

Briefing Paper PIES

Division & Department:	City Council
Subject:	Improving Pedestrian Safety at Signalized Intersections
Date:	April 22, 2019
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City Council Sponsor:	Ben Stuckart
Executive Sponsor:	None
Committee(s) Impacted:	PIES; Urban Experience; Public Safety
Type of Agenda item:	<input checked="" type="checkbox"/> Consent <input type="checkbox"/> Discussion Strategic Initiative
Alignment: (link agenda item to guiding document – i.e., Master Plan, Budget , Comp Plan, Policy, Charter, Strategic Plan)	City of Spokane Pedestrian Master Plan Spokane Comprehensive Plan Transportation Benefit District NACTO Urban Street Design Guide City of Spokane Sustainability Action Plan City of Spokane Strategic Plan Linking Transportation Planning & Health Outcomes – SRHD RCW 9A.84.030 – Disorderly Conduct RCW 46.61.235 – Crosswalks RCW 46.61.050 – Obedience to and required traffic control devices RCW 46.61.060 – Pedestrian control signals RCW 46.61.240 – Crossing at other than crosswalks RCW 46.61.230 – Pedestrians subject to traffic regulations
Strategic Initiative:	Transportation Choices; Sustainability; Improving Streets; Planning for Growth
Deadline:	Will file after committee
Outcome: (deliverables, delivery duties, milestones to meet)	N/A
Executive Summary:	
<p style="text-align: center;"><i>City of Spokane Comprehensive Plan Transportation Policy 1.1: “Design transportation systems that protect and serve the pedestrian first”</i></p> <p style="text-align: center;"><i>City of Spokane Pedestrian Master Plan Goal 4: “Create a safe, walkable city that encourages pedestrian activity and economic vitality by providing safe, secure, and attractive pedestrian facilities and surroundings.”</i></p> <p style="text-align: center;"><i>City of Spokane Sustainability Action Plan Strategy 3A: “Review and revise standards and practices to remove barriers restricting expansion, safety, and use of pedestrian and bike ways.”</i></p> <p style="text-align: center;"><i>Spokane Transit Authority Connect Spokane System Infrastructure 4.6: By allowing people to safely and efficiently reach their destination, pedestrian infrastructure plays a significant role in completing the transit network. STA supports efforts to improve and enhance pedestrian connections to its facilities.</i></p> <p>Spokane’s Walk Score is 48 which is considered <i>car-dependent</i>. Spokane’s Walk Score lags most major cities in the Pacific Northwest except Boise and Missoula.¹ The average Walk Score around Spokane’s signalized intersections is 72 which is considered <i>very walkable</i>. The signalized intersection areas with</p>	

¹ Missoula – 46; Boise – 41

Walk Scores below Spokane’s 48 overall Walk Score include areas around Cooper Elementary, Salk Middle School, Gonzaga Prep School, Rogers High School, WSU Spokane, and Woodridge Elementary. A study by CHASE and the Washington State University School of Medicine found that although elementary schools in Spokane with the lowest socioeconomic status were in neighborhoods with the highest walk scores, the ability to walk “may be discouraged by the high crime rates and arterial road density within those neighborhoods” (Amram, Crowley, & Monsivais, 2018).

Although Spokane’s number of commuters grew by 10% from 2013 to 2017 (Spokane Community Indicators, 2019), pedestrian activity continues to grow. New downtown housing and the interest and success of the shared mobility program has led to a greater increase in pedestrian activity throughout Spokane.

All Trips

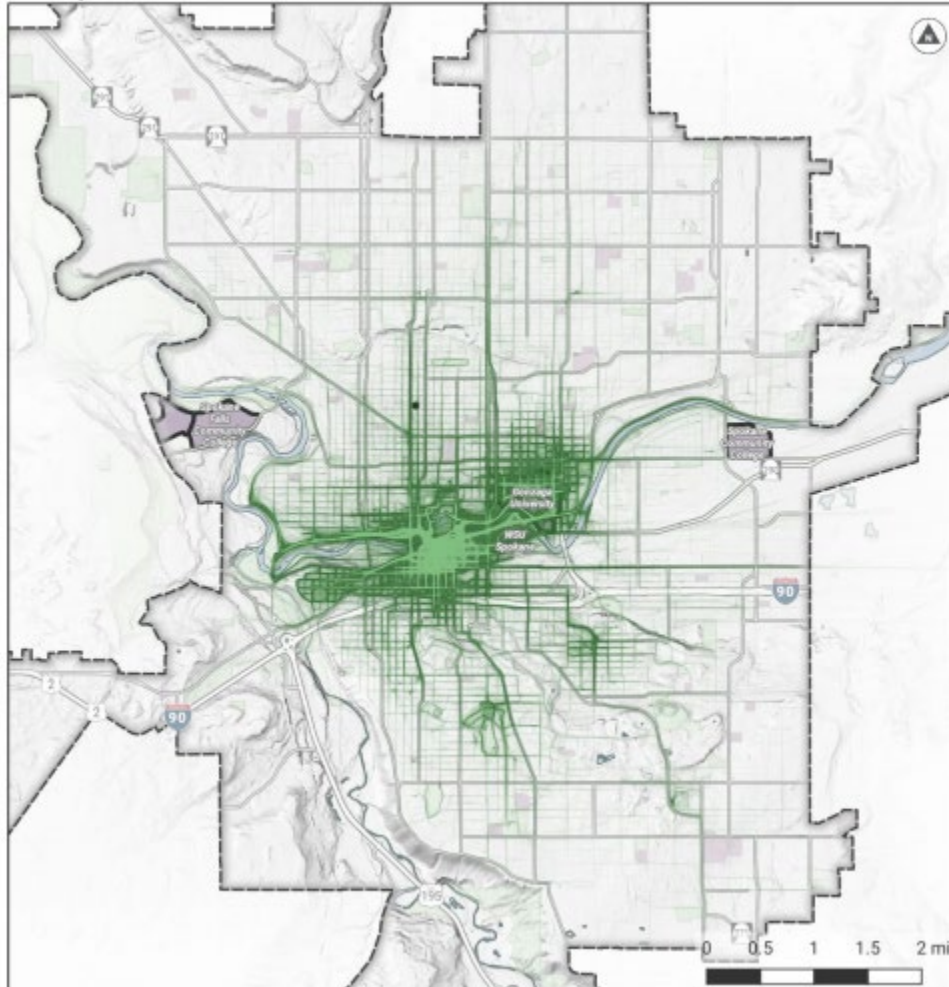


Figure 1 Shared Mobility Pilot Report - All Trips Report

Spokane neighborhoods have made walker safety and connectivity a top priority. Transportation is the second most expensive expenditure in a household² and several neighborhoods closer to the downtown core have identified reducing dependence on the automobile as a neighborhood goal. Studies show that increasing walkability increases property values (Bokhari, 2016) and increases a neighborhood’s desirability. **This ordinance officially adopts the City of Spokane Pedestrian Master Plan as the guiding document that supports a more walkable, equitable, and complete city transportation network. The ordinance requires a Pedestrian Master Plan update at least every five years starting in 2020.**

<u>Neighborhood</u>	<u>Objective</u>
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² BLS Consumer Expenditures - 2017

Greater Hillyard Northeast Planning Alliance (Bemiss, Hillyard, & Whitman Neighborhoods)	“pursue policy changes to permit pedestrian-resident –friendly access to local destinations” (Greater Hillyard Northeast Planning Alliance, 2010)
Nevada Lidgerwood Neighborhood (Nevada Heights)	“Coordinate with the City and neighborhood to evaluate solutions for non-motorized travel improvements” (Urban & Regional Planning Program at Eastern Washington University, 2011)
West Central Neighborhood	“Provide improved bike/pedestrian connections across major arterials to connect neighborhood destinations and create pleasant and safe travel environments” (West Central Neighborhood, 2012)
Peaceful Valley Neighborhood	“Work with the City to explore ways to improve access and multimodal connectivity to desirable destinations in and near Peaceful Valley, including Downtown, residential areas, offices, commercial areas, parks, and schools” (Peaceful Valley Neighborhood Council, 2015)
Chief Garry Neighborhood	“Improvement to pedestrian circulation and amenities in the Chief Garry Park neighborhood are top priorities. Improving the walking environment throughout the neighborhood will enhance safety and accessibility to the STA Central City Line improvements along Mission Avenue” (Chief Garry Neighborhood Council; ProjectTributa, 2017)
South Hill Coalition (Cliff Cannon, Comstock, Lincoln Heights, Manito/Cannon Hill, & Rockwood Neighborhoods)	“Improve safety for pedestrians at crossings of high-volume and/or high speed streets” (South Hill Coalition; MIG, 2014)
North Hill Neighborhood	“Improve pedestrian and bicycle safety along the auto-oriented major arterials in the neighborhood” (North Hill Neighborhood Council; MIG; BergerABAM, 2015)
Emerson-Garfield Neighborhood	“Pedestrian safety was identified as the neighborhood’s top priority. Improving the convenience and safety of walking and biking will not only help in the pursuit of sustainable alternatives to driving, it will greatly increase economic viability for businesses on these streets. In addition, it will unite the neighborhood through more equitable access, opening up use of its shared parks and community resources. In short, increased pedestrian safety will make the Emerson-Garfield Neighborhood an even better place to live and work” (Emerson-Garfield Neighborhood Council; AHBL, 2014)

A pedestrian died in a traffic-related crash every three days in Washington State in 2017 (Pedestrian Safety Advisory Council, 2018). The Pedestrian fatality rate in the United States is the highest it has been since 1990 (LeBeau, 2019).

Pedestrian safety is a citywide issue and not just isolated to the downtown core. According to Washington State Department of Transportation data, there was 162 pedestrian vs motorist collisions in

Spokane in 2018. 24 resulted in serious injuries while four collisions were fatalities. The majority of the pedestrian versus motorist collisions in 2018 occurred in the downtown core. Spokane averages nearly three pedestrian versus motorist collisions per week³resulting in 3 pedestrian fatalities per year.

<u>Year</u>	<u>Council District 1</u>	<u>Council District 2</u>	<u>Council District 3</u>
2013	0 Fatalities 2 Serious Injuries	0 Fatalities 6 Serious Injuries	1 Fatality 1 Serious Injury
2014	1 Fatality 1 Serious Injury	0 Fatalities 1 Serious Injury	1 Fatality 6 Serious Injuries
2015	1 Fatality 3 Serious Injuries	1 Fatality 6 Serious Injuries	1 Fatality 1 Serious Injury
2016	4 Serious Injuries	3 Serious Injuries	4 Serious Injuries
2017	2 Fatalities 6 Serious Injuries	1 Fatality 2 Serious Injuries	1 Fatality 5 Serious Injuries
2018	6 Serious Injuries	3 Fatalities 5 Serious Injuries	11 Serious Injuries 1 Fatality
TOTALS	4 Fatalities 23 Serious Injuries	5 Fatalities 22 Serious Injuries	4 Fatalities 21 Serious Injuries

* Data from the Washington State Department of Transportation Crash Portal

From 2013 and 2017, nearly 60% of all pedestrian fatalities and serious injuries in Washington state occurred in areas with a poverty rate higher than the state average (Washington State Department of Transportation, 2018). In Spokane, the results are strikingly similar. During the same time period, all but one pedestrian fatalities occurred in neighborhoods with a median household income lower than the city average. Furthermore, all but one fatality occurred in neighborhoods with a higher percentage of people of color than the overall city average.

<u>Neighborhood</u>	<u>Pedestrian Fatalities</u>	<u>MHI - \$46,543 (2017)⁴</u>	<u>% Non-White (2017)⁵ - 14.28%</u>
Shiloh Hills	4	\$36,692	16.8%
Riverside	4	\$13,433	17.7%
East Central	1	\$38,326	23.3%
Lincoln Heights	1	\$53,572	13.7%
Nevada Heights	3	\$34,401	20.3%
Hillyard	1	\$35,256	17.1%
West Central	2	\$28,249	21.2%
West Hills	1	\$46,458	15.9%
Logan	1	\$26,560	18.0%
Chief Garry Park	1	\$35,264	25.2%
Cliff/Cannon	1	\$33,045	14.9%
Emerson/Garfield	1	\$38,108	16.7%

Spokane’s pedestrian vs motorist collisions per capita have outpaced every large city in Washington except Seattle over the last five years. Spokane’s motorist vs pedestrian collisions per capita is double the city of Spokane Valley. **This ordinance supports Washington State’s Target Zero goal of reducing all traffic-related fatalities and serious injuries by 2030.**

In 2017, most walkers killed or suffered serious injuries were struck by motorists crossing the street (Pedestrian Safety Advisory Council, 2018). Improvements to pedestrian signalization have the highest

³ 134 pedestrian versus motorist collisions a year

⁴ Spokane Community Indicators

⁵ Buxton Survey Data

return on investment for transportation improvements because of the efficiencies gained by all users (Heerwagen, 2017). A significant number of walker vs motorist collisions occur on Highway 2 (Ruby/Division) where there are 30 different signalized intersections.

Pedestrian recall

City of Spokane Pedestrian Master Plan: "Pedestrian recall describes the situation where a pedestrian is given the 'walk' signal at every signal phase, without having to push a button".

More than half of all signalized intersections in Spokane require a pedestrian to press a button (actuated signal) to get the 'WALK' signal. Locating and pushing the actuated signal is difficult and inconvenient for elderly walkers and pedestrians in wheelchairs, pushing strollers, or holding items in their hands such as groceries. Snow and construction can make accessing the button even more difficult. Pedestrians who miss hitting an actuated signalized intersection must stand in the elements for another signal cycle exposing them to car exhaust⁶. NACTO recommends against the installation of actuated signals due to maintenance requirements and costs.



Figure 2 Francis & Monroe

To truly prioritize pedestrians, pushing a button should not be required to cross the street. Actuated signals do not lead improve pedestrian traffic conditions. Actuated signal are shown to be more effective in reducing motorist versus pedestrian crashes in the evening than during the day (Federal Highway Administration, 2004). In Spokane, the "WALK" sign does not come faster when a pedestrian presses the actuated signal. Pressing the button simply adds the "WALK" signal to the signal phase. Studies have shown that many pedestrians do not even push the button at all (Sulmicki, 2016) which leads to walkers violating the City's Model Traffic Ordinance and state law by walking against the 'WALK' sign. **This ordinance does not remove actuated signals. This ordinance simply requires the "WALK" indicator be shown automatically regardless of whether the walker presses the actuated signal.** (This

⁶ Spokane County residents with asthma outpace the U.S. and Washington averages.

provision aligns with Safety Principle 4 – *Predictability and simplicity: Make it easier for all roadway users to use all roadways safely*, from the Washington State Pedestrian Safety Advisory Council)

Leading Pedestrian Interval

City of Spokane Pedestrian Master Plan: “Leading pedestrian interval gives pedestrians a few seconds head start to claim the right-of-way ahead of turning traffic, this may reduce conflicts with turning vehicles.”

Leading pedestrian interval, also known as ‘pedestrian head start’ is a cost-effective method of increasing pedestrian safety at signalized intersections. Leading pedestrian interval make intersections where right and left-hand turns create safety conflicts with crossing pedestrians safer. Leading pedestrian interval gives walkers a 3 to 7-second head start before giving the motorists in the parallel lane the green signal. This establishes the pedestrian firmly in the crosswalk to increase visibility and reinforce right-of-way prioritization. Leading pedestrian interval increases efficiency by removing the guessing of whether a pedestrian is stepping out into the crosswalk. Leading pedestrian interval increases pedestrian visibility for drivers. Leading Pedestrian Interval is more effective when paired with no right turns on red. Studies have shown that Leading Pedestrian Interval to significantly reduce pedestrian vs. motorist crashes (Fayish & Gross, 2010).

LPIs have been shown to reduce pedestrian-vehicle collisions as much as 60% at treated intersections.

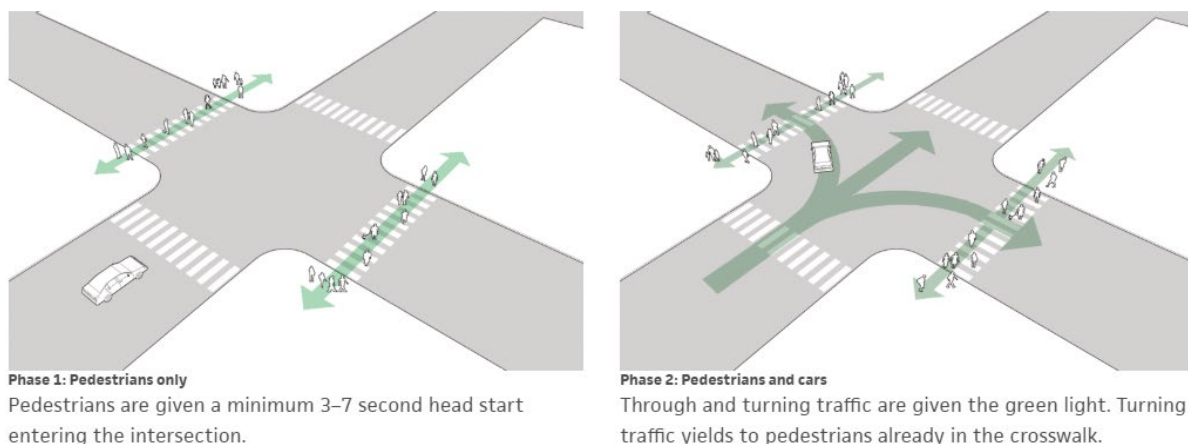


Figure 3 NACTO Urban Street Guidelines

Cities of all sizes such as State College Pennsylvania (Fayish & Gross, 2010) Gainesville Florida (City of Gainesville Florida, 2017), Charlotte North Carolina (City of Charlotte North Carolina, 2018), San Francisco (Jose, 2016), Los Angeles (Linton, 2016), Washington D.C. (Augenstein, 2017), Stamford Connecticut (Stamford Street Smart, 2016), and New York City (New York City Department of Transportation, 2017) have implemented leading pedestrian intervals. **The ordinance encourages the use of Lead Pedestrian Interval in downtown and near schools, childcare centers, hospitals, senior living facilities, or an area with a higher than average permanent or temporary pedestrian traffic.** (This provision aligns with Safety Recommendation 4.2 – *Support pedestrian safety technology*, from the Washington State Pedestrian Safety Advisory Council)

Accessible Pedestrian Signal (APS)

City of Spokane Pedestrian Master Plan: “ADA accessibility requires a navigable, safe pedestrian environment for all people, including those with physical disabilities. This includes curb ramps with

shallow approach angles and smooth transitions, detectable warning strips with truncated domes, and ideally includes audible crossing signals at priority locations.”

Accessible Pedestrian Signals (APS) are pedestrian safety devices that use verbal commands (or Braille) to assist blind and low-vision pedestrians in determining the ‘WALK’ and ‘DON’T WALK’ intervals at signalized intersections. Accessible Pedestrian Signals are only installed on 32 of Spokane’s 263 intersections. Pedestrian recall does not limit implementation of Accessible Pedestrian Signal (APS) throughout the remaining signalized intersections in the city. Accessible Pedestrian Signal (APS) improves walker safety for children, elderly, and people with mental and physical disabilities. People with disabilities in addition to children and older adults are more likely to be killed or seriously injured when drivers hit them (Pedestrian Safety Advisory Council, 2018). Research by the Federal Highway Administration’s Pedestrian Safety Countermeasure Deployment Project found that Accessible Pedestrian Signals also benefit sighted pedestrians by reducing the percentage of walkers who begin crossing with the ‘DON’T WALK’ signal. The project also found a higher proportion of pedestrians starting immediately on the ‘WALK’ phase (San Francisco Municipal Transportation Agency; University of California Traffic Safety Center, 2008).

This ordinance sets a goal of deploying Accessible Pedestrian Signals (APS) to all signalized intersections in Spokane by 2025 by integrating installation of APS through projects in the 6-year Comprehensive Street Plan. (This provision aligns with Safety Recommendation 4.2 – *Support pedestrian safety technology*, from the Washington State Pedestrian Safety Advisory Council)



Figure 4 APS

Accessible Pedestrian Signals and Leading Pedestrian Interval are among the most effective tools at impacting pedestrian safety and improving the walker’s perception of safety according to the Pedestrian Safety Countermeasure Deployment Project (San Francisco Municipal Transportation Agency; University of California Traffic Safety Center, 2008).

Budget Impact:

Approved in current year budget? Yes No

Annual/Reoccurring expenditure? Yes No

If new, specify funding source: Multiple funding sources including but not limited to: Transportation

District, Traffic Calming, Street Levy and other state/federal funding sources.			
Other budget impacts: (revenue generating, match requirements, etc.)			
<u>Operations Impact:</u>			
Consistent with current operations/policy?	<input type="checkbox"/>	Yes	<input checked="" type="checkbox"/> No
Requires change in current operations/policy?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/> No
Specify changes required: Known challenges/barriers:			

Resources

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