist-bicyclist crashes occur in areas where the posted speeds are 30 mph or lower. This makes sense because there is a significantly higher number of people who ride bicycles on streets in cities and towns. On county roads, speeds can be up to 50 mph.

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 on a bicycle crossing the road.



Getting drivers to slow down is often more easily said than done. 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. The real change for roadways comes through infrastructure changes that make the operating speed "self-enforcing." Examples include adding roundabouts where drivers must slow down to negotiate a series of turns, narrowing lanes and reducing the number of lanes on roadways while adding bike lanes, and implementation of constant and consistent enforcement technologies like automated speed enforcement cameras.

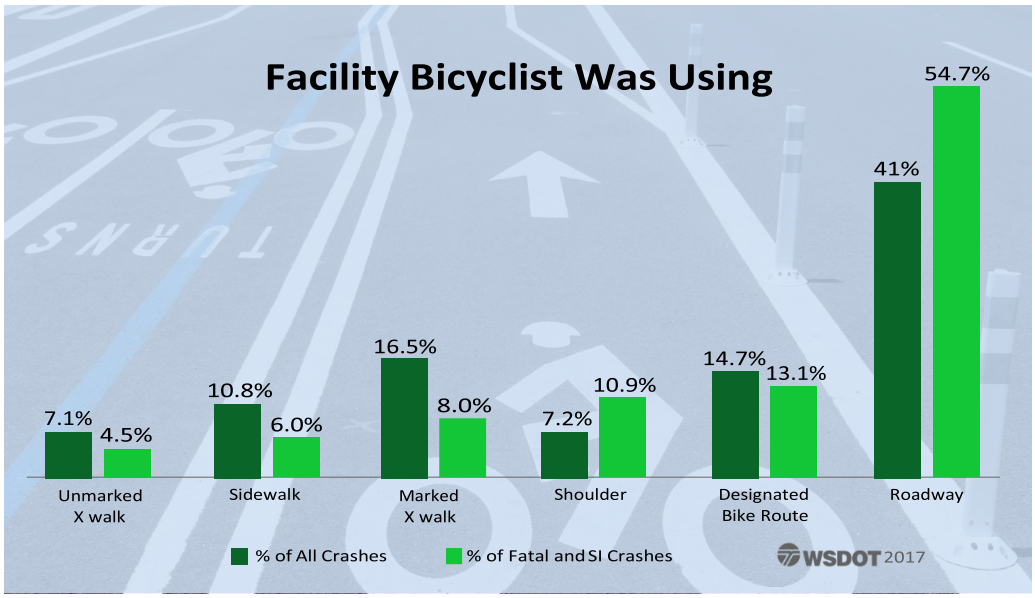
FINDING #3

Transportation infrastructure used by people who bicycle

Not too surprisingly, given the general scarcity of bicycle infrastructure, the majority of motorist-bicyclist crashes occur when the person riding the bicycle is using the general-purpose travel lane rather than a shoulder, separated path, sidewalk or other facilities. This condition accounts for 41 percent of all motorist-bicyclist crashes overall but makes up nearly 55 percent of the fatal and serious injury motorist-bicyclist crashes. Washington State data are consistent with national data presented in the 2017 GHSA "*A Right to the Road"* report.

A central theme in motorist-bicyclist crashes is that the driver failed to notice the person riding the bicycle.

Research on motorist-motorcyclist crashes provides information on “inattentional blindness” considered applicable to motorist-bicyclist interactions given the similarity in configuration between motorcycles and bicycles. Pammer (2017) found that in motorist-bicyclist crashes only 11 percent of drivers detected the motorcyclist before a collision occurred, while 68 percent of the motorcyclists saw the vehicle before their crash (Pammer, K, Sabadas, S, Lentern, S, 2017). More than 90 percent of people who ride bicycles said they expected the driver to give way (as required by state law) and said that they could not stop in time to avoid the crash (GHSA, 2017).



About 13 percent of fatal and serious injury motorist-bicyclist crashes and 15 percent of all motorist-bicyclist crashes occur in designated bike routes (WSDOT, 2017). The term “bike route” is currently used incorrectly on the Police Traffic Collision Report (PTCR) form used in crash investigations by law enforcement. Bicycle routes use multiple types of bicycling infrastructure and other connections, including off-road paths, bicycle lanes, and low-traffic roads. Bike lanes are different, although they can be included in bike routes. They are exclusive spaces – designated by physical separation from the traffic lane or by pavement markings and signage – for people who ride bicycles. Bike lanes are located adjacent to motor vehicle travel lanes and flow in the same direction as motor vehicle traffic, except in the case of the few two-way protected bike lanes installed in the state. Those lanes typically have barriers between the bike lane and the motor vehicle travel lane.

Infrastructure needs to support clear line of sight and adequate human-scale illumination. In addition, drivers need to expect to see people bicycling or walking and learn to actively “scan” the road ahead of them – looking every 10-15 seconds – to observe the road environment, including all other roadway users. In its continuing work in 2019, the BSAC will be discussing driver training in Washington State and will be discussing how new drivers – and currently-licensed drivers – could learn to drive in a way that minimizes these kinds of crashes.

In reducing exposure to a potential crash, the most effective control is elimination: physical removal of the conflict. In roadway design, this is accomplished through infrastructure changes such as providing separation between drivers and bicyclists and improving human-scale illumination.

The final line of defense is personal protective equipment (PPE). PPE is often the focus of a typical bicycle safety program that starts with telling bicycle riders to make themselves as visible to drivers as possible.

Relying on the financial ability of an individual to procure specialized clothing raises equity concerns discussed by the BSAC, particularly given that bicycling provides low-cost transportation and people living in poverty rely on it at higher rates than people at higher income levels do. Reducing crash potential through design is more consistently effective for all riders and the BSAC developed recommendations with this in mind, while recognizing that such changes take time.

State law currently requires use of a white light at night on the front of the bike and a red reflector on the back. Driver attention is required for lighting on the bicycle to make a difference. The addition of human-scale illumination and other infrastructure changes that improve visibility of everyone on the roadway are much more effective than reliance on individual actions. In its continuing work in 2019, the BSAC will be discussing bicycle education in general and the relative importance of each recommended approach to reducing crash exposure.

FINDING #4

Automated speed enforcement cameras slow operating speeds

State law currently allows the use of automated speed enforcement cameras within school zones. The BSAC recommends broadening that authority to allow use of automated speed enforcement 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, raising the likelihood of a collision with a pedestrian or bicyclist resulting in a fatality. During 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, DA, 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 in that time period although Cohort 3 had a decrease in reported crashes (City of Seattle Police, 2018).

Drivers are slowing down in the automated camera-patrolled areas and that means increased safety for children walking or riding bicycles.

FINDING #5

The vulnerable user law needs to be strengthened and updated

Since going into effect in 2012, it does not appear that the state's vulnerable user law (RCW 46.61.526) has been utilized. The BSAC 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 #6

Bicycle infrastructure terminology needs to change on the police form

Beginning in early 2019, the PTCR will substitute the words "designated bike lane" for "bike route" due to a recommendation made on behalf of the BSAC to the committee that provides oversight for the design of the PTCR.

The lack of detailed information collected and reported on the PTCR about bicyclist-driver crashes illustrates the need for training to be developed for law enforcement about how to investigate and record information from bicyclist-driver crashes. The training would be a good time to emphasize new terminology on the PTCR for "designated bike lane".

RECOMMENDATIONS & DISCUSSION

BSAC 2018 ANNUAL REPORT

RECOMMENDATIONS & DISCUSSION

This report utilizes five internationally recognized principles of sustainable safety to categorize the BSAC's recommendations to reduce fatalities and serious injuries among people who bicycle in Washington State. In addition, there is one category for recommendations that cross into more than one of the safety principles.

The principles of sustainable safety was developed in Europe and has 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 BSAC recognizes that all five principles plus the cross-cutting recommendations are essential for improvements to roadway safety and reductions in the potential for 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.

Six Categories for Recommendations

1. **Cross-Cutting Proposals**
   These recommendations influence the entirety of the transportation system as it relates to the crash exposure of people on bicycles.
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.

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

= people who bicycle (bicyclists). When you see this symbol only, it means that BSAC made the recommendation and it applies only to people who bicycle.

= people who walk (pedestrians). When you see this symbol alongside the "people who bicycle" symbol it means that both the PSAC and BSAC made the recommendation and it applies to people who walk or bicycle.

Discussion of cross-cutting recommendations

Cross-Cutting Recommendations	**1**	**These recommendations influence the entirety of the transportation system as it relates to the crash exposure of people on bicycles.**
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 then to determine what data and actions are necessary to maintain, improve, collect and analyze crashes across all modes of travel. This assessment should specifically determine what actions are necessary related to bicyclists. The state lacks data regarding people who ride bicycles 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: • The Washington State Legislature should direct WSDOT to identify ways to expand the number of permanent counters for the Washington State

Bicyclist and Pedestrian Count Program, provide payment to people who staff the observational sites during annual surveys, extend the methodology to include other data sources, and provide analysis of the data collected.

- The PTCR should be revised to include the "failure to yield to people who use bicycles" as a motorist contributing factor. Currently, there is one failure to yield box that covers both pedestrians and bicyclists. There needs to be a separate failure to yield box for crashes involving people who walk and people who bicycle. This would create an ability to separately analyze the frequency of failure to yield events for crashes involving people who walk or bicycle.
- The Washington State Legislature should allocate sufficient funding to conduct a comprehensive statewide household survey regarding walking and bicycling.

Discussion of speed control and separation recommendations

Safety Principle 2

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

The need for separation between drivers and people who ride bicycles is greater in some places than others. Less separation is needed where speeds are low. More separation is needed where speeds are high. Bicyclists should be able to use any roadway with an expectation of safety except those where they are specifically prohibited, like some portions of 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 separation from bicyclists.

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. Key considerations for a target speed policy include:

- 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, design approaches to creating "self-enforcing roads," and about ways of setting speeds to emphasize injury prevention and minimization.
- Additionally, the target speed policy should support infrastructure improvements that will reduce exposure to being hit by a driver and seriously injured or killed while bicycling (e.g., green bike boxes, traffic-calming, etc.).

Recommendation 2.2

Allow automated speed enforcement in school walk areas

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

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. Within that walk area, elementary schools must identify suggested walk route(s) to school. The school must disseminate information about the suggested routes to all elementary school students and their parents/guardians.

Recommendation 2.2: Allow automated speed enforcement in school walk areas, (continued)

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 because 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 elevates the danger for individuals walking or biking in the area.

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 be used only to support designated purposes.

The BSAC recommends limiting 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 to emphasize increasing safety 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 ride bicycles, e.g., traffic calming approaches where appropriate and needed to reduce crash exposure and improve bicycle network connectivity.

- Provide public education and outreach to increase children's ability to walk or bicycle to school safety.
- 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 provide adequate funding to 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 for planning officials and elected officials. There are several ways to improve this type of coordination, 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.

Recommendation 3.1: Increase training regarding integration of transportation and land use, (continued)

- WSDOT should encourage its regional transportation partners to offer more incentives to integrate safety, multimodal options, and equity into comprehensive planning. An example 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 safe travel by all modes, not just measuring movement of drivers through an area, wherever 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 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 streets elements into GMA plans and delivered through the Department of Commerce trainings.
- WSDOT should continue its work on context classification and associated modal priorities and infrastructure needs for use in planning, scoping, and project design. This approach 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 for inclusion in the "Road Map to Washington's Future" efforts to update the GMA. The "Road Map" project is coordinated by the William D. Ruckelshaus Center.

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 that projects such as schools, public facilities, housing, and bus bases be developed within growth boundaries instead of opting for cheap land outside the population centers that result in more vehicle use and dependence.
- Require that an inventory of "mismatches" between historical road classifications and current use (e.g., number of crossings, number of lanes, and operating speed in areas that feature active transportation trip generators like residences, shopping, and clinics) be developed 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.

Recommendation 3.3

Consider all roadway users in autonomous vehicle planning.

The Governor's Autonomous Vehicle Workgroup (GAVW) should consider bicycling and walking safety as core to their deliberations about deploying connected and autonomous vehicles widely in the state.

The Governors Highway Safety Association (GHSA) is recommending that states be proactive with regard to

creating the operating environments for connected and autonomous vehicles that they want to have. So far, 21 states have either passed legislation or issued an executive order regarding connected and automated vehicles. Recognizing that 94 percent of vehicle crashes are caused by driver error, traffic safety experts are excited about the potential for reducing traffic safety fatalities and serious injuries through use of connected and autonomous vehicles. Autonomous and connected technologies like automated braking and steering are showing up in most new vehicles already. But there are concerns about deploying fully autonomous vehicles before they are physically and technologically ready to deal with real driving situations. The BSAC recommends that the GAVW:

Create standards of operation for connected and autonomous vehicles that specifically address the greater vulnerability of people who are walking, biking, or using other forms of active transportation.

- In pilot tests of vehicles in the state, advocate for evaluation of the pilot test vehicle's performance with regard to people who ride bicycles or walk.
- Develop strategies for reducing the potential contribution to urban sprawl presented by connected and autonomous vehicles.
- Recommend updating certification requirements for connected and autonomous vehicles so that a complete review is performed of all product development and research data before certifying operation in Washington State. The review should include the following information:
  - Recognize bicyclists and other roadway users (pedestrians, wheelchairs, skateboarders, foot scooter/e-scooter users, etc.) regardless of their appearance (skin color, what they are wearing or what they are doing, etc.).
  - Recognize and adjust for other road conditions, e.g. construction sites.
  - Interact safely with human drivers operating standard motor vehicles on the road.

Recommendation 3.4

Require autonomous vehicles to follow rules of the road.

The Washington State Legislature should create a new section of RCW 46.04.320 that formally classifies connected and autonomous vehicles appropriately to require that they be subject to all current and future traffic laws and rules of the road.

Connected and autonomous vehicles are a new type of vehicle. The Legislature should specifically say that all of the state's motor vehicle and driving laws apply to connected and autonomous vehicles just as they did by previously amending the statute to include neighborhood electric vehicles and medium-speed electric vehicles.

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, green bike boxes and green two-stage turn boxes provide dedicated space for people who ride bicycles at intersections and allow people who ride bicycles to have safe places to cross that reduce crash exposure and spatial conflicts with drivers.

Intersections that feature protected left turn phases make it simpler for a driver to know when to turn without having to judge gaps in oncoming traffic. When seeking those gaps in traffic, drivers may fail to observe someone crossing the road in a crosswalk.

Recommendation 4.1

Increase investment in infrastructure in underserved areas.

State agencies should incorporate funding strategies to proactively identify historically underserved areas for increased infrastructure investments:

- 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 serve as indicators of high-need communities. The analysis should be make available widely to multiple organizations to encourage and prioritize increased infrastructure investments.
- Data collection should include information about both roadway and societal factors and effects.

Recommendation 4.2

Develop statewide bicycle network over 10 years.

The Washington State Legislature should direct WSDOT to develop and implement a prioritized plan for completing a statewide bicycle network over a 10-year period based on an analysis of the existing network and all relevant local, regional, and state plans.

The plan – and funding – need to be focused on both maintenance of existing facilities as well as construction of additional infrastructure. Construction of new appropriate infrastructure should include such items as separated lanes, green-painted bike boxes at intersections, trail connections, etc., on state-owned and state-interest rights-of-way. The plan and implementation should also address existing barriers to safe use of roadways and other infrastructure by persons of all ages and abilities and should identify and prioritize bicycle routes or segments that have connection or continuity gaps.

In many cases, increasing safety for people riding bikes means creating pathways and routes where they can ride safely. The pathways and routes must be connected so that people can safely ride bicycles to work or to shop separated from vehicle traffic. This recommendation would create an analysis and inventory of needed connections and then prioritize them for investment. Some key elements of the network plan would include:

- WSDOT should work with regional transportation planning partners to develop funding strategies that reward development of systematic, multiagency plans that emphasize multimodal approaches

- WSDOT should prioritize projects for funding that reduce operating speeds and/or provide for traffic calming approaches including road design, lower posted speeds, safe bicycle parking, protected bike lanes (including green paint bicycle boxes), accommodations for all roadway users, and other separated facilities, where appropriate and needed to reduce crash exposure and improve bicycle network connectivity.
- The Washington State Legislature should direct WSDOT to emphasize projects and programs that remove or mitigate barriers to access of the transportation system for active transportation users. These projects and programs should focus on areas historically underserved with infrastructure improvements such as low-income communities and communities of color, increasing access by all ages and abilities, and creating connection such as trails that can be used to safely navigate around identified barriers.

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 that 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. In other instances, it may require changing the road environment to accommodate a large number of people who need to cross a road.

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 BSAC 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. For instance, driving distracted by yourself on a lightly traveled road is one level of potential for harm and driving distracted on a downtown street where there are a number of people riding bicycles in a nearby bicycle lane is a much higher level of potential for harm. Such a study needs to address alternatives for fines such as diversion or community service for use in areas with high poverty or high unemployment service for use in areas with high unemployment or high poverty.

Recommendation 5.2

Authorize bicycle traffic signals.

The Washington State Legislature should update RCW 46.61.055 to authorize bicycle traffic signals.

Jurisdictions need the authority to install bicycle-specific traffic signals where appropriate for traffic operations. Bicycle traffic signals could also be beneficial to regulate merging of bicyclists from dedicated bicycle lanes onto multi-use roadways similar to how drivers are metered to join from onramps onto freeways.

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

Recommendation 6.1

Research development impact fees and other topics.

The WTSC should initiate a request to the 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 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 about how to develop safe walk areas and safe walk routes (WSDOT, OSPI, and DOH, 2015). This recommendation would allow schools to either update their existing walk area or develop a walk area if they currently do not have one. The walk routes are also used by students who bicycle to school 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 would 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 the 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 license they are never required to receive any additional training in the current system.
- The BSAC 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.
  - The video-based module could also be shown to young drivers going through driver education.

Recommendation 6.4

Revise lane restrictions for passing.

The Washington State Legislature should amend RCW 46.61.113 to require motorists to change lanes (including when there is a double yellow line) when passing people riding bicycles when there are no oncoming roadway users and travel lanes do not have sufficient width to provide three feet of separation. Considerations for this recommendation include:

This is an ongoing issue on two-lane roads for both people riding bicycles and for drivers. Current state law says that drivers cannot cross a solid yellow or double yellow line in the middle of the road in order to give adequate separation between their vehicles and people riding bikes even when there is no traffic in the other lane. Laws requiring drivers to give three feet or more of separation from people riding bicycles are difficult to enforce. However, they are even more difficult to implement on many roads where there simply is not enough room in the lane to provide three or more feet of separation. One of the most frequent types of motorist-bicyclist crashes, and one that results in many fatalities and serious injuries, is drivers who overtake bicyclists from behind.

- The state of Delaware recently addressed this issue and the Washington State Legislature could use wording substantially similar to the “Bicycle Friendly Delaware Act” that was passed in the Delaware General Assembly in 2017. The Delaware law requires drivers to change lanes when passing people riding bicycles (as well as farm equipment or animal-drawn vehicles). The new Delaware law states that if the driver cannot change lanes due to oncoming traffic they need to stay behind the bicyclist or other vulnerable user until it is safe to pass.

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APPENDICES

BSAC 2018 ANNUAL REPORT

Appendix A

BSAC Executive Committee and members

Executive Sponsors

Alexandria Alston, State Policy Director, Washington Bikes

Barb Chamberlain, MPA, Active Transportation Division Director, Washington State Department of Transportation

Darrin Grondel, Director, Washington Traffic Safety Commission

Project Manager

Scott Waller, Program Manager, Washington Traffic Safety Commission

BSAC Members

Dongho Chang, P.E., PTOE, Chief Traffic Engineer, City of Seattle

Charlotte Claybrooke, Active Transportation Programs Manager, Washington State Department of Transportation, Active Transportation Division

Chris Comeau, AICP-CTP, Transportation Planner, City of Bellingham

Aimee D'Avignon, Injury Prevention Specialist, Department of Health

Josh Diekmann, P.E., PTOE, Transportation Engineer, City of Tacoma

Steve Durrant, FASLA, Principal, Alta Planning

Marla Emde, Emde Sports

Jessica Gould, Intercity Transit

David Jones, Spokane, father of Cooper Jones

Liz Kaster, MURP, Active Transportation Manager, Puyallup Watershed Initiative

Representative Shelley Kloba

Senator Marko Liias

Nancy Lillquist, City Council Member, Ellensburg City Council

Mike Lopez, Spokane Regional EMS

Tim Martindale, Patrol Officer, Walla Walla Police

Nancy McClenny-Walters, Region 17 Target Zero Manager

Liz McNett Crowl, Healthy Communities Advocate

Tim Martindale, Patrol Officer, Walla Walla Police Department

Marc McPherson, Patrol Officer, Central Washington University Police

Stacey McShane, Region 10 Target Zero Manager

Katherine Miller, P.E., Director, Integrated Capital Management, City of Spokane

Annette Nesse, Chief Operations Officer, Jamestown S'Klallam Tribe

Julie Olsen, County Councilor, Board of Clark County Councilors

Amy Person, MD, Health Officer, Benton-Franklin Health District

Matthew Rollosson, MPH&TM, Nurse Epidemiologist, Tacoma Pierce County Health District

Amy Shumann, Environmental Health Planner, Seattle King County Public Health

Annie Szotkowski, Public Health Educator, Spokane Regional Health District

Advisor: Max Sevareid, Regional Program Manager, USDOT/National Highway Traffic Safety Administration

Appendix B

BSAC purpose and scope

Substitute Senate Bill 5402 established the Cooper Jones Bicyclist Safety Advisory Council (BSAC) to “review and analyze data related to bicyclist fatalities and serious injuries to identify points at which the transportation system can be improved and to identify patterns in bicyclist fatalities and serious injuries”. The BSAC name honors Cooper Jones, a 13-year-old boy who died after being struck from behind by a driver as he participated in a road race in Spokane County.

The WTSC convened the Council in October 2017 and held two meetings before the end of the year. A Steering Committee, comprised of the Executive Sponsors or their designees develops meeting agendas and facilitates BSAC meetings.

Members include experts from multiple disciplines including law enforcement, traffic engineering, traffic safety, planning, public health, public transit, injury prevention, cities, counties, tribes, and the King County coroner. The Council met monthly in 2018 to review data on bicyclist safety and begin to compile evidence on actions Washington can take to prevent bicyclist fatalities and serious injuries.

The Council will address its recommendations to organizations with the authority to implement, including:

- WTSC
- Other State Agencies
- Governor’s Office
- Transportation Committees of the Washington State Legislature

While some actions are possible using existing authority and interagency collaboration, it is expected that others will require expanded authority and/or new funding.

Appendix C

Meeting dates and locations

Date	Location	Primary Agenda Items
January 8, 2018	SeaTac	• Equity of investment and disproportionality of involvement • 2018 calendar setting
February 12, 2018	Tukwila	• Who is involved in making decisions about bicyclists in the state • Autonomous vehicles
March 12, 2018	Yakima	• Case studies
May 1, 2018	Spokane	• How is funding currently spent on bicycling infrastructure and education • Vision Zero – principles of systematic safety • Understanding various planning and engineering guidebooks
June 11, 2018	Seattle	• Joint meeting with Pedestrian Safety Advisory Council • Vulnerable user law • Growth management act and land use planning
July 9, 2018	Tacoma	• Changing culture for bicycling • Local examples of culture change initiatives – Spokane and Bellingham
August 13, 2018	Ellensburg	• Bicyclists safety education • Refine 2018 recommendations
September 10, 2018	Olympia	• Review "Bicycles" chapter in Target Zero Strategic Plan • Refine 2018 recommendations
October 8, 2018	Olympia	• Review first draft of 2018 BSAC Annual Report with recommendations

Appendix D

Process used to develop recommendations

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 9, 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 13, 2018, meeting the group reviewed the list they created in July and identified which of the recommendations were highest priority.

   At the September 10, 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 October 8, 2018, meeting and identified recommendations that were not ready to submit in the 2018 Annual Report.

4. The group had two more opportunities to review the draft 2018 Annual Report with a second draft sent to them for review on October 16, 2018, and a final draft sent to them on October 23, 2018.

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

6. Submit for internal Washington Traffic Safety Commission review and approval on November 8, 2018.

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

8. Address comments and questions from Governor's Policy Staff by December 24, 2018.

9. Submit final 2018 Cooper Jones Bicyclist 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.