WASHINGTON
Traffic Safety
COMMISSION

PEDESTRIAN SAFETY ADVISORY COUNCIL

2016 Annual Report

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Director
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Publication and Contact Information

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1. Introduction

Nearly all Washingtonians walk on a daily basis, even if it's just between a parked car and a door. And for the estimated 25 to 30 percent of Washington's population who do not drive, walking is a necessary means of transportation. This includes children, people with disabilities, the elderly, and those who either cannot afford a vehicle or choose not to own one. In addition, pedestrians are vulnerable to death and injury when walking amid traffic. The list of pedestrians killed in Washington State includes:

- Sara Paulson, a Special Olympics athlete, who was killed in a crosswalk by a hit and run driver.
- JD Humphreys, who was walking along the side of the road when he was struck and killed by an admitted distracted driver.
- Judy and Dennis Schulte who were killed – and Karina Schulte and her baby Elias who were severely injured - by a drunk driver. The family was crossing a neighborhood street.

These are just a few of the **204 people who were killed, and the 906 people who were severely injured** while walking on Washington's roadways between 2012 and 2014.

Each death and serious injury impacts family members and friends whose lives will never be whole again. In addition to the heartbreak, each incident ripples out into our communities. Each required emergency services, caused property damage, and incurred medical costs. Each represents a loss of future earnings and quality of life for the family as well as for the state. In fact, the National Highway Traffic Safety Administration (NHTSA) estimated that each traffic death costs an estimated $9.1 million (2015 figure) in societal costs. This places a burden on the state for pedestrian deadly crashes at more than $2.44 billion for the deaths that occurred between 2012 and 2014.

It is within this context that the state Legislature passed Substitute Senate Bill 5957, which established the Pedestrian Safety Council. The bill, as outlined in the section below asks the Council to examine pedestrian crashes and recommend changes that would improve the safety of these vulnerable road users.

The Washington Traffic Safety Commission (WTSC) organized the Pedestrian Safety Council per the guidelines established by the legislation. They met monthly between March and December 2016 and plan to continue monthly meetings into the future. This report documents its preliminary recommendations and the future topics the Council plans to explore. Pedestrian safety is included as a priority in Washington's State Highway Safety Plan, Target Zero® (www.targetzero.com).

2. Council Purpose and Scope

Substitute Senate Bill 5957 established the Pedestrian Safety Advisory Council 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 Council in April 2016. Members include experts from multiple disciplines including law enforcement, traffic engineering, traffic safety, public transit, injury prevention, cities, counties, tribes, and the King County coroner. The Council met monthly to review data on pedestrian safety and begin to compile evidence on actions that Washington can take to prevent pedestrian deaths and serious injuries.

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

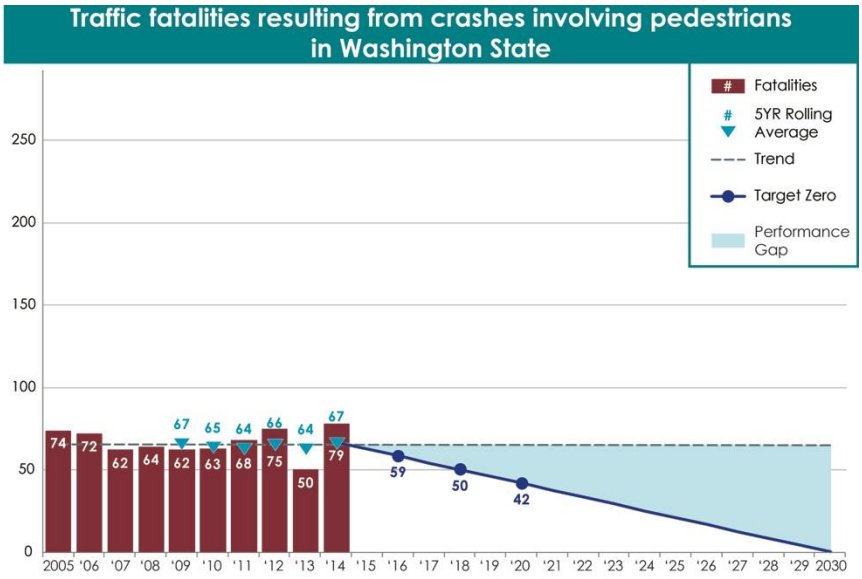
The Council will address its recommendations to organizations with the authority to implement, including the:

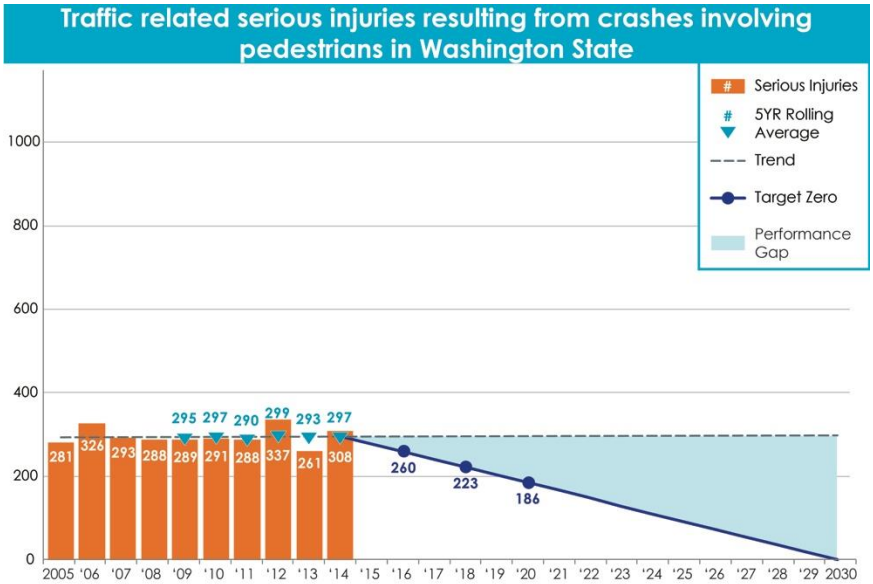
- WTSC
- Other State Agencies
- Governor's Office
- Transportation Committees of the Washington State Legislature

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

3. Key Findings

Between 2012–2014, pedestrian fatalities accounted for 15 percent of total traffic deaths, an increase from 14 percent in 2009–2011. The number of pedestrian fatalities increased by 5.2 percent and serious injuries increased by 3.5 percent compared to numbers from 2009–2011. The flat trend line in the graph below indicates that we are not on target to reach zero pedestrian fatalities by 2030.

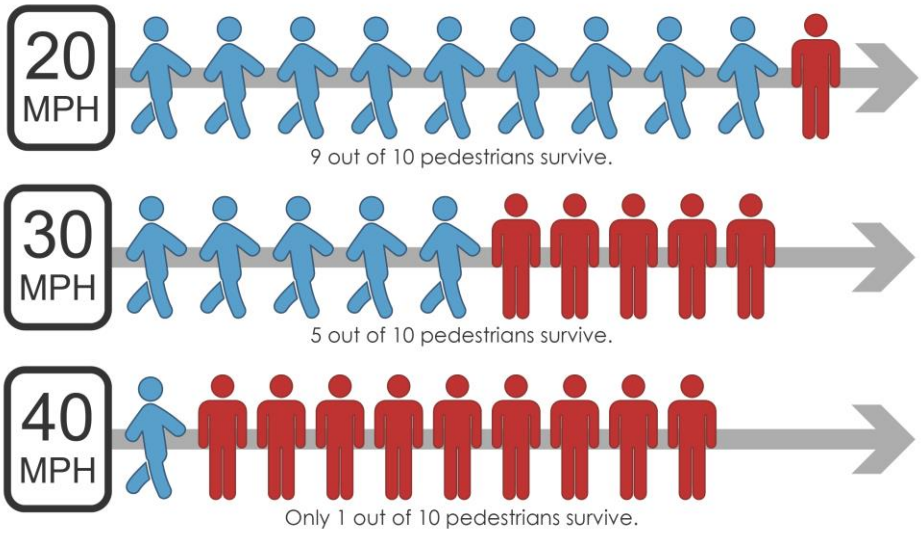




Finding: Vehicle impact speed is a significant factor in pedestrian fatalities and serious injuries.

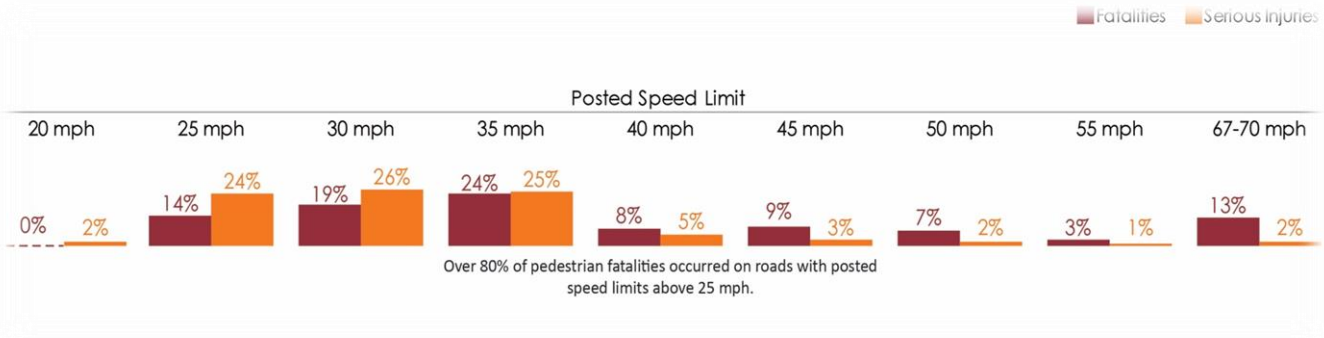
Pedestrians are most susceptible to fatal and serious injury crashes when vehicles are traveling at higher speeds. The higher the vehicle speed, the less likely a pedestrian will survive a crash, as shown in the graphic below.

Vehicle Impact Speed and Pedestrian Survivability



Vehicle speed is a factor regardless of whether higher speeds are due to posted limits or speeding. However, the graph below shows fatalities and serious injuries by posted speed limit.

Fatalities and Serious Injuries and Posted Speed Limits 2012-2014

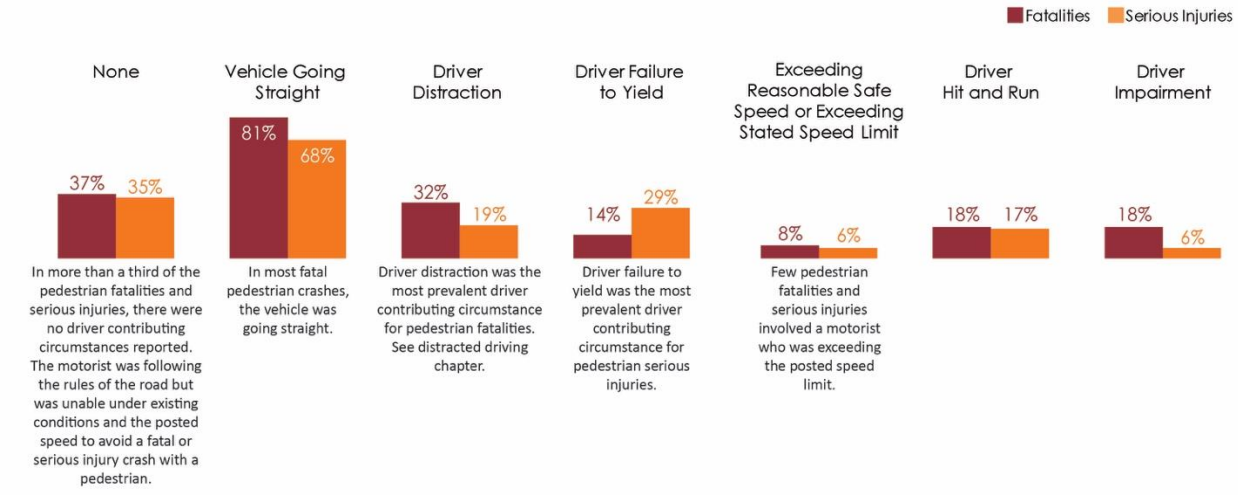


Finding: Pedestrian infrastructure, such as marked road crossings, and low visibility, such as darkness or dusk, are factors in pedestrian fatal crashes.

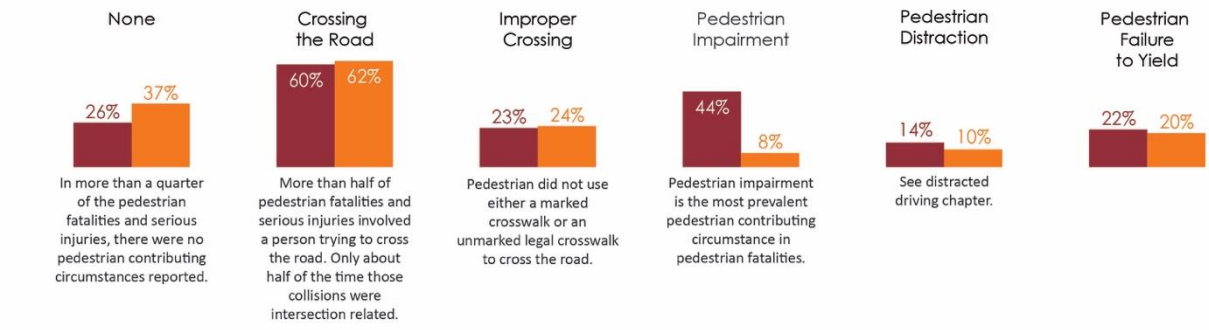
- Pedestrians are more susceptible to fatal and serious injury crashes where there are uncontrolled crossing conflicts, e.g. locations where crash reports indicate no traffic control devices at the site. More investigation is needed to determine whether this is due to an absence of traffic control devices or a lack of reported traffic control devices.
- More than half (57 percent) of pedestrian fatalities and 67 percent of serious injuries occurred while the pedestrian was crossing the road. Many of these were not at marked crossings.
- More than two-thirds (69 percent) of crashes involving pedestrians occur when visibility is less than optimal, such as nighttime or dusk. The motorist must be able to perceive the pedestrian, recognize the importance of what she is seeing, and take action in time to avoid a crash.
- More than half (59 percent) of pedestrian fatalities and 44 percent of serious injuries occurred when the pedestrian was in the roadway as opposed to the shoulder, crosswalk, or sidewalk.

Finding: Pedestrian impairment (44 percent) and driver distraction (32 percent) stand out as the most significant human factors that contribute to pedestrian fatalities and serious injuries.

Driver Actions and Contributing Factors in Pedestrian Crashes (2012-2014)



Pedestrian Contributing Circumstances, Actions or Factors (2012-2014)



Finding: Further mining of pedestrian crash and travel data will allow state and local agencies to invest in safety solutions for problem locations.

- The Council has identified valuable data sources located within a variety of state, local, and regional organizations that are not routinely combined and analyzed such as emergency room data, hospital data, social services data, and data on homeless and transient populations.
- There is a need for in-depth evaluation of factors such as pedestrian exposure, land use planning, transit facilities, pedestrian volumes, and destinations.
- The Council has begun to identify actions to better leverage existing data, but new data sources may be needed to enable jurisdictions to target investment decisions for safety efforts.

Finding: National data indicates that pedestrian facilities in lower-income neighborhoods often require improvement

- National data shows that pedestrian fatality rates in lower-income neighborhoods are twice as high as in other neighborhoods. This may be because pedestrian activity is likely higher due to fewer transportation choices resulting in higher volumes with fewer opportunities to safely and securely walk as part of a daily routine.
- In Washington State, more research is needed to understand the availability of safety features and transportation options in low-income neighborhoods, as well as differences between cities, towns, and tribal areas.

4. Pedestrian Crash Data: A Deeper Look

Washington's State Highway Safety Plan, Target Zero® provides an up-to-date examination of pedestrian state of pedestrian issues. The Council reviewed this plan and pulled the following highlights from the data. For a more complete picture of pedestrian data, please visit www.targetzero.com and review the pedestrian chapter starting on page 134.

In 2012-2014:

- Pedestrian fatalities accounted for 15 percent of total traffic deaths, an increase from 14 percent between 2009-2011.
- The number of pedestrian fatalities increased by 5.2 percent and serious injuries increased by 3.5 percent compared with numbers from 2009-2011.
- At 15 percent, Washington's pedestrian fatality rate is disproportionately high when considering the fact that most recent national data estimate that 10.4 percent of all trips are by pedestrians.

Contributing Factors

Analysis of available data indicates that fatal injuries are less likely when the vehicle is traveling at 25 mph, yet 14 percent of fatal collisions still occur on those roads. This indicates the need for a better understanding of the relationship between speed limit compliance and pedestrian crashes.

The road characteristics that are most often reported in pedestrian fatalities and serious injuries include:

- Posted speed (as opposed to speeding, or exceeding the posted speed)
- Lack of traffic control, e.g. signals, stop signs, yield signs, or flashing beacons. Eighty-one percent of pedestrian fatalities and 64 percent of serious injuries happen when pedestrians are not using marked crosswalks.

Most pedestrian fatalities occur in the winter and fall, and in dark or early evening.

- 18 percent happen during the month of December
- Fatalities are more prevalent during early evening between 6 and 9 pm, with more than two-thirds occurring at dark or dusk.

5. Council Discussion of Potential Strategies

Multiple factors contribute to pedestrian crashes. There is no one-size-fits-all fix. Preventing pedestrian crashes will need to involve an analysis of posted speeds, roadway design, implementation of site-specific safety enhancement features, and an improved understanding of other factors that increase the likelihood of pedestrian fatalities and serious injuries.

Land use also plays a role. Prevention efforts need to include analysis of pedestrian travel patterns and land use planning that accounts for locations where pedestrian activity can be expected as a result of development.

The Council identified three key first steps to focus on:

- Vehicle speed and speed limit compliance
- Availability of pedestrian crossings
- Visibility factors in crashes resulting in pedestrian fatalities or serious injuries

Better understanding of the relationship between speed limit compliance and pedestrian crashes is also needed.

Other promising strategies:

- Enforcement of laws related to driver distraction
- Education related to pedestrian and driver impairment
- Greater awareness about pedestrian behavior, visibility, and identification of the best countermeasures to avoid crashes

A deeper look at pedestrian crash sites and local pedestrian patterns can reveal conditions and patterns that contribute to the problem, such as:

- The presence of traffic control at pedestrian crash locations
- The path a pedestrian takes to get from point A to point B
- Engineering that emphasizes how speeds, visibility, and roadway/roadside traffic features affect pedestrians
- Consideration for pedestrian travel on suburban-type roads in order to identify pedestrian crossing locations and appropriate crossing treatments like signing, rectangular rapid flashing beacon or pedestrian hybrid beacons

Changes to these conditions show great promise and will be explored by the Council in coming years.

Other overarching strategies that will be explored:

- Focus on locations based on land use context where people are most likely to walk
- Emphasize countermeasures, such as providing enhanced pedestrian-scale illumination and visibility features, combined with pedestrian crossing enhancements and reductions in road design speeds
- Encourage cities, towns, and tribes to use their existing authority to lower speed limits on non-arterial roads where pedestrians are typically present

6. 2016 Council Accomplishments

The Council met monthly to review data and explore the evidence for effective prevention strategies. They reached consensus on eight key focus areas where changes to policies, infrastructure, and public awareness are likely to improve safety and prevent pedestrian fatalities and serious injuries.

Focus Areas 1: Explore laws, rules, and ordinances that support pedestrian safety

Focus Areas 2: Promote positive pedestrian culture

Focus Areas 3: Prioritize infrastructure investments to reduce pedestrian deaths and serious injuries

Focus Areas 4: Improve pedestrian data

Focus Areas 5: Invest in the development and implementation of pedestrian safety plans, as well as elements that support pedestrian safety in other local planning efforts

Focus Areas 6: Implement proven enforcement strategies

Focus Areas 7: Include diverse stakeholders

Focus Areas 8: Encourage emerging technology that supports pedestrian safety

Each focus area is supported by specifications for improving pedestrian safety. A complete list with action items and a timeline for the Council's work is shown in *Exhibit A – Council Recommendations and Timeline.*

7. Council Actions Launched in 2016

The Council identified actions currently underway in four out of the eight focus areas that align with their priorities.

The four focus areas that were launched this year are described below.

Focus Area 1 - Explore laws, rules, and ordinances that support pedestrian safety

1.1. Encourage counties, cities, and tribes to take advantage of existing laws [1] to establish maximum speed limits of 20 mph on non-arterial roads that are within a residential or business district. Consider traffic calming or slowing strategies in conjunction with posted 20 mph zones.

Rationale

The Council notes that cities, towns, and tribes have authority under two RCWs to lower speed limits on non-arterial roads; however, this authority is not widely known or utilized.

Vehicle speed impact is the leading factor in determining the extent of injury to a pedestrian in a crash. Lowering the speed limit in pedestrian-heavy locations such as business districts and residential areas will save lives and reduce serious injuries.

Focus Area 3 - Prioritize infrastructure investments to ensure pedestrian safety

3.1. Identify key pedestrian crossing locations where installation of pedestrian safety devices, such as pedestrian hybrid signals, would make crossing easier and safer.

Rationale

The analysis indicates that the availability of safe road crossings likely play a significant role in reducing fatalities and serious injuries. Eighty-one percent of pedestrian fatalities and 64 percent of serious injuries happen when pedestrians are not using marked crosswalks.

Previous studies show that many pedestrians are not willing to go out of their direct line of travel to cross at an intersection, especially when marked crosswalks are few and far between. This initiative seeks to work with state, local, and tribal jurisdictions to identify areas where investments in safety

[1] RCW 46.61.440 applies to cities and towns; RCW 46.62.480 applies to tribes.

devices that alert drivers and support crossing movements at designated crossing areas would improve safety.

Focus Area 4 - Improve pedestrian data

4.1. Increase the availability of useful and effective pedestrian data.

Rationale

This initiative seeks to improve the quality and availability of data relevant to pedestrian safety so that state, local, and tribal jurisdictions have the information needed to identify locations that are most likely to benefit from investment, and develop strategies to address them. The Council has identified numerous data sources in a variety of state and regional agencies that, if combined and analyzed, could be used to identify locations and conditions that are more prone to pedestrian fatalities and serious injuries. Such potential data sources include emergency room data, hospital data, social services data, and data on homeless and transient populations.

Focus Area 5 - Invest in the development and implementation of pedestrian safety plans

5.1. Identify actionable roadway design applications to calm traffic in pedestrian-heavy locations and prevent pedestrian/vehicle crashes.

Rationale

The pedestrian oriented street design guidelines of the National Association of City Transportation Officials (NACTO) offer solutions for walking environments. The Washington State Department of Transportation (WSDOT) has adopted the guidelines and revised its design manual as part of a formal policy change. The design manual embraces the NACTO guides, allowing for changes to roads based more on the context and modal needs of the locations they pass through, rather than on a strict application of pre-determined design criteria. This makes it easier to take speeds into account for all road users.

In future years, the Council will develop a strategy for encouraging more jurisdictions to adopt the NACTO guides as part of their planning and design processes.

8. Exhibit A – Council Recommendations and Timeline

Pedestrian Safety Council 2016 – 2019

Focus Area				
1. Explore laws, rules and ordinances that support pedestrian safety	*2016*	*2017*	*2018*	*2019*
1.1. Encourage cities, towns, and tribes to take advantage of existing RCWs to establish maximum speed limits of 20 mph on non-arterial roads that are within a residential or business district. RCW 46.61.440 applies to cities and towns; RCW 46.62.480 applies to tribes. Consider traffic calming or slowing strategies in conjunction with posted 20 mph zones.	☑			
1.2. Expand photo speed/red light enforcement within and beyond school zones; coordinate with 6.1.		☑		
1.3. Provide legal protection for city and county pedestrian safety plans.		☑		
1.4. Establish presumptive driver liability.			☑	
1.5. Explore laws and ordinances that allow alternative modes of transportation (e.g. golf carts) in pedestrian-heavy zones.			☑	
1.6. Encourage the adoption of design and operating policies and ordinances, along with adjusted vehicle operating speed limits on all roads where pedestrians are likely to be present.		☑		
2. Promote positive pedestrian culture.	*2016*	*2017*	*2018*	*2019*
2.1. Establish funding for public education to increase pedestrian and driver awareness of risk and defensive behaviors.		☑		
2.2. Add pedestrian safety to Target Zero objectives relating to impairment, speeding, and distraction involved driving/walking, AND coordinate with Target Zero efforts around *New Technology and Traffic Safety* to assure that pedestrian safety is included.			☑	

3. Prioritize infrastructure investments to ensure pedestrian safety.	*2016*	*2017*	*2018*	*2019*
3.1. Identify key pedestrian crossing locations and install safety devices, such as rectangular rapid flash beacons and pedestrian hybrid beacons, to make crossing safer and easier.	☑			
3.2. Design roads to reduce operating speed based on context and especially in areas where high levels of pedestrian activity would be expected.	☑			
3.3. Encourage the inclusion of pedestrian safety improvements in infrastructure funding criteria.		☑		
3.4. Explore land use policies that support pedestrian safety.		☑		

4. Improve pedestrian data.	*2016*	*2017*	*2018*	*2019*
4.1. Highlight evidence for proven, effective strategies to improve pedestrian data.	☑			
4.2. Identify over-represented user groups.		☑		
4.3. Identify factors that lead to some groups being over-represented in pedestrian/vehicle collisions.		☑		
4.4. Assess pedestrian data systems.		☑		
4.5. Explore exposure data.		☑		
4.6. Propose strategies to address the factors that lead to some groups being over-represented in pedestrian/vehicle collisions.		☑		
4.7. Propose changes to assure comprehensive, quality, shared, actionable data.				☑

5. Invest in the development and implementation of local plans that support pedestrian safety, either through the development of pedestrian safety plans or the inclusion of pedestrian safety elements in other local planning efforts.	*2016*	*2017*	*2018*	*2019*
5.1. Identify actionable roadway design applications to calm traffic in pedestrian-heavy locations and prevent pedestrian/vehicle crashes.		☑		
5.2. Identify, evaluate, and recommend pedestrian safety assessment tools that jurisdictions can use for multi-modal transportation planning.		☑		
5.3. Recommend crosswalk evaluation criteria that can be applied by jurisdictions statewide (e.g. a deeper look at pedestrian crash sites, places where pedestrians can be expected, and the availability of crosswalks and other safety amenities).		☑		
5.4. Invest in local pedestrian safety plans.				☑
6. Implement proven enforcement strategies.	*2016*	*2017*	*2018*	*2019*
6.1. Promote use of photo red/school zone or other speed enforcement and dedicate fees to pedestrian safety measures.		☑		
6.2. Pedestrian enforcement.			☑	
7. Include diverse stakeholders.	*2016*	*2017*	*2018*	*2019*
7.1. Develop an inclusion strategy so that we are hearing from groups about issues unique to tribes, people of color, non-English speaking people, children, elders, and people with disabilities.		☑		
7.2. Explore strategies around pedestrian impairment and supporting services (housing, drug and alcohol services).				☑
8. Encourage emerging technology that supports pedestrian safety.	*2016*	*2017*	*2018*	*2019*
8.1. Identify technology that supports pedestrian safety.			☑	
8.2. Facilitate emerging vehicle technology.			☑	

9. Exhibit B – Council Sponsors and Members

PSC Chair
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Executive Sponsors
Captain Monica Alexander, Government and Media Relations, Washington State Patrol
Shelly Baldwin, Legislative and Media Relations Manager, WTSC
Dolly Fernandes, Section Manager, Washington State Department of Health
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Lieutenant Kurt Schwan, Federal Way PD Traffic Division
Janet Shull, City of Seattle
Officer Paul Taylor, Spokane PD, Traffic Unit
Ida Van Schalkwyk, PhD, WSDOT, Traffic Office
Karen Wigen, Target Zero Manager, Region 16 Spokane

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